

# AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type



Dimensions in mm

- (1) Hole  $\varnothing$  1.3 for  $d_t = 0.8$  mm
- (2)  $0 \leq \alpha < 50^\circ$
- (3)  $|F - F'| < 0.3$  mm  
 $F = 7.5 + 0.6/-0.1$  mm
- (4)  $A = 2.0 + 1.0/-0.5$  mm for 10 mm pitch  
 $A = 2.5 + 1.5/-0.5$  mm for 15 mm pitch  
 $A = 2.5 + 1.4/-0.5$  mm for pitch  $> 22.5$  mm



Dimensions in mm

## APPLICATIONS

Where high currents and steep pulses occur. For deflection circuits in television sets.

## REFERENCE SPECIFICATIONS

IEC 60384-17

## MARKING

C-value; tolerance; rated voltage; manufacturer's type; manufacturer's location

## DIELECTRIC

Polypropylene film

## ELECTRODES

Metallized and aluminum

## CONSTRUCTION

Internal serial construction

## RATED (DC) VOLTAGE

630 V, 1000 V, 1600 V, 2000 V

## RATED (AC) VOLTAGE

300 V, 400 V, 500 V, 600 V

## RATED PEAK-TO-PEAK VOLTAGE

850 V, 1100 V, 1400 V, 1700 V

## FEATURES

- 10 mm to 27.5 mm pitch
- Supplied loose in box (including lock lead versions) and taped
- Bent back version for automatic insertion available
- Compliant to RoHS directive 2002/95/EC



**RoHS**  
COMPLIANT

## ENCAPSULATION

Flame retardant epoxy material  
(Class UL 94 V-0)

## CLIMATIC TESTING CLASS ACC. TO IEC 60068-1

55/105/56

## CAPACITANCE RANGE (E24 SERIES)

0.1 nF to 270 nF

## CAPACITANCE TOLERANCE

$\pm 5\%$ ;  $\pm 3.5\%$

## LEADS

Tinned wire

## RATED TEMPERATURE

85 °C

## MAXIMUM APPLICATION TEMPERATURE

105 °C

## PERFORMANCE GRADE

for  $C > 5.6$  nF: grade 1 (long life)  
for  $C \leq 5.6$  nF: grade 2

## STABILITY GRADE

Grade 2

## DETAIL SPECIFICATION

For more detailed data and test requirements contact:

[dc-film@vishay.com](mailto:dc-film@vishay.com)

### COMPOSITION OF CATALOG NUMBER

| TYPE AND PITCHES |                | CAPACITANCE<br>(numerically; but not<br>for lock lead) | MULTIPLIER<br>(nF) |   |
|------------------|----------------|--------------------------------------------------------|--------------------|---|
| 375              | 10.0 mm/7.5 mm |                                                        | 0.01               | 1 |
|                  | 15.0 mm/7.5 mm |                                                        | 0.1                | 2 |
|                  | 10.0 mm        |                                                        | 1                  | 3 |
|                  | 15.0 mm        |                                                        | 10                 | 4 |
|                  | 22.5 mm        |                                                        |                    |   |
|                  | 27.5 mm        |                                                        |                    |   |

|                     |     |    |    |   |
|---------------------|-----|----|----|---|
| BFC2                | 375 | XX | YY | Y |
| 2222 <sup>(1)</sup> | 375 | XX | YY | Y |

<sup>(1)</sup> old ordering number

Example:  
104 = 10 x 10 = 100 nF

| TYPE | PACKAGING                                                        | LEAD CONFIGURATION                                               | PREFERRED TYPES                                                  |            |        |        |        |
|------|------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|------------|--------|--------|--------|
|      |                                                                  |                                                                  | C-TOL.                                                           | 630 V      | 1000 V | 1600 V | 2000 V |
| 375  | Loose in box                                                     | Lead length 5.0 mm ± 1.0 mm                                      | ± 5 %                                                            | 14         | 24     | 34     | 44     |
|      |                                                                  | Lock lead 4.0 mm + 1.0/- 0.5 mm                                  | ± 5 %                                                            | 90         | 90     | 90     | 90     |
|      | Taped on reel <sup>(2)</sup><br>(bent back)                      | H = 16.0 mm; P <sub>0</sub> = 15.0 mm;<br>Reel diameter 500 mm   | ± 5 %                                                            | 16         | 26     | 36     | 46     |
|      |                                                                  | Dimensions of this code numbers stays between brackets           |                                                                  |            |        |        |        |
|      |                                                                  |                                                                  |                                                                  | ON REQUEST |        |        |        |
| 375  | Loose in box                                                     | Lead length 5.0 ± 1.0 mm                                         | ± 3.5 %                                                          | 15         | 25     | 35     | 45     |
|      |                                                                  | Lead length 3.5 ± 0.5 mm                                         | ± 5 %                                                            | 10         | 20     | 30     | 40     |
|      |                                                                  |                                                                  | ± 3.5 %                                                          | 11         | 21     | 31     | 41     |
|      | Taped on reel <sup>(2)</sup>                                     | H = 16.0 mm; P <sub>0</sub> = 12.7 mm;<br>Reel diameter = 500 mm | ± 5 %                                                            | 12         | 22     | 32     | 42     |
|      |                                                                  |                                                                  | ± 3.5 %                                                          | 13         | 23     | 33     | 43     |
|      |                                                                  | Taped on reel <sup>(2)</sup><br>(bent back)                      | H = 16.0 mm; P <sub>0</sub> = 15.0 mm;<br>Reel diameter = 500 mm | ± 3.5 %    | 17     | 27     | 37     |
|      | Dimensions of this code numbers stays between brackets           |                                                                  |                                                                  |            |        |        |        |
|      | H = 16.0 mm; P <sub>0</sub> = 15.0 mm;<br>Reel diameter = 356 mm |                                                                  | ± 5 %                                                            | 18         | 28     | 38     | 48     |

#### Note

<sup>(1)</sup> For detailed tape specifications refer to "Packaging Information" [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139) or end of catalog

### SPECIFIC REFERENCE DATA (630 V<sub>DC</sub>)

| DESCRIPTION                                                           | VALUE         |         |
|-----------------------------------------------------------------------|---------------|---------|
| Tangent of loss angle at (x 10 <sup>-4</sup> )                        | 10 kHz        | 100 kHz |
| Pitch = 10 mm, 15 mm and 7.5 mm (bent back)                           | ≤ 6           | ≤ 10    |
| Pitch = 22.5 mm                                                       | ≤ 8           | ≤ 15    |
| Pitch = 27.5 mm                                                       | ≤ 8           | ≤ 20    |
| Rated voltage pulse slope (dU/dt) <sub>R</sub> :                      | 15 000 V/μs   |         |
| Pitch = 10 mm                                                         | 8000 V/μs     |         |
| Pitch = 15 mm and 7.5 mm (bent back)                                  | 2800 V/μs     |         |
| Pitch = 22.5 mm                                                       | 1900 V/μs     |         |
| Pitch = 27.5 mm                                                       |               |         |
| R between leads at 500 V, 1 min                                       | > 100 000 MΩ  |         |
| R between interconnected leads and case, 500 V, 1 min                 | > 100 000 MΩ  |         |
| Ionisation (AC) voltage (typical value) at 50 pC peak discharge       | > 400 V       |         |
| at 50 pC peak discharge                                               |               |         |
| at 20 pC peak discharge                                               |               |         |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 1000 V/s | 1008 V, 1 min |         |
| For C ≤ 47 nF                                                         |               |         |
| For C > 47 nF                                                         |               |         |
| Withstanding (DC) voltage between leads and case                      | 2840 V, 1 min |         |
| Maximum application temperature                                       | 105 °C        |         |



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$U_{RDC} = 630 \text{ V}$ ;  $U_{RAC} = 300 \text{ V}$ ;  $U_{pp} = 850 \text{ V}$  (kinked);  $C\text{-tol.} = \pm 5 \%$

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                            |                |                            |            |                 |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|----------------------------|----------------|----------------------------|------------|-----------------|
|        |                                                              |                            | LOOSE IN BOX                                | REEL                       |                |                            | C<br>VALUE |                 |
|        |                                                              |                            |                                             | Leads<br>5 mm ± 1.0 mm     | Original pitch | Pitch = 7.5 mm (bent back) |            | ..YYY           |
|        |                                                              |                            |                                             |                            | Ø 500 mm       | Ø 500 mm                   | Ø 356 mm   |                 |
|        |                                                              |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                | XX<br>(SPQ)    | XX<br>(SPQ)                |            |                 |
| C (pF) | Pitch = 10.0 mm ± 0.4 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm |                            | Pitch = 10.0 mm                             | Pitch = 7.5 mm (bent back) |                |                            |            |                 |
| 680    | 5.0 x 13.0 x 14.5                                            | 0.65                       | 14...<br>(2000)                             | 12...<br>(1200)            |                |                            |            |                 |
| 750    |                                                              |                            |                                             |                            |                |                            |            | 681<br>751      |
| 820    | 5.5 x 13.5 x 14.5                                            | 0.70                       | 14...<br>(2000)                             | 12...<br>(1100)            |                |                            |            |                 |
| 910    |                                                              |                            |                                             |                            |                |                            |            | 821<br>911      |
| 1000   |                                                              |                            |                                             |                            |                |                            |            | 102             |
| 1100   |                                                              | 0.75                       |                                             |                            |                |                            |            | 112             |
| 1200   |                                                              |                            |                                             |                            |                |                            |            | 122             |
| 1300   |                                                              |                            |                                             |                            |                |                            |            | 132             |
| 1500   |                                                              |                            |                                             |                            |                |                            |            | 152             |
| 1600   |                                                              | 0.80<br>0.85               |                                             |                            |                |                            |            | 162             |
| 1800   | 6.0 x 14.0 x 14.5                                            | 0.80                       |                                             |                            |                |                            |            | 14...<br>(1750) |
| 2000   |                                                              | 0.85                       | 182<br>202                                  |                            |                |                            |            |                 |
| 2200   |                                                              | 0.90                       | 222                                         |                            |                |                            |            |                 |
| 2400   |                                                              | 1.0                        | 242                                         |                            |                |                            |            |                 |
| 2700   | 6.5 x 14.5 x 14.5                                            | 1.1                        | 14...<br>(1500)                             | 12...<br>(900)             | 272            |                            |            |                 |

**Note**

<sup>(1)</sup> Net weight for short lead product only

- SPQ = Standard Packing Quantity

## Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type

$U_{RDC} = 630 \text{ V}$ ;  $U_{RAC} = 300 \text{ V}$ ;  $U_{pp} = 850 \text{ (kinked)}$ ; C-tol. =  $\pm 5 \%$

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                                 | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |                 |                            |             |            |
|--------|----------------------------------------------------------------------|----------------------------|---------------------------------------------|-----------------|----------------------------|-------------|------------|
|        |                                                                      |                            | LOOSE IN BOX                                | REEL            |                            |             | C<br>VALUE |
|        |                                                                      |                            | Leads<br>5 mm $\pm$ 1.0 mm                  | Original pitch  | Pitch = 7.5 mm (bent back) |             | ..YYY      |
|        |                                                                      |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)     | XX<br>(SPQ)                | XX<br>(SPQ) |            |
| C (pF) | Pitch = 15.0 mm $\pm$ 0.4 mm; d <sub>t</sub> = 0.80 mm $\pm$ 0.08 mm |                            |                                             |                 | Pitch = 7.5 mm (bent back) |             |            |
| 3000   | 5.0 x 14.0 (16.0) x 18.5                                             | 1.0                        | 14...                                       | 12...           | 16 ...                     | 18 ...      | 302        |
| 3300   |                                                                      |                            | (2000)                                      | (1200)          | (1000)                     | (550)       | 332        |
| 3600   |                                                                      |                            |                                             |                 |                            |             | 362        |
| 3900   |                                                                      |                            |                                             |                 |                            |             | 392        |
| 4300   |                                                                      |                            | 14...                                       | 12...           | 16 ...                     | 18 ...      | 432        |
| 4700   | 5.5 x 14.5 (16.0) x 18.5                                             | 1.1                        | (2000)                                      | (1100)          | (900)                      | (500)       | 472        |
| 5100   |                                                                      |                            |                                             |                 |                            |             | 512        |
| 5600   |                                                                      |                            |                                             |                 |                            |             | 562        |
| 6200   |                                                                      |                            |                                             |                 |                            |             | 622        |
| 6800   |                                                                      |                            |                                             |                 |                            |             | 682        |
| 7500   | 6.0 x 15.0 (16.0) x 18.5                                             | 1.2                        |                                             |                 |                            |             | 752        |
| 8200   |                                                                      |                            |                                             |                 |                            |             | 822        |
| 9100   |                                                                      |                            | 14...                                       | 12...           | 16 ...                     | 18 ...      | 912        |
| 10 000 |                                                                      |                            | (2000)                                      | (1000)          | (800)                      | (450)       | 103        |
| 11 000 |                                                                      |                            |                                             |                 |                            |             | 113        |
| 12 000 |                                                                      |                            |                                             |                 |                            |             | 123        |
| 13 000 |                                                                      |                            |                                             |                 |                            |             | 133        |
| 15 000 |                                                                      |                            |                                             |                 |                            |             | 153        |
| 16 000 |                                                                      |                            |                                             |                 |                            |             | 163        |
| 18 000 | 6.5 x 15.5 (17.0) x 18.5                                             | 1.3                        | 14...                                       | 12...           | 16...                      | 18...       | 183        |
| 20 000 |                                                                      |                            | (1500)                                      | (900)           | (750)                      | (400)       | 203        |
| 22 000 | 7.0 x 16.0 (17.5) x 18.5                                             | 1.5                        | 14...                                       | 12...           | 16...                      | 18...       | 223        |
|        |                                                                      |                            | (1500)                                      | (800)           | (700)                      | (400)       |            |
| 24 000 | 7.5 x 16.5 (18.0) x 18.5                                             | 1.6                        | 14...                                       | 12...           | 16...                      | 18...       | 243        |
|        |                                                                      |                            | (1250)                                      | (800)           | (650)                      | (350)       |            |
| 27 000 | 8.0 x 17.0 (18.5) x 18.5                                             | 1.9                        | 14...                                       | 12...           | 16...                      | 18...       | 273        |
| 30 000 |                                                                      |                            | (1250)                                      | (750)           | (600)                      | (350)       | 303        |
| 33 000 | 8.5 x 17.5 (19.0) x 18.5                                             | 2                          | 14...                                       | 12...           | 16...                      | 18...       | 333        |
|        |                                                                      |                            | (1000)                                      | (700)           | (550)                      | (300)       |            |
| 36 000 | 9.0 x 18.5 (20.0) x 18.5                                             | 2.3                        | 14...                                       | 12...           | 16...                      | 18...       | ON         |
| 39 000 |                                                                      |                            | (900)                                       | (600)           | (500)                      | (300)       | REQUEST    |
| C (μF) | Pitch = 22.5 mm $\pm$ 0.4 mm; d <sub>t</sub> = 0.80 mm $\pm$ 0.08 mm |                            |                                             | Pitch = 22.5 mm | Pitch = 7.5 mm (bent back) |             |            |
| 0.036  | 7.0 x 20.0 x 26.0                                                    | 2.7                        | 14...                                       | -               | -                          |             | 363        |
| 0.039  |                                                                      |                            |                                             |                 |                            |             | 393        |
| 0.043  |                                                                      |                            |                                             |                 |                            |             | 433        |
| 0.047  |                                                                      |                            |                                             |                 |                            |             | 473        |
| 0.051  |                                                                      |                            |                                             |                 |                            |             | 513        |
| 0.056  |                                                                      |                            |                                             |                 |                            |             | 563        |
| 0.062  |                                                                      |                            |                                             |                 |                            |             | 623        |
| 0.068  | 7.5 x 20.5 x 26.0                                                    | 3                          | 14...                                       | -               | -                          |             | 683        |
|        |                                                                      |                            | (600)                                       |                 |                            |             |            |
| 0.075  | 8.0 x 21.0 x 26.0                                                    | 3.3                        | 14...                                       | -               | -                          |             | 753        |
| 0.082  |                                                                      |                            | (550)                                       |                 |                            |             | 823        |
| 0.091  | 8.5 x 21.5 x 26.0                                                    | 3.8                        | 14...                                       | -               | -                          |             | 913        |
|        |                                                                      |                            | (500)                                       |                 |                            |             |            |
| 0.1    | 9.0 x 22.0 x 26.0                                                    | 4                          | 14...                                       | -               | -                          |             | 104        |
|        |                                                                      |                            | (450)                                       |                 |                            |             |            |

### Note

<sup>(1)</sup> Net weight for short lead product only

• SPQ = Standard Packing Quantity



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$U_{RDC} = 630 \text{ V}$ ;  $U_{RAC} = 300 \text{ V}$ ;  $U_{pp} = 850 \text{ (kinked)}$ ;  $C\text{-tol.} = \pm 5 \%$

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |                            |                            |             |         |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|----------------------------|----------------------------|-------------|---------|
|        |                                                              |                            | LOOSE IN BOX                                | REEL                       |                            |             | C VALUE |
|        |                                                              |                            | Leads<br>5 mm ± 1.0 mm                      | Original pitch             | Pitch = 7.5 mm (bent back) |             | ..YYY   |
|        |                                                              |                            |                                             | Ø 500 mm                   | Ø 500 mm                   | Ø 356 mm    |         |
|        |                                                              |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                | XX<br>(SPQ)                | XX<br>(SPQ) |         |
| C (µF) | Pitch = 22.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 22.5 mm                             | Pitch = 7.5 mm (bent back) |                            |             |         |
| 0.11   | 9.5 x 22.5 x 26.0                                            | 4.3                        | 14...<br>(400)                              | -                          | -                          | 114         |         |
| 0.12   | 10.0 x 23.0 x 26.0                                           | 4.7                        | 14...<br>(400)                              |                            |                            | 124         |         |
| C (µF) | Pitch = 27.5 mm ± 0.5 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 27.5mm                              | Pitch = 7.5 mm (bent back) |                            |             |         |
| 0.13   | 9.5 x 22.5 x 30.0                                            | 4.7                        | 14...<br>(500)                              | -                          | -                          | 134         |         |
| 0.15   | 10.0 x 23.0 x 30.0                                           | 5.2                        | 14...<br>(500)                              |                            |                            | 154         |         |
| 0.16   | 10.5 x 23.5 x 30.0                                           | 5.5                        | 14...<br>(450)                              |                            |                            | 164         |         |
| 0.18   | 11.0 x 24.0 x 30.0                                           | 6                          | 14...<br>(400)                              |                            |                            | 184         |         |
| 0.2    | 11.5 x 24.5 x 30.0                                           | 6.6                        | 14...<br>(400)                              |                            |                            | 204         |         |
| 0.22   | 12.5 x 25.5 x 30.0                                           | 7.1                        | 14...<br>(350)                              |                            |                            | 224         |         |
| 0.24   | 13.0 x 26.0 x 30.0                                           | 7.7                        | 14...<br>(300)                              |                            |                            | 244         |         |
| 0.27   | 13.5 x 26.5 x 30.0                                           | 8.5                        | 14...<br>(300)                              |                            |                            | 274         |         |

### Notes

- <sup>(1)</sup> Net weight for short lead product only
- Loose in box, all lengths have same SPQ
  - SPQ = Standard Packing Quantity

$U_{RDC} = 630 \text{ V}$ ;  $U_{RAC} = 300 \text{ V}$ ;  $U_{pp} = 850 \text{ V (lock lead)}$ ;  $C\text{-tol.} = \pm 5 \%$

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                                      | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING               |        |
|--------|---------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------|--------|
|        |                                                                           |                            | LOOSE IN BOX                                              |        |
|        |                                                                           |                            | $l_t = 4.0 \text{ mm} + 1.0 \text{ mm/- } 0.5 \text{ mm}$ |        |
|        |                                                                           |                            |                                                           | (SPQ)  |
| C (pF) | Pitch = 10.0 mm $\pm$ 1.0 mm; $d_t = 0.60 \text{ mm} \pm 0.06 \text{ mm}$ |                            |                                                           |        |
| 680    | 5.0 x 16.0 x 14.5                                                         | 0.65                       | 90308                                                     | (2000) |
| 750    |                                                                           |                            | 90309                                                     |        |
| 820    |                                                                           | 0.7                        | 90311                                                     |        |
| 910    |                                                                           | 0.7                        | 90312                                                     |        |
| 1000   |                                                                           | 0.7                        | 90313                                                     |        |
| 1100   |                                                                           | 0.75                       | 90314                                                     |        |
| 1300   |                                                                           | 0.75                       | 90316                                                     |        |
| 1500   |                                                                           | 0.80                       | 90317                                                     |        |
| 1600   |                                                                           | 0.85                       | 90318                                                     |        |
| 1800   | 6.0 x 17.0 x 14.5                                                         | 0.80                       | 90319                                                     | (1750) |
| 2000   |                                                                           | 0.85                       | 90321                                                     |        |
| 2200   |                                                                           | 0.90                       | 90322                                                     |        |
| 2400   |                                                                           | 1.0                        | 90323                                                     |        |
| 2700   | 6.5 x 17.5 x 14.5                                                         | 1.1                        | 90324                                                     | (1500) |

### Notes

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- SPQ = Standard Packing Quantity

# KP/MKP 375



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$U_{RDC} = 630 \text{ V}$ ;  $U_{RAC} = 300 \text{ V}$ ;  $U_{pp} = 850 \text{ V}$  (lock lead); C-tol. =  $\pm 5 \%$

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |        |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|--------|
|        |                                                              |                            | LOOSE IN BOX                                |        |
|        |                                                              |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|        |                                                              |                            |                                             | (SPQ)  |
| C (pF) | Pitch = 15.0 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 3000   | 5.0 x 17.0 x 18.5                                            | 1                          | 90325                                       | (2000) |
| 3300   |                                                              |                            | 90326                                       |        |
| 3600   | 5.5 x 17.5 x 18.5                                            | 1.1                        | 90327                                       | (2000) |
| 3900   |                                                              |                            | 90328                                       |        |
| 4300   |                                                              |                            | 90329                                       |        |
| 4700   |                                                              |                            | 90331                                       |        |
| 5100   |                                                              |                            | 90332                                       |        |
| 5600   |                                                              |                            | 90333                                       |        |
| 6200   | 6.0 x 18.0 x 18.5                                            | 1.3                        | 90334                                       | (2000) |
| 6800   |                                                              |                            | 90335                                       |        |
| 7500   |                                                              |                            | 90336                                       |        |
| 8200   |                                                              |                            | 90337                                       |        |
| 9100   |                                                              |                            | 90338                                       |        |
| 10 000 |                                                              |                            | 90339                                       |        |
| 11 000 |                                                              |                            | 90236                                       |        |
| 12 000 |                                                              |                            | 90341                                       |        |
| 13 000 |                                                              |                            | 90342                                       |        |
| 15 000 |                                                              |                            | 90343                                       |        |
| 16 000 |                                                              |                            | 90344                                       |        |
| 18 000 | 6.5 x 18.5 x 18.5                                            | 1.4                        | 90218                                       | (1750) |
| 20 000 |                                                              |                            | 90345                                       |        |
| 22 000 | 7.0 x 19.0 x 18.5                                            | 1.5                        | 90219                                       | (1500) |
| 24 000 | 7.5 x 19.5 x 18.5                                            | 1.6                        | 90221                                       | (1400) |
| 27 000 | 8.0 x 20.0 x 18.5                                            | 1.9                        | 90223                                       | (1250) |
| 30 000 |                                                              |                            | 90346                                       |        |
| 33 000 | 8.5 x 20.5 x 18.5                                            | 2                          | 90347                                       | (1200) |
| 36 000 | 9.0 x 21.5 x 18.5                                            | 2.3                        | ON REQUEST                                  | (1000) |
| 39 000 |                                                              |                            |                                             |        |
| C (μF) | Pitch = 22.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 0.036  | 7.0 x 23.0 x 26.0                                            | 2.7                        | 90348                                       | (600)  |
| 0.039  |                                                              |                            | 90349                                       |        |
| 0.043  |                                                              |                            | 90351                                       |        |
| 0.047  |                                                              |                            | 90352                                       |        |
| 0.051  |                                                              |                            | 90353                                       |        |
| 0.056  |                                                              |                            | 90354                                       |        |
| 0.062  |                                                              |                            | 90355                                       |        |
| 0.068  | 7.5 x 23.5 x 26.0                                            | 3                          | 90356                                       | (550)  |
| 0.075  | 8.0 x 24.0 x 26.0                                            | 3.3                        | 90357                                       | (500)  |
| 0.082  |                                                              |                            | 90358                                       |        |
| 0.091  | 8.5 x 24.5 x 26.0                                            | 3.8                        | 90359                                       | (450)  |

### Notes

- <sup>(1)</sup> Net weight for short lead product only  
 • SPQ = Standard Packing Quantity



## AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents KP/MKP Radial Lacquered Type

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |       |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|-------|
|        |                                                              |                            | LOOSE IN BOX                                |       |
|        |                                                              |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |       |
|        |                                                              |                            |                                             | (SPQ) |
| C (μF) | Pitch = 22.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |       |
| 0.1    | 9.0 x 25.0 x 26.0                                            | 4.0                        | 90361                                       | (450) |
| 0.11   | 9.5 x 25.5 x 26.0                                            | 4.3                        | 90362                                       | (400) |
| 0.12   | 10.0 x 26.0 x 26.0                                           | 4.7                        | 90363                                       | (350) |
| C (μF) | Pitch = 27.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |       |
| 0.13   | 9.5 x 25.5 x 30.0                                            | 4.7                        | 90364                                       | (450) |
| 0.15   | 10.0 x 26.0 x 30.0                                           | 5.2                        | 90365                                       | (400) |
| 0.16   | 10.5 x 26.5 x 30.0                                           | 5.5                        | 90366                                       | (350) |
| 0.18   | 11.0 x 27.0 x 30.0                                           | 6.0                        | 90367                                       | (350) |
| 0.2    | 11.5 x 27.5 x 30.0                                           | 6.6                        | 90368                                       | (350) |
| 0.22   | 12.5 x 28.5 x 30.0                                           | 7.1                        | 90369                                       | (300) |
| 0.24   | 13.0 x 29.0 x 30.0                                           | 7.7                        | 90371                                       | (250) |
| 0.27   | 13.5 x 29.5 x 30.0                                           | 8.5                        | 90372                                       | (250) |

### Notes

<sup>(1)</sup> Net weight for short lead product only

• SPQ = Standard Packing Quantity

### SPECIFIC REFERENCE DATA (1000 V<sub>DC</sub>)

| DESCRIPTION                                                           | VALUE                                       |         |
|-----------------------------------------------------------------------|---------------------------------------------|---------|
|                                                                       | 10 kHz                                      | 100 kHz |
| Tangent of loss angle at (x 10 <sup>-4</sup> )                        |                                             |         |
| Pitch = 10 mm, 15 mm and 7.5 mm (bent back)                           | ≤ 6                                         | ≤ 10    |
| Pitch = 22.5 mm                                                       | ≤ 8                                         | ≤ 15    |
| Pitch = 27.5 mm                                                       | ≤ 8                                         | ≤ 20    |
| Rated voltage pulse slope (dU/d <sub>t</sub> ):                       |                                             |         |
| Pitch = 10 mm                                                         | 27 000 V/μs                                 |         |
| Pitch = 15 mm and 7.5 mm (bent back)                                  | 15 000 V/μs                                 |         |
| Pitch = 22.5 mm                                                       | 5000 V/μs                                   |         |
| Pitch = 27.5 mm                                                       | 3300 V/μs                                   |         |
| R between leads at 500 V, 1 min                                       | > 100 000 MΩ                                |         |
| R between interconnected leads and case, 500 V, 1 min                 | > 100 000 MΩ                                |         |
| Ionisation (AC) voltage (typical value)                               |                                             |         |
| at 50 pC peak discharge                                               | > 500 V                                     |         |
| at 20 pC peak discharge                                               |                                             |         |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 1000 V/s |                                             |         |
| For C ≤ 47 nF                                                         | 1600 V, 1 min                               |         |
| For C > 47 nF                                                         | [1.6 - (0.0364 x (C - 47))] x 1000 V, 1 min |         |
| Withstanding (DC) voltage between leads and case                      | 2840 V, 1 min                               |         |
| Maximum application temperature                                       | 105 °C                                      |         |

## Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type

$U_{RDC} = 1000 \text{ V}$ ;  $U_{RAC} = 400 \text{ V}$ ;  $U_{pp} = 1100 \text{ V}$  (kinked); C-tol. =  $\pm 5 \%$

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                            |                |                            | C<br>VALUE |       |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|----------------------------|----------------|----------------------------|------------|-------|
|        |                                                              |                            | LOOSE IN BOX                                | REEL                       |                |                            |            | ..YYY |
|        |                                                              |                            |                                             | Leads<br>5 mm ± 1.0 mm     | Original pitch | Pitch = 7.5 mm (bent back) |            |       |
|        |                                                              |                            |                                             |                            | XX<br>(SPQ)    | Ø 500 mm                   | Ø 500 mm   |       |
|        |                                                              |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                | XX<br>(SPQ)    | XX<br>(SPQ)                |            |       |
| C (pF) | Pitch = 10.0 mm ± 0.4 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm |                            | Pitch = 10.0 mm                             | Pitch = 7.5 mm (bent back) |                |                            |            |       |
| 100    | 5.0 x 13.0 x 14.5                                            | 0.5                        | 24...<br>(2000)                             | 22...<br>(1200)            | -              |                            | 101        |       |
| 110    |                                                              |                            |                                             |                            |                |                            | 111        |       |
| 120    |                                                              |                            |                                             |                            |                |                            | 121        |       |
| 130    |                                                              |                            |                                             |                            |                |                            | 131        |       |
| 150    | 5.5 x 13.5 x 14.5                                            | 0.55                       | 24...<br>(2000)                             | 22...<br>(1100)            | -              |                            | 151        |       |
| 160    |                                                              | 0.55                       |                                             |                            |                |                            | 161        |       |
| 180    |                                                              | 0.55                       |                                             |                            |                |                            | 181        |       |
| 200    |                                                              | 0.55                       |                                             |                            |                |                            | 201        |       |
| 220    |                                                              | 0.60                       |                                             |                            |                |                            | 221        |       |
| 240    |                                                              | 0.60                       |                                             |                            |                |                            | 241        |       |
| 270    |                                                              | 0.60                       |                                             |                            |                |                            | 271        |       |
| 300    |                                                              | 0.60                       |                                             |                            |                |                            | 301        |       |
| 330    |                                                              | 0.60                       |                                             |                            |                |                            | 331        |       |
| 360    |                                                              | 0.60                       |                                             |                            |                |                            | 361        |       |
| 390    |                                                              | 0.65                       |                                             |                            |                |                            | 391        |       |
| 430    |                                                              | 0.70                       |                                             |                            |                |                            | 431        |       |
| 470    |                                                              | 0.75                       |                                             |                            |                |                            | 471        |       |
| 510    |                                                              | 0.75                       |                                             |                            |                |                            | 511        |       |
| 560    |                                                              | 0.80                       |                                             |                            |                |                            | 561        |       |
| 620    |                                                              | 0.80                       |                                             |                            |                |                            | 621        |       |
| 680    |                                                              | 0.80                       |                                             |                            |                |                            | 681        |       |
| 750    |                                                              | 0.70                       |                                             |                            |                |                            | 751        |       |
| 820    |                                                              | 0.70                       |                                             |                            |                |                            | 821        |       |
| 910    | 0.70                                                         | 911                        |                                             |                            |                |                            |            |       |
| 1000   | 6.0 x 14.0 x 14.5                                            | 0.75                       | 24...<br>(1750)                             | 22...<br>(1000)            | -              |                            | 102        |       |
| 1100   |                                                              | 0.85                       |                                             |                            |                |                            | 112        |       |
| 1200   |                                                              | 0.90                       |                                             |                            |                |                            | 122        |       |
| 1300   |                                                              | 0.85                       |                                             |                            |                |                            | 132        |       |
| 1500   |                                                              | 0.90                       |                                             |                            |                |                            | 152        |       |
| C (pF) | Pitch = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 15.0 mm                             | Pitch = 7.5 mm (bent back) |                |                            |            |       |
| 1600   | 5.5 x 14.5 (16.0) x 18.5                                     | 1.1                        | 24...<br>2000)                              | 22...<br>(1100)            | 26...<br>(900) | 28...<br>(500)             | 162        |       |
| 1800   |                                                              |                            |                                             |                            |                |                            | 182        |       |
| 2000   |                                                              |                            |                                             |                            |                |                            | 202        |       |
| 2200   |                                                              |                            |                                             |                            |                |                            | 222        |       |
| 2400   |                                                              |                            |                                             |                            |                |                            | 242        |       |
| 2700   | 6.0 x 15.0 (16.5) x 18.5                                     | 1.2                        | 24...<br>(2000)                             | 22...<br>(1000)            | 26...<br>(800) | 28...<br>(450)             | 272        |       |
| 3000   |                                                              |                            |                                             |                            |                |                            | 302        |       |
| 3300   |                                                              |                            |                                             |                            |                |                            | 332        |       |
| 3600   |                                                              |                            |                                             |                            |                |                            | 362        |       |
| 3900   |                                                              |                            |                                             |                            |                |                            | 392        |       |
| 4300   |                                                              |                            |                                             |                            |                |                            | 432        |       |
| 4700   |                                                              |                            |                                             |                            |                |                            | 472        |       |
| 5100   |                                                              |                            |                                             |                            |                |                            | 512        |       |
| 5600   |                                                              |                            |                                             |                            |                |                            | 562        |       |

### Notes

- <sup>(1)</sup> Net weight for short lead product only
- Loose in box, all lengths have same SPQ
- SPQ = Standard Packing Quantity

**AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents**  
**KP/MKP Radial Lacquered Type****U<sub>RDC</sub> = 1000 V; U<sub>RAC</sub> = 400 V; U<sub>pp</sub> = 1100 V (kinked); C-tol. = ± 5 %**

| C                    | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING                   |                                                   |                             |                             | C VALUE<br><br>..YYY       |
|----------------------|--------------------------------------------------------------|----------------------------|---------------------------------------------------------------|---------------------------------------------------|-----------------------------|-----------------------------|----------------------------|
|                      |                                                              |                            | LOOSE IN BOX<br><br>Leads<br>5 mm ± 1.0 mm<br><br>XX<br>(SPQ) | REEL                                              |                             |                             |                            |
|                      |                                                              |                            |                                                               | Original pitch<br><br>Ø 500 mm<br><br>XX<br>(SPQ) | Pitch = 7.5 mm (bent back)  |                             |                            |
|                      |                                                              |                            |                                                               |                                                   | Ø 500 mm<br><br>XX<br>(SPQ) | Ø 356 mm<br><br>XX<br>(SPQ) |                            |
| C (pF)               | Pitch = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 15.0 mm                                               | Pitch = 7.5 mm (bent back)                        |                             |                             |                            |
| 6200<br>6800         | 6.0 x 15.0 (16.5) x 18.5                                     | 1.2                        | 24...<br>(2000)                                               | 22...<br>(1000)                                   | 26...<br>(800)              | 28...<br>(450)              | 622<br>682                 |
| 7500<br>8200<br>9100 | 7.0 x 16.0 (17.5) x 18.5                                     | 1.4                        | 24...<br>(1500)                                               | 22...<br>(800)                                    | 26...<br>(700)              | 28...<br>(400)              | 752<br>822<br>912          |
| 10 000               | 7.5 x 16.5 (18.0) x 18.5                                     | 1.6                        | 24...<br>(1250)                                               | 22...<br>(800)                                    | 26...<br>(650)              | 28...<br>(350)              | 103                        |
| 11 000<br>12 000     | 8.0 x 17.0 (18.5) x 18.5                                     | 1.8                        | 24...<br>(1250)                                               | 22...<br>(750)                                    | 26...<br>(600)              | 28...<br>(350)              | 113<br>123                 |
| 13 000               | 8.5 x 17.5 (19.0) x 18.5                                     | 1.9                        | 24...<br>(1000)                                               | 22...<br>(700)                                    | 26...<br>(550)              | 28...<br>(300)              | 133                        |
| 15 000               | 9.0 x 18.5 (19.5) x 18.5                                     | 2.1                        | 24...<br>(1000)                                               | 22...<br>(650)                                    | 26...<br>(550)              | 28...<br>(300)              | 153                        |
| C (µF)               | Pitch = 22.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 22.5 mm                                               | Pitch = 7.5 mm (bent back)                        |                             |                             |                            |
| 0.016<br>0.018       | 6.0 x 19.0 x 26.0                                            | 2.2                        | 24...<br>(800)                                                |                                                   |                             |                             | 163<br>183                 |
| 0.02<br>0.022        | 6.5 x 19.5 x 26.0                                            | 2.5                        | 24...<br>(750)                                                |                                                   |                             |                             | 203<br>223                 |
| 0.024                | 7.0 x 20.0 x 26.0                                            | 2.7                        | 24...                                                         |                                                   |                             |                             | 243                        |
| 0.027<br>0.03        | 7.5 x 20.5 x 26.0                                            | 3.1                        | 24...<br>(600)                                                |                                                   |                             |                             | 273<br>303                 |
| 0.033                | 8.0 x 21.0 x 26.0                                            | 3.4                        | 24...<br>(550)                                                |                                                   |                             |                             | 333                        |
| 0.036<br>0.039       | 8.5 x 21.5 x 26.0                                            | 3.7                        | 24...<br>(500)                                                |                                                   |                             |                             | 363<br>393                 |
| 0.043                | 9.0 x 22.0 x 26.0                                            | 4.1                        | 24...<br>(450)                                                |                                                   |                             |                             | 433                        |
| C (µF)               | Pitch = 27.5 mm ± 0.5 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 27.5 mm                                               |                                                   |                             |                             | Pitch = 7.5 mm (bent back) |
| 0.047                | 7.0 x 20.0 x 30.0                                            | 3.1                        | 24...<br>(1000)                                               |                                                   |                             |                             | 473                        |
| 0.051<br>0.056       | 7.5 x 20.5 x 30.0                                            | 3.4                        | 24...<br>(750)                                                |                                                   |                             |                             | 513<br>563                 |
| 0.062                | 8.0 x 21.0 x 30.0                                            | 3.8                        | 24...<br>(650)                                                |                                                   |                             |                             | 623                        |
| 0.068                | 8.5 x 21.5 x 30.0                                            | 4.0                        | 24...<br>(550)                                                |                                                   |                             |                             | 683                        |
| 0.075                | 9.0 x 22.0 x 30.0                                            | 4.4                        | 24...<br>(550)                                                |                                                   |                             |                             | 753                        |
| 0.082                | 9.5 x 22.5 x 30.0                                            | 4.7                        | 24...<br>(500)                                                |                                                   |                             |                             | 823                        |
| 0.091                | 10.0 x 23.0 x 30.0                                           | 5.1                        | 24...<br>(500)                                                |                                                   |                             |                             | 913                        |
| 0.10                 | 10.5 x 23.5 x 30.0                                           | 5.5                        | 24...<br>(450)                                                |                                                   |                             |                             | 104                        |
| 0.11                 | 11.0 x 24.0 x 30.0                                           | 5.9                        | 24...<br>(400)                                                |                                                   |                             |                             | 114                        |
| 0.12                 | 11.5 x 24.5 x 30.0                                           | 6.3                        | 24...<br>(400)                                                |                                                   |                             |                             | 124                        |
| 0.13                 | 12.0 x 25.0 x 30.0                                           | 6.8                        | 24 ...<br>(350)                                               |                                                   |                             |                             | 134                        |
| 0.15                 | 12.5 x 25.5 x 30.0                                           | 7.6                        | 24 ...<br>(350)                                               |                                                   |                             |                             | 154                        |

**Notes**

- <sup>(1)</sup> Net weight for short lead product only
- Loose in box, all lengths have same SPQ
  - SPQ = Standard Packing Quantity

# KP/MKP 375



## Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type

$U_{RDC} = 1000 \text{ V}$ ;  $U_{RAC} = 400 \text{ V}$ ;  $U_{pp} = 1100 \text{ V}$  (lock lead); C-tol =  $\pm 5 \%$

| C                                                                                                                                        | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |                                           |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        |                                                              |     |                                                                                                 |        |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------|---------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------|--------------------------------------|-------------------------------------------|--------|--------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------|--------|
|                                                                                                                                          |                                                              |                            | LOOSE IN BOX                                |                                           |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        |                                                              |     |                                                                                                 |        |
|                                                                                                                                          |                                                              |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |                                           |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        |                                                              |     |                                                                                                 |        |
|                                                                                                                                          |                                                              |                            |                                             | (SPQ)                                     |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        |                                                              |     |                                                                                                 |        |
| C (pF)                                                                                                                                   | Pitch = 10.0 mm ± 1.0 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm |                            |                                             |                                           |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        |                                                              |     |                                                                                                 |        |
| 100<br>110<br>120<br>130                                                                                                                 | 5.0 x 16.0 x 14.5                                            | 0.5                        | 90373<br>90374<br>90375<br>90376            | (2000)                                    |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        |                                                              |     |                                                                                                 |        |
| 150<br>160<br>180<br>200<br>220<br>240<br>270<br>300<br>330<br>360<br>390<br>430<br>470<br>510<br>560<br>620<br>680<br>750<br>820<br>910 |                                                              |                            | 5.5 x 16.5 x 14.5                           |                                           | 0.55<br>0.55<br>0.55<br>0.55<br>0.60<br>0.60<br>0.60<br>0.60<br>0.60<br>0.60<br>0.65<br>0.70<br>0.75<br>0.75<br>0.80<br>0.80<br>0.80<br>0.70<br>0.70<br>0.70 | 90377<br>90378<br>90379<br>90281<br>90382<br>90383<br>90384<br>90385<br>90386<br>90387<br>90388<br>90389<br>90391<br>90392<br>90393<br>90394<br>90395<br>90396<br>90397<br>90398 | (2000) |                   |                                      |                                           |        |                                                              |     |                                                                                                 |        |
| 1000<br>1100<br>1200<br>1300<br>1500                                                                                                     |                                                              |                            |                                             |                                           |                                                                                                                                                              |                                                                                                                                                                                  |        | 6.0 x 17.0 x 14.5 | 0.75<br>0.85<br>0.90<br>0.85<br>0.90 | 90399<br>90401<br>90402<br>90403<br>90404 | (1750) |                                                              |     |                                                                                                 |        |
| C (pF)                                                                                                                                   |                                                              |                            |                                             |                                           |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        | Pitch = 15.0 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |     |                                                                                                 |        |
| 1600<br>1800<br>2000<br>2200<br>2400                                                                                                     | 5.5 x 17.5 x 18.5                                            | 1.1                        |                                             | 90405<br>90406<br>90407<br>90408<br>90409 |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        | (2000)                                                       |     |                                                                                                 |        |
| 2700<br>3000<br>3300<br>3600<br>3900<br>4300<br>4700<br>5100<br>5600<br>6200<br>6800                                                     |                                                              |                            |                                             | 6.0 x 18.0 x 18.5                         |                                                                                                                                                              |                                                                                                                                                                                  |        |                   |                                      |                                           |        |                                                              | 1.2 | 90411<br>90412<br>90413<br>90414<br>90415<br>90416<br>90417<br>90418<br>90419<br>90421<br>90422 | (2000) |

### Notes

<sup>(1)</sup> Net weight for short lead product only

- SPQ = Standard Packing Quantity



AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents  
KP/MKP Radial Lacquered Type

| C                    | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |        |
|----------------------|--------------------------------------------------------------|----------------------------|---------------------------------------------|--------|
|                      |                                                              |                            | LOOSE IN BOX                                |        |
|                      |                                                              |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|                      |                                                              |                            |                                             | (SPQ)  |
| C (pF)               | Pitch = 15.0 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 7500<br>8200<br>9100 | 7.0 x 19.0 x 18.5                                            | 1.5                        | 90232<br>90423<br>90424                     | (1500) |
| 10 000               | 7.5 x 19.5 x 18.5                                            | 1.6                        | 90425                                       | (1400) |
| 11 000<br>12 000     | 8.0 x 20.0 x 18.5                                            | 1.8                        | 90426<br>90427                              | (1250) |
| 13000                | 8.5 x 20.5 x 18.5                                            | 1.9                        | 90428                                       | (1200) |
| 15000                | 9.0 x 21.0 x 18.5                                            | 2.1                        | 90429                                       | (1100) |
| C (μF)               | Pitch = 22.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 0.016<br>0.018       | 6.0 x 22.0 x 26.0                                            | 2.2                        | 90431<br>90432                              | (750)  |
| 0.02<br>0.022        | 6.5 x 22.5 x 26.0                                            | 2.5                        | 90433<br>90434                              | (700)  |
| 0.024                | 7.0 x 23.0 x 26.0                                            | 2.7                        | 90435                                       | (600)  |
| 0.027<br>0.03        | 7.5 x 23.5 x 26.0                                            | 3.1                        | 90436<br>90437                              | (550)  |
| 0.033                | 8.0 x 24.0 x 26.0                                            | 3.4                        | 90438                                       | (500)  |
| 0.036<br>0.039       | 8.5 x 24.5 x 26.0                                            | 3.8                        | 90439<br>90224                              | (450)  |
| 0.043                | 9.0 x 25.0 x 26.0                                            | 4.1                        | 90441                                       | (450)  |
| C (μF)               | Pitch = 27.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 0.047                | 7.0 x 23.0 x 30.0                                            | 3.1                        | 90442                                       | (800)  |
| 0.051<br>0.056       | 7.5 x 23.5 x 30.0                                            | 3.4                        | 90443<br>90444                              | (600)  |
| 0.062                | 8.0 x 24.0 x 30.0                                            | 3.8                        | 90445                                       | (550)  |
| 0.068                | 8.5 x 24.5 x 30.0                                            | 4.0                        | 90446                                       | (550)  |
| 0.075                | 9.0 x 25.0 x 30.0                                            | 4.4                        | 90447                                       | (450)  |
| 0.082                | 9.5 x 25.5 x 30.0                                            | 4.7                        | 90448                                       | (450)  |
| 0.091                | 10.0 x 26.0 x 30.0                                           | 5.1                        | 90449                                       | (400)  |
| 0.1                  | 10.5 x 26.5 x 30.0                                           | 5.5                        | 90451                                       | (350)  |
| 0.11                 | 11.0 x 27.0 x 30.0                                           | 5.9                        | 90452                                       | (350)  |
| 0.12                 | 11.5 x 27.5 x 30.0                                           | 6.3                        | 90453                                       | (350)  |
| 0.13                 | 12.0 x 28.0x 30.0                                            | 6.8                        | 90454                                       | (350)  |
| 0.15                 | 12.0 x 28.5x 30.0                                            | 7.6                        | 90455                                       | (300)  |

**Notes**

<sup>(1)</sup> Net weight for short lead product only

• SPQ = Standard Packing Quantity

**SPECIFIC REFERENCE DATA (1600 V<sub>DC</sub>)**

| DESCRIPTION                                                                                                                         | VALUE                                                   |           |
|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------|
| Tangent of loss angle at ( $\times 10^{-4}$ ):<br>Pitch = 10 mm, 15 mm and 7.5 mm (bent back)<br>Pitch = 22.5 mm<br>Pitch = 27.5 mm | 10 kHz                                                  | 100 kHz   |
|                                                                                                                                     | $\leq 6$                                                | $\leq 10$ |
|                                                                                                                                     | $\leq 6$                                                | $\leq 15$ |
|                                                                                                                                     | $\leq 6$                                                | $\leq 20$ |
| Rated voltage pulse slope (dU/dt):<br>Pitch = 10 mm<br>Pitch = 15 mm and 7.5 mm (bent back)<br>Pitch = 22.5 mm<br>Pitch = 27.5 mm   | 21 000 V/ $\mu$ s<br>7000 V/ $\mu$ s<br>4700 V/ $\mu$ s |           |
| R between leads at 500 V, 1 min                                                                                                     | > 100 000 M $\Omega$                                    |           |
| R between interconnected leads and case, 500 V, 1 min                                                                               | > 100 000 M $\Omega$                                    |           |
| Ionisation (AC) voltage (typical value)<br>at 50 pC peak discharge<br>at 10 pC peak discharge                                       | > 550 V                                                 |           |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 1000 V/s<br>For C $\leq$ 47 nF<br>For C > 47 nF                        | 2560 V, 1 min                                           |           |
| Withstanding (DC) voltage between leads and case                                                                                    | 2840 V, 1 min                                           |           |
| Maximum application temperature                                                                                                     | 105 °C                                                  |           |

**U<sub>RDC</sub> = 1600 V; U<sub>RAC</sub> = 500 V; U<sub>pp</sub> = 1400 V (kinked); C-tol. =  $\pm$  5 %**

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                            |                |                            |            |       |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|----------------------------|----------------|----------------------------|------------|-------|
|        |                                                              |                            | LOOSE IN BOX                                | REEL                       |                |                            | C<br>VALUE |       |
|        |                                                              |                            |                                             | Leads<br>5 mm ± 1.0 mm     | Original pitch | Pitch = 7.5 mm (bent back) |            | ..YYY |
|        |                                                              |                            |                                             |                            | Ø 500 mm       | Ø 500 mm                   | Ø 356 mm   |       |
|        |                                                              |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                | XX<br>(SPQ)    | XX<br>(SPQ)                |            |       |
| C (pF) | Pitch = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 15.0 mm                             | Pitch = 7.5 mm (bent back) |                |                            |            |       |
| 680    | 5.5 x 14.5 (15.0) x 18.5                                     | 0.75                       | 34... (2000)                                | 32... (1100)               | 36... (900)    | 38... (500)                | 681        |       |
| 750    |                                                              |                            |                                             |                            |                |                            | 751        |       |
| 820    |                                                              |                            |                                             |                            |                |                            | 821        |       |
| 910    | 6.0 x 15.0 (15.5) x 18.5                                     | 0.8                        | 34...(2000)                                 | 32... (1000)               | 36... (800)    | 38... (450)                | 911        |       |
| 1000   |                                                              | 0.85                       |                                             |                            |                |                            | 102        |       |
| 1100   |                                                              | 0.85                       |                                             |                            |                |                            | 112        |       |
| 1200   |                                                              | 0.90                       |                                             |                            |                |                            | 122        |       |
| 1300   |                                                              | 0.95                       |                                             |                            |                |                            | 132        |       |
| 1500   | 5.5 x 14.5 (16.0) x 18.5                                     | 1.1                        | 34... (2000)                                | 32... (1100)               | 36... (900)    | 38... (500)                | 152        |       |
| 1600   |                                                              |                            |                                             |                            |                |                            | 162        |       |
| 1800   | 6.0 x 15.0 (16.5) x 18.5                                     | 1.2                        | 34... (2000)                                | 32... (1000)               | 36... (800)    | 38... (450)                | 182        |       |
| 2000   | 6.5 x 15.5 (17.0) x 18.5                                     | 1.3                        | 34... (1500)                                | 32... (900)                | 36... (750)    | 38... (400)                | 202        |       |
| 2200   |                                                              |                            |                                             |                            |                |                            | 222        |       |
| 2400   | 7.0 x 16.0 (17.5) x 18.5                                     | 1.4                        | 34... (1500)                                | 32... (800)                | 36... (700)    | 38... (400)                | 242        |       |
| 2700   | 7.5 x 16.5 (18.0) x 18.5                                     | 1.6                        | 34... (1250)                                | 32... (800)                | 36... (650)    | 38... (350)                | 272        |       |
| 3000   |                                                              |                            |                                             |                            |                |                            | 302        |       |
| 3300   | 8.0 x 17.0 (18.5) x 18.5                                     | 1.7                        | 34... (1250)                                | 32... (750)                | 36... (600)    | 38... (350)                | 332        |       |
| 3600   | 8.5 x 17.5 (19.0) x 18.5                                     | 1.8                        | 34... (1000)                                | 32... (700)                | 36... (550)    | 38... (300)                | 362        |       |
| 3900   | 9.0 x 18.5 (19.5) x 18.5                                     | 2.0                        | 34... (1000)                                | 32... (650)                | 36... (550)    | 38... (300)                | 392        |       |
| 4300   |                                                              |                            |                                             |                            |                |                            | 432        |       |

**Notes**

- <sup>(1)</sup> Net weight for short lead product only
- Loose in box, all lengths have same SPQ
  - SPQ = Standard Packing Quantity



AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents  
KP/MKP Radial Lacquered Type

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                            |                |                            |            |       |  |  |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|----------------------------|----------------|----------------------------|------------|-------|--|--|
|        |                                                              |                            | LOOSE IN BOX                                | REEL                       |                |                            | C<br>VALUE |       |  |  |
|        |                                                              |                            |                                             | Leads<br>5 mm ± 1.0 mm     | Original pitch | Pitch = 7.5 mm (bent back) |            | ..YYY |  |  |
|        |                                                              |                            |                                             |                            | Ø 500 mm       | Ø 500 mm                   | Ø 356 mm   |       |  |  |
|        |                                                              |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                | XX<br>(SPQ)    | XX<br>(SPQ)                |            |       |  |  |
| C (µF) | Pitch = 22.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 22.5 mm                             | Pitch = 7.5 mm (bent back) |                |                            |            |       |  |  |
| 0.0047 | 6.0 x 19.0 x 26.0                                            | 2.0                        | 34...<br>(800)                              | -                          | -              | -                          | 472        |       |  |  |
| 0.0051 |                                                              |                            |                                             |                            |                |                            | 512        |       |  |  |
| 0.0056 |                                                              |                            |                                             |                            |                |                            | 562        |       |  |  |
| 0.0062 | 6.5 x 19.5 x 26.0                                            | 2.1                        | 34...<br>(750)                              |                            |                |                            | 622        |       |  |  |
| 0.0068 |                                                              |                            |                                             |                            |                |                            | 682        |       |  |  |
| 0.0075 | 7.0 x 20.0 x 26.0                                            | 2.3                        | 34...<br>(650)                              |                            |                |                            | 752        |       |  |  |
| 0.0082 |                                                              |                            |                                             |                            |                |                            | 822        |       |  |  |
| 0.0091 | 7.5 x 20.5 x 26.0                                            | 2.5                        | 34...<br>(600)                              |                            |                |                            | 912        |       |  |  |
| 0.01   | 8.0 x 21.0 x 26.0                                            | 2.6                        | 34...<br>(550)                              |                            |                |                            | 103        |       |  |  |
| 0.011  | 8.5 x 21.5 x 26.0                                            | 2.9                        | 34...<br>(500)                              |                            |                |                            | 113        |       |  |  |
| 0.012  |                                                              |                            |                                             |                            |                |                            | 123        |       |  |  |
| 0.013  | 9.0 x 22.0 x 26.0                                            | 3.1                        | 34...<br>(450)                              |                            |                |                            | 133        |       |  |  |
| 0.015  | 9.5 x 22.5 x 26.0                                            | 3.5                        | 34...<br>(400)                              |                            |                |                            | 153        |       |  |  |
| 0.016  | 10.0 x 23.0 x 26.0                                           | 3.6                        | 34...<br>(400)                              |                            |                |                            | 163        |       |  |  |
| 0.018  | 10.5 x 23.5 x 26.0                                           | 4.0                        | 34...<br>(350)                              |                            |                |                            | 183        |       |  |  |
| C (µF) | Pitch = 27.5 mm ± 0.5 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 27.5 mm                             | Pitch = 7.5 mm (bent back) |                |                            |            |       |  |  |
| 0.02   | 9.0 x 22.0 x 30.0                                            | 4.2                        | 34...<br>(550)                              | -                          | -              | -                          | 203        |       |  |  |
| 0.022  | 9.5 x 22.5 x 30.0                                            | 4.4                        | 34...<br>(500)                              |                            |                |                            | 223        |       |  |  |
| 0.024  | 10.0 x 23.0 x 30.0                                           | 4.7                        | 34...<br>(500)                              |                            |                |                            | 243        |       |  |  |
| 0.027  | 10.5 x 23.5 x 30.0                                           | 5.2                        | 34...<br>(450)                              |                            |                |                            | 273        |       |  |  |
| 0.03   | 11.0 x 24.0 x 30.0                                           | 5.6                        | 34...<br>(400)                              |                            |                |                            | 303        |       |  |  |
| 0.033  | 11.5 x 24.5 x 30.0                                           | 6.0                        | 34...<br>(400)                              |                            |                |                            | 333        |       |  |  |
| 0.036  | 12.0 x 25.0 x 30.0                                           | 6.5                        | 34...<br>(350)                              |                            |                |                            | 363        |       |  |  |
| 0.039  | 12.5 x 25.5 x 30.0                                           | 6.9                        | 34...<br>(350)                              |                            |                |                            | 393        |       |  |  |

**Notes**

- <sup>(1)</sup> Net weight for short lead product only
- Loose in box, all lengths have same SPQ
  - SPQ = Standard Packing Quantity

# KP/MKP 375



## Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type

$U_{RDC} = 1600 \text{ V}$ ;  $U_{RAC} = 500 \text{ V}$ ;  $U_{pp} = 1400 \text{ V}$  (lock lead); C-tol. =  $\pm 5 \%$

| C                                   | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |        |
|-------------------------------------|--------------------------------------------------------------|----------------------------|---------------------------------------------|--------|
|                                     |                                                              |                            | LOOSE IN BOX                                |        |
|                                     |                                                              |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|                                     |                                                              |                            |                                             | (SPQ)  |
| C (pF)                              | Pitch = 15.0 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 680<br>750<br>820                   | 5.5 x 17.5 x 18.5                                            | 0.75                       | 90456                                       | (2000) |
|                                     |                                                              |                            | 90457                                       |        |
|                                     |                                                              |                            | 90458                                       |        |
| 910<br>1000<br>1100<br>1200<br>1300 | 6.0 x 18.0 x 18.5                                            | 0.80                       | 90459                                       | (2000) |
|                                     |                                                              | 0.85                       | 90461                                       |        |
|                                     |                                                              | 0.85                       | 90462                                       |        |
|                                     |                                                              | 0.90                       | 90463                                       |        |
|                                     |                                                              | 0.95                       | 90464                                       |        |
| 1500<br>1600                        | 5.5 x 17.5 x 18.5                                            | 1.1                        | 90465                                       | (2000) |
|                                     |                                                              |                            | 90466                                       |        |
| 1800                                | 6.0 x 18.0 x 18.5                                            | 1.2                        | 90467                                       | (2000) |
| 2000<br>2200                        | 6.5 x 18.5 x 18.5                                            | 1.3                        | 90468                                       | (1750) |
|                                     |                                                              |                            | 90469                                       |        |
| 2400                                | 7.0 x 19.0 x 18.5                                            | 1.4                        | 90471                                       | (1500) |
| 2700<br>3000                        | 7.5 x 19.5 x 18.5                                            | 1.6                        | 90472                                       | (1400) |
|                                     |                                                              |                            | 90473                                       |        |
| 3300                                | 8.0 x 20.0 x 18.5                                            | 1.9                        | 90141                                       | (1250) |
| 3600                                | 8.5 x 20.5 x 18.5                                            | 2.3                        | 90142                                       | (1200) |
| 3900<br>4300                        | 9.0 x 21.5 x 18.5                                            | 2.5                        | 90143                                       | (1100) |
|                                     |                                                              |                            | 90144                                       |        |
| C (μF)                              | Pitch = 22.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 0.0047<br>0.0051<br>0.0056          | 6.0 x 22.0 x 26.0                                            | 2.4                        | 90145                                       | (750)  |
|                                     |                                                              |                            | 90146                                       |        |
|                                     |                                                              |                            | 90147                                       |        |
| 0.0062<br>0.0068                    | 6.5 x 22.5 x 26.0                                            | 2.6                        | 90148                                       | (700)  |
|                                     |                                                              |                            | 90149                                       |        |
| 0.0075<br>0.0082<br>0.0083          | 7.0 x 23.0 x 26.0                                            | 2.8                        | 90151                                       | (600)  |
|                                     |                                                              |                            | 90152                                       |        |
|                                     |                                                              |                            | 90202                                       |        |
| 0.0091                              | 7.5 x 23.5 x 26.0                                            | 2.9                        | 90153                                       | (550)  |
| 0.01                                | 8.0 x 24.0 x 26.0                                            | 3.2                        | 90154                                       | (500)  |
| 0.011<br>0.012                      | 8.5 x 24.5 x 26.0                                            | 3.4                        | 90155                                       | (450)  |
|                                     |                                                              |                            | 90156                                       |        |
| 0.013                               | 9.0 x 25.0 x 26.0                                            | 3.6                        | 90157                                       | (450)  |
| 0.015                               | 9.5 x 25.5 x 26.0                                            | 4.0                        | 90158                                       | (400)  |
| 0.016                               | 10.0 x 26.0 x 26.0                                           | 4.3                        | 90159                                       | (350)  |
| 0.018                               | 10.5 x 26.5 x 26.0                                           | 4.7                        | 90161                                       | (350)  |
| C (μF)                              | Pitch = 27.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 0.02                                | 9.0 x 25.0 x 30.0                                            | 4.2                        | 90474                                       | (450)  |
| 0.022                               | 9.5 x 25.5 x 30.0                                            | 4.4                        | 90475                                       | (450)  |
| 0.024                               | 10.0 x 26.0 x 30.0                                           | 4.7                        | 90476                                       | (400)  |
| 0.027                               | 10.5 x 26.5 x 30.0                                           | 5.2                        | 90477                                       | (350)  |
| 0.03                                | 11.0 x 27.0 x 30.0                                           | 5.6                        | 90478                                       | (350)  |
| 0.033                               | 11.5 x 27.5 x 30.0                                           | 6.0                        | 90479                                       | (350)  |
| 0.036                               | 12.0 x 28.0 x 30.0                                           | 6.5                        | 90481                                       | (300)  |
| 0.039                               | 12.5 x 28.5 x 30.0                                           | 6.9                        | 90482                                       | (300)  |

### Notes

- <sup>(1)</sup> Net weight for short lead product only
- SPQ = Standard Packing Quantity



# AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents

## KP/MKP Radial Lacquered Type

**SPECIFIC REFERENCE DATA (2000 V<sub>DC</sub>)**

| DESCRIPTION                                                                                                                         | VALUE                |           |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------|
| Tangent of loss angle at ( $\times 10^{-4}$ ):<br>Pitch = 10 mm, 15 mm and 7.5 mm (bent back)<br>Pitch = 22.5 mm<br>Pitch = 27.5 mm | 10 kHz               | 100 kHz   |
|                                                                                                                                     | $\leq 6$             | $\leq 10$ |
|                                                                                                                                     | $\leq 6$             | $\leq 10$ |
|                                                                                                                                     | $\leq 6$             | $\leq 15$ |
| Rated voltage pulse slope (dU/dt):<br>Pitch = 10 mm<br>Pitch = 15 mm and 7.5 mm (bent back)<br>Pitch = 22.5 mm<br>Pitch = 27.5 mm   | 30 000 V/ $\mu$ s    |           |
|                                                                                                                                     | 10 000 V/ $\mu$ s    |           |
|                                                                                                                                     | 6700 V/ $\mu$ s      |           |
|                                                                                                                                     |                      |           |
| R between leads at 500 V, 1 min                                                                                                     | > 100 000 M $\Omega$ |           |
| R between interconnected leads and case, 500 V, 1 min                                                                               | > 100 000 M $\Omega$ |           |
| Ionisation (AC) voltage (typical value)<br>at 50 pC peak discharge<br>at 20 pC peak discharge                                       | > 600 V              |           |
|                                                                                                                                     |                      |           |
|                                                                                                                                     |                      |           |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 1000 V/s<br>For C $\leq$ 47 nF<br>For C > 47 nF                        | 3200 V, 1 min        |           |
|                                                                                                                                     |                      |           |
|                                                                                                                                     |                      |           |
| Withstanding (DC) voltage between leads and case                                                                                    | 2840 V, 1 min        |           |
| Maximum application temperature                                                                                                     | 105 °C               |           |

**U<sub>RDC</sub> = 2000 V; U<sub>RAC</sub> = 600 V; U<sub>pp</sub> = 1700 (kinked); C-tol. =  $\pm 5\%$**

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                            |                |                            |         |          |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|----------------------------|----------------|----------------------------|---------|----------|
|        |                                                              |                            | LOOSE IN BOX                                | REEL                       |                |                            | C VALUE |          |
|        |                                                              |                            |                                             | Leads<br>5 mm ± 1.0 mm     | Original pitch | Pitch = 7.5 mm (bent back) |         |          |
|        |                                                              |                            |                                             |                            | Ø 500 mm       | Ø 500 mm                   |         | Ø 356 mm |
|        |                                                              |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                | XX<br>(SPQ)    | XX<br>(SPQ)                | ..YYY   |          |
| C (pF) | Pitch = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 15.0 mm                             | Pitch = 7.5 mm (bent back) |                |                            |         |          |
| 100    | 5.5 x 14.5 (15.0) x 18.5                                     | 0.75                       | 44...<br>(2000)                             | 42...<br>(1100)            | 46...<br>(900) | 48...<br>(500)             | 101     |          |
| 110    |                                                              | 0.75                       |                                             |                            |                |                            | 111     |          |
| 120    |                                                              | 0.75                       |                                             |                            |                |                            | 121     |          |
| 130    |                                                              | 0.75                       |                                             |                            |                |                            | 131     |          |
| 150    |                                                              | 0.75                       |                                             |                            |                |                            | 151     |          |
| 160    |                                                              | 0.75                       |                                             |                            |                |                            | 161     |          |
| 180    |                                                              | 0.75                       |                                             |                            |                |                            | 181     |          |
| 200    |                                                              | 0.75                       |                                             |                            |                |                            | 201     |          |
| 220    |                                                              | 0.75                       |                                             |                            |                |                            | 221     |          |
| 240    |                                                              | 0.75                       |                                             |                            |                |                            | 241     |          |
| 270    |                                                              | 0.75                       |                                             |                            |                |                            | 271     |          |
| 300    |                                                              | 0.75                       |                                             |                            |                |                            | 301     |          |
| 330    |                                                              | 0.75                       |                                             |                            |                |                            | 331     |          |
| 360    |                                                              | 0.75                       |                                             |                            |                |                            | 361     |          |
| 390    |                                                              | 0.75                       |                                             |                            |                |                            | 391     |          |
| 430    |                                                              | 0.75                       |                                             |                            |                |                            | 431     |          |
| 470    |                                                              | 0.80                       |                                             |                            |                |                            | 471     |          |
| 510    | 0.80                                                         | 511                        |                                             |                            |                |                            |         |          |
| 560    | 0.80                                                         | 561                        |                                             |                            |                |                            |         |          |

**Notes**

- <sup>(1)</sup> Net weight for short lead product only  
• SPQ = Standard Packing Quantity

Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors  
KP/MKP Radial Lacquered Type

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |                            |                |                            |         |          |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|----------------------------|----------------|----------------------------|---------|----------|
|        |                                                              |                            | LOOSE IN BOX                                | REEL                       |                |                            | C VALUE |          |
|        |                                                              |                            |                                             | Leads<br>5 mm ± 1.0 mm     | Original pitch | Pitch = 7.5 mm (bent back) |         |          |
|        |                                                              |                            |                                             |                            | Ø 500 mm       | Ø 500 mm                   |         | Ø 356 mm |
|        |                                                              |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                | XX<br>(SPQ)    | XX<br>(SPQ)                | ..YYY   |          |
| C (pF) | Pitch = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 15.0 mm                             | Pitch = 7.5 mm (bent back) |                |                            |         |          |
| 620    | 6.0 x 15.0 (15.5) x 18.5                                     | 0.85                       | 44...<br>(2000)                             | 42...<br>(1000)            | 46...<br>(800) | 48...<br>(450)             | 621     |          |
| 680    |                                                              | 0.85                       |                                             |                            |                |                            | 681     |          |
| 750    |                                                              | 0.90                       |                                             |                            |                |                            | 751     |          |
| 820    | 6.5 x 15.5 (16.0) x 18.5                                     | 0.95                       | 44...<br>(1500)                             | 42...<br>(900)             | 46...<br>(750) | 48...<br>(400)             | 821     |          |
| 910    | 5.5 x 14.5 (16.0) x 18.5                                     | 1.1                        | 44...<br>(2000)                             | 42...<br>(420)             | 46...<br>(900) | 48...<br>(500)             | 911     |          |
| 1000   | 6.0 x 15.0 (16.5) x 18.5                                     | 1.2                        | 44...<br>(2000)                             | 42...<br>(1000)            | 46...<br>(800) | 48...<br>(450)             | 102     |          |
| 1100   |                                                              |                            |                                             |                            |                |                            | 112     |          |
| 1200   |                                                              |                            |                                             |                            |                |                            | 122     |          |
| 1300   | 6.5 x 15.5 (17.0) x 18.5                                     | 1.3                        | 44...<br>(1500)                             | 42...<br>(900)             | 46...<br>(750) | 48...<br>(400)             | 132     |          |
| 1500   | 7.0 x 16.0 (17.5) x 18.5                                     | 1.4                        | 44...<br>(1500)                             | 42...<br>(800)             | 46...<br>(700) | 48...<br>(400)             | 152     |          |
| 1600   | 7.5 x 16.5 (18.0) x 18.5                                     | 1.5                        | 44...<br>(1250)                             | 42...<br>(800)             | 46...<br>(650) | 48...<br>(350)             | 162     |          |
| 1800   |                                                              |                            |                                             |                            |                |                            | 182     |          |
| 2000   | 8.0 x 17.0 (18.5) x 18.5                                     | 1.6                        | 44...<br>(1250)                             | 42...<br>(750)             | 46...<br>(600) | 48...<br>(350)             | 202     |          |
| 2200   | 8.5 x 17.5 (19.0) x 18.5                                     | 1.7                        | 44...<br>(1000)                             | 42...<br>(700)             | 46...<br>(550) | 48...<br>(300)             | 222     |          |
| 2400   | 9.0 x 18.0 (19.5) x 18.5                                     | 1.8                        | 44...<br>(1000)                             | 42...<br>(650)             | 46...<br>(550) | 48...<br>(300)             | 242     |          |
| 2700   | 9.5 x 18.5 (20.0) x 18.5                                     | 2.0                        | 44...<br>(900)                              | 42...<br>(600)             | 46...<br>(500) | 48...<br>(300)             | 272     |          |
| C (µF) | Pitch = 22.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            | Pitch = 22.5 mm                             | Pitch = 7.5 mm (bent back) |                |                            |         |          |
| 0.003  | 6.0 x 19.0 x 26.0                                            | 2.1                        | 44...<br>(800)                              | -                          | -              | -                          | 302     |          |
| 0.0033 |                                                              |                            |                                             |                            |                |                            | 332     |          |
| 0.0036 |                                                              |                            |                                             |                            |                |                            | 362     |          |
| 0.0039 |                                                              |                            |                                             |                            |                |                            | 392     |          |
| 0.0043 | 6.5 x 19.5 x 26.0                                            | 2.3                        | 44...<br>(750)                              |                            |                |                            | 432     |          |
| 0.0047 |                                                              |                            |                                             |                            |                |                            | 472     |          |
| 0.0051 | 7.0 x 20.0 x 26.0                                            | 2.6                        | 44...<br>(650)                              |                            |                |                            | 512     |          |
| 0.0056 |                                                              |                            |                                             |                            |                |                            | 562     |          |
| 0.0062 | 7.5 x 20.5 x 26.0                                            | 2.8                        | 44...<br>(600)                              |                            |                |                            | 622     |          |
| 0.0068 | 8.0 x 21.0 x 26.0                                            | 3.0                        | 44...<br>(550)                              |                            |                |                            | 682     |          |
| 0.0075 |                                                              |                            |                                             |                            |                |                            | 752     |          |
| 0.0082 | 8.5 x 21.5 x 26.0                                            | 3.3                        | 44...<br>(500)                              |                            |                |                            | 822     |          |
| 0.0091 | 9.0 x 22.0 x 26.0                                            | 3.6                        | 44...<br>(450)                              |                            |                |                            | 912     |          |
| 0.01   | 9.5 x 22.5 x 26.0                                            | 3.8                        | 44...<br>(400)                              |                            |                |                            | 103     |          |

**Notes**

- <sup>(1)</sup> Net weight for short lead product only  
• SPQ = Standard Packing Quantity



AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents  
KP/MKP Radial Lacquered Type

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |                        |                |                            |         |       |             |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|------------------------|----------------|----------------------------|---------|-------|-------------|
|        |                                                              |                            | LOOSE IN BOX                                | REEL                   |                |                            | C VALUE |       |             |
|        |                                                              |                            |                                             | Leads<br>5 mm ± 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) |         | ..YYY |             |
|        |                                                              |                            |                                             |                        | Ø 500 mm       | Ø 500 mm                   |         |       | Ø 356 mm    |
|        |                                                              |                            |                                             |                        | XX<br>(SPQ)    | XX<br>(SPQ)                |         |       | XX<br>(SPQ) |
| C (µF) | Pitch = 27.5 mm ± 0.5 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm | Pitch = 27.5 mm            | Pitch = 7.5 mm (bent back)                  |                        |                |                            |         |       |             |
| 0.011  | 9.0 x 22.0 x 30.0                                            | 3.8                        | 44...<br>(550)                              | -                      | -              | -                          | 113     |       |             |
| 0.012  | 9.5 x 22.5 x 30.0                                            | 4.1                        | 44...<br>(500)                              |                        |                |                            | 123     |       |             |
| 0.013  | 10.0 x 23.0 x 30.0                                           | 4.4                        | 44...<br>(500)                              |                        |                |                            | 133     |       |             |
| 0.015  | 10.5 x 23.5 x 30.0                                           | 4.9                        | 44...<br>(450)                              |                        |                |                            | 153     |       |             |
| 0.016  | 11.0 x 24.0 x 30.0                                           | 5.1                        | 44...<br>(400)                              |                        |                |                            | 163     |       |             |
| 0.018  | 11.5 x 24.5 x 30.0                                           | 5.6                        | 44...<br>(400)                              |                        |                |                            | 183     |       |             |
| 0.02   | 12.5 x 25.5 x 30.0                                           | 6.1                        | 44...<br>(350)                              |                        |                |                            | 203     |       |             |
| 0.022  | 13.0 x 26.0 x 30.0                                           | 6.5                        | 44...<br>(300)                              |                        |                |                            | 223     |       |             |

**Notes**

- <sup>(1)</sup> Net weight for short lead product only  
 • Loose in box, all lengths have same SPQ  
 • SPQ = Standard Packing Quantity

U<sub>RDC</sub> = 2000 V; U<sub>RAC</sub> = 600 V; U<sub>pp</sub> = 1700 V (lock lead)

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |        |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|--------|
|        |                                                              |                            | LOOSE IN BOX                                |        |
|        |                                                              |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|        |                                                              |                            | (SPQ)                                       |        |
| C (pF) | Pitch = 15.0 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 100    | 5.5 x 17.5 x 18.5                                            | 0.75                       | 90483                                       | (2000) |
| 110    |                                                              | 0.75                       | 90484                                       |        |
| 120    |                                                              | 0.75                       | 90485                                       |        |
| 130    |                                                              | 0.75                       | 90486                                       |        |
| 150    |                                                              | 0.75                       | 90487                                       |        |
| 160    |                                                              | 0.75                       | 90488                                       |        |
| 180    |                                                              | 0.75                       | 90489                                       |        |
| 200    |                                                              | 0.75                       | 90491                                       |        |
| 220    |                                                              | 0.75                       | 90276                                       |        |
| 240    |                                                              | 0.75                       | 90492                                       |        |
| 270    |                                                              | 0.75                       | 90493                                       |        |
| 300    |                                                              | 0.75                       | 90494                                       |        |
| 330    |                                                              | 0.75                       | 90495                                       |        |
| 360    |                                                              | 0.75                       | 90496                                       |        |
| 390    |                                                              | 0.75                       | 90188                                       |        |
| 430    |                                                              | 0.75                       | 90497                                       |        |
| 470    |                                                              | 0.80                       | 90498                                       |        |
| 510    |                                                              | 0.80                       | 90499                                       |        |
| 560    |                                                              | 0.80                       | 90501                                       |        |

**Note**

- SPQ = Standard Packing Quantity

Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors  
KP/MKP Radial Lacquered Type

| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |        |
|--------|--------------------------------------------------------------|----------------------------|---------------------------------------------|--------|
|        |                                                              |                            | LOOSE IN BOX                                |        |
|        |                                                              |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|        |                                                              |                            |                                             | (SPQ)  |
| C (pF) | Pitch = 15.0 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 620    | 6.0 x 18.0 x 18.5                                            | 0.85                       | 90502                                       | (2000) |
| 680    |                                                              | 0.85                       | 90229                                       |        |
| 750    |                                                              | 0.90                       | 90503                                       |        |
| 820    | 6.5 x 18.5 x 18.5                                            | 0.95                       | 90504                                       | (1750) |
| 910    | 5.5 x 17.5 x 18.5                                            | 1.1                        | 90505                                       | (2000) |
| 1000   | 6.0 x 18.0 x 18.5                                            | 1.3                        | 90225                                       | (2000) |
| 1100   |                                                              |                            | 90506                                       |        |
| 1200   |                                                              |                            | 90226                                       |        |
| 1300   | 6.5 x 18.5 x 18.5                                            | 1.3                        | 90507                                       | (1750) |
| 1500   | 7.0 x 19.0 x 18.5                                            | 1.5                        | 90266                                       | (1500) |
| 1600   | 7.5 x 19.5 x 18.5                                            | 1.7                        | 90508                                       | (1400) |
| 1800   |                                                              |                            | 90237                                       |        |
| 2000   | 8.0 x 20.0 x 18.5                                            | 1.7                        | 90509                                       | (1250) |
| 2200   | 8.5 x 20.5 x 18.5                                            | 2.3                        | 90227                                       | (1200) |
| 2400   | 9.0 x 21.0 x 18.5                                            | 1.8                        | 90511                                       | (1100) |
| 2700   | 9.5 x 21.5 x 18.5                                            | 2.7                        | 90228                                       | (1000) |
| C (μF) | Pitch = 22.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 0.003  | 6.0 x 22.0 x 26.0                                            | 2.2                        | 90512                                       | (750)  |
| 0.0033 |                                                              |                            | 90162                                       |        |
| 0.0036 |                                                              |                            | 90163                                       |        |
| 0.0039 |                                                              |                            | 90164                                       |        |
| 0.0043 | 6.5 x 22.5 x 26.0                                            | 2.4                        | 90165                                       | (700)  |
| 0.0047 |                                                              |                            | 90166                                       |        |
| 0.0051 | 7.0 x 23.0 x 26.0                                            | 2.6                        | 90167                                       | (600)  |
| 0.0056 |                                                              |                            | 90168                                       |        |
| 0.0062 | 7.5 x 23.5 x 26.0                                            | 2.8                        | 90169                                       | (550)  |
| 0.0068 | 8.0 x 24.0 x 26.0                                            | 3.0                        | 90171                                       | (500)  |
| 0.0075 |                                                              |                            | 90172                                       |        |
| 0.0082 | 8.5 x 24.5 x 26.0                                            | 3.2                        | 90173                                       | (450)  |
| 0.0091 | 9.0 x 25.0 x 26.0                                            | 3.5                        | 90174                                       | (450)  |
| 0.01   | 9.5 x 25.5 x 26.0                                            | 3.8                        | 90175                                       | (400)  |
| C (μF) | Pitch = 27.5 mm ± 1.0 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm |                            |                                             |        |
| 0.011  | 9.0 x 25.0 x 30.0                                            | 4.4                        | 90176                                       | (450)  |
| 0.012  | 9.5 x 25.5 x 30.0                                            | 4.6                        | 90177                                       | (450)  |
| 0.013  | 10.0 x 26.0 x 30.0                                           | 5.0                        | 90178                                       | (400)  |
| 0.015  | 10.5 x 26.5 x 30.0                                           | 5.4                        | 90179                                       | (350)  |
| 0.016  | 11.0 x 27.0 x 30.0                                           | 5.8                        | 90181                                       | (350)  |
| 0.018  | 11.5 x 27.5 x 30.0                                           | 6.2                        | 90182                                       | (350)  |
| 0.02   | 12.5 x 28.5 x 30.0                                           | 6.1                        | 90513                                       | (300)  |
| 0.022  | 13.0 x 29.0 x 30.0                                           | 6.5                        | 90514                                       | (250)  |

**Notes**

- <sup>(1)</sup> Net weight for short lead product only  
• SPQ = Standard Packing Quantity



## **MOUNTING**

### **Normal Use**

The capacitors are designed for mounting on printed-circuit boards. The capacitors packed in bandoliers are designed for mounting in printed-circuit boards by means of automatic insertion machines.

For detailed tape specifications refer to "Packaging information" [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139) or end of catalog

### **Specific Method of Mounting to Withstand Vibration and Shock**

- For pitches  $\leq 15$  mm capacitors shall be mechanically fixed by the leads
- For larger pitches the capacitors shall be mounted in the same way and the body clamped

### **Storage Temperature**

- Storage temperature:  $T_{stg} = -25\text{ }^{\circ}\text{C}$  to  $+40\text{ }^{\circ}\text{C}$  with RH maximum 80 % without condensation

### **Ratings and Characteristics Reference Conditions**

Unless otherwise specified, all electrical values apply to an ambient temperature of  $23\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ , an atmospheric pressure of 86 kPa to 106 kPa and a relative humidity of  $50\text{ \%} \pm 2\text{ \%}$ .

For reference testing, a conditioning period shall be applied over  $96\text{ h} \pm 4\text{ h}$  by heating the products in a circulating air oven at the rated temperature and a relative humidity not exceeding 20 %.

### CHARACTERISTICS

Capacitance as a function of ambient temperature  
(typical curve)



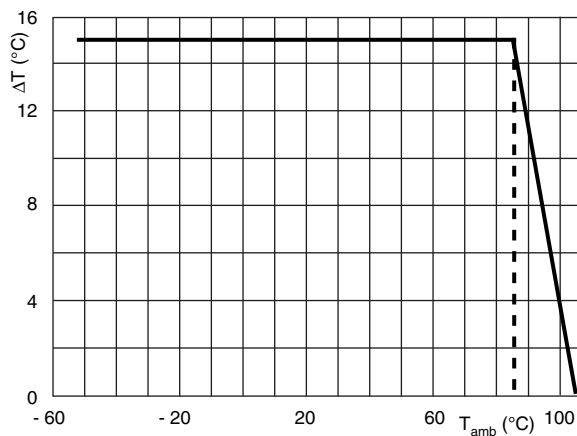
Impedance as a function of frequency  
(typical curve)



Max. DC voltage as a function of temperature



Max. allowed component temperature rise  
as a function of ambient temperature



AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents  
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Max. RMS voltage (sinewave) as a function of frequency



Max. RMS voltage (sinewave) as a function of frequency



Max. RMS voltage (sinewave) as a function of frequency



Max. RMS voltage (sinewave) as a function of frequency



Max. RMS voltage (sinewave) as a function of frequency



Max. RMS voltage (sinewave) as a function of frequency



Max. RMS voltage (sinewave) as a function of frequency



Max. RMS voltage (sinewave) as a function of frequency



Tangent of loss angle (typical curve)



1. KP/MPK 10.0 mm and 15 mm pitch all versions  
22.5 mm pitch, 1000 V, 1600 V, 2000 V and 2500 V versions
2. KP/MPK 22.5 mm pitch, 630 V versions  
27.5 mm pitch, 1000 V, 1600 V and 2000 V versions
3. KP/MPK 27.5 mm pitch, 630 V versions

Maximum curves



1. KP/MPK 10.0 mm and 15 mm pitch all versions  
22.5 mm pitch, 1000 V, 1600 V, 2000 V and 2500 V versions
2. KP/MPK 22.5 mm pitch, 630 V versions  
27.5 mm pitch, 1000 V, 1600 V and 2000 V versions
3. KP/MPK 27.5 mm pitch, 630 V versions

Insulation resistance as a function of ambient temperature



**HEAT CONDUCTIVITY (G) AS A FUNCTION OF (ORIGINAL) PITCH AND CAPACITOR BODY THICKNESS IN mW/°C**

| W <sub>max.</sub><br>(mm) | HEAT CONDUCTIVITY (mW/°C) |             |               |               |
|---------------------------|---------------------------|-------------|---------------|---------------|
|                           | PITCH 10 mm               | PITCH 15 mm | PITCH 22.5 mm | PITCH 27.5 mm |
| 4.0                       | 4.0                       | 5.0         | -             | -             |
| 4.5                       | 4.5                       | 6.0         | -             | -             |
| 5.0                       | 5.0                       | 6.0         | 12.0          | 13.0          |
| 5.5                       | 6.0                       | 6.5         | 13.0          | 15.0          |
| 6.0                       | 6.0                       | 6.5         | 13.0          | 15.0          |
| 6.5                       | 6.5                       | 8.0         | 15.0          | 17.0          |
| 7.0                       | -                         | 8.0         | 15.0          | 17.0          |
| 7.5                       | -                         | 9.0         | 17.0          | 18.0          |
| 8.0                       | -                         | 9.0         | 17.0          | 20.0          |
| 8.5                       | -                         | 11.0        | 18.0          | 20.0          |
| 9.0                       | -                         | 11.0        | 18.0          | 22.0          |
| 9.5                       | -                         | 12.0        | 20.0          | 22.0          |
| 10.0                      | -                         | 12.0        | 20.0          | 23.0          |
| 10.5                      | -                         | -           | 22.0          | 25.0          |
| 11.0                      | -                         | -           | 22.0          | 25.0          |
| 11.5                      | -                         | -           | 23.0          | 27.0          |
| 12.0                      | -                         | -           | -             | 27.0          |
| 12.5                      | -                         | -           | -             | 30.0          |
| 13.0                      | -                         | -           | -             | 30.0          |
| 13.5                      | -                         | -           | -             | 30.0          |
| 14.0                      | -                         | -           | -             | 30.0          |
| 14.5                      | -                         | -           | -             | 33.0          |
| 15.0                      | -                         | -           | -             | 33.0          |
| 15.5                      | -                         | -           | -             | 37.0          |
| 16.0                      | -                         | -           | -             | 37.0          |

**POWER DISSIPATION AND MAXIMUM COMPONENT TEMPERATURE RISE**

The power dissipation must be limited in order not to exceed the maximum allowed component temperature rise as a function of the free ambient temperature.

The power dissipation can be calculated according Type detail specification "HQN-384-01/101: Technical Information Film Capacitors

The component temperature rise ( $\Delta T$ ) can be measured (see section "Measuring the component temperature" for more details) or calculated by

$$\Delta T = P/G:$$

- $\Delta T$  = Component temperature rise (°C)
- P = Power dissipation of the component (mW)
- G = Heat conductivity of the component (mW/°C)

### MEASURING THE COMPONENT TEMPERATURE

A thermocouple must be attached to the capacitor body as in:



The temperature is measured in unloaded ( $T_{amb}$ ) and maximum loaded condition ( $T_C$ ).

The temperature rise is given by  $\Delta T = T_C - T_{amb}$ .

To avoid radiation or convection, the capacitor should be tested in a wind-free box.

### APPLICATION NOTE AND LIMITING CONDITIONS

To select the capacitor for a certain application, the following conditions must be checked:

1. The peak voltage ( $U_P$ ) shall not be greater than the rated DC voltage ( $U_{RDC}$ )
2. The peak-to-peak voltage ( $U_{PP}$ ) shall not be greater than the maximum ( $U_{P-P}$ ) to avoid the ionisation inception level
3. The voltage pulse slope ( $dU/dt$ ) shall not exceed the rated voltage pulse slope in an RC-circuit at rated voltage and without ringing. If the pulse voltage is lower than the rated DC voltage, the rated voltage pulse slope may be multiplied by  $U_{Rdc}$  and divided by the applied voltage.

For all other pulses following equation must be fulfilled:

$$2 \times \int_0^T \left( \frac{dU}{dt} \right)^2 \times dt < U_{Rdc} \times \left( \frac{dU}{dt} \right)_{rated}$$

T is the pulse duration.

4. The maximum component surface temperature rise must be lower than the limits

### EXAMPLE

$C = 10 \text{ nF}$  1600 V, KP/MPK

This is a signal as in the drawing below

$U_{P-P} = 1200 \text{ V}$ ;  $U_P = 1100 \text{ V}$ ;  $T_1 = 12 \text{ } \mu\text{s}$ ;  $T_2 = 64 \text{ } \mu\text{s}$

The ambient temperature is  $50 \text{ } ^\circ\text{C}$

Checking conditions:

1. The peak voltage  $U_P = 1100 \text{ V}$  is lower than  $1600 \text{ V}_{DC}$
2. The peak-to-peak voltage  $1200 \text{ V}$  is lower than  $2\sqrt{2} \times 550 \text{ Vac} = 1414 \text{ V}$
3. The voltage pulse slope ( $dU/dt$ ) =  $320 \text{ V}$  is much lower than  $7000 \text{ V}/\mu\text{s}$
4. The dissipated power is  $170 \text{ mW}$  as calculated with fourier terms

This gives a temperature rise of  $170 \text{ mW} / (17 \text{ mW}/^\circ\text{C}) = 10 \text{ } ^\circ\text{C}$  which is allowed acc. fig. "max. allowed temperature rise as a function of ambient temperature" for an ambient temperature of  $50 \text{ } ^\circ\text{C}$



**AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents  
KP/MKP Radial Lacquered Type****INSPECTION REQUIREMENTS****General Notes:**

Sub-clause numbers of tests and performance requirements refer to the “Sectional Specification, Publication IEC 60384-17 and Specific Reference Data”.

**Group C Inspection Requirements**

| SUB-CLAUSE NUMBER AND TEST                          | CONDITIONS                                                                                                                                                                                                                                          | PERFORMANCE REQUIREMENTS                                                                                                                                                                                     |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SUB-GROUP C1A PART OF SAMPLE OF SUB-GROUP C1</b> |                                                                                                                                                                                                                                                     |                                                                                                                                                                                                              |
| 4.1 Dimensions (detail)                             |                                                                                                                                                                                                                                                     | As specified in chapters “General Data” of this specification                                                                                                                                                |
| 4.3.1 Initial measurements                          | Capacitance<br>Tangent of loss angle at 100 kHz                                                                                                                                                                                                     |                                                                                                                                                                                                              |
| 4.3 Robustness of terminations                      | Tensile: Load 10 N; 10 s<br>Bending: Load 5 N; 4 x 90°                                                                                                                                                                                              | No visible damage                                                                                                                                                                                            |
| 4.4 Resistance to soldering heat                    | Method: 1A<br>Solder bath: 280 °C ± 5 °C<br>Duration: 10 s                                                                                                                                                                                          |                                                                                                                                                                                                              |
| 4.14 Component solvent resistance                   | Isopropylalcohol at room temperature<br>Method: 2<br>Immersion time: 5 min ± 0.5 min<br>Recovery time: Min. 1 h, max. 2 h                                                                                                                           |                                                                                                                                                                                                              |
| 4.4.2 Final measurements                            | Visual examination<br><br>Capacitance<br><br>Tangent of loss angle                                                                                                                                                                                  | No visible damage<br>Legible marking<br><br>$ \Delta C/C  \leq 1 \% + 5 \text{ pF}$ of the value measured initially<br><br>Increase of $\tan \delta$ : $\leq 0.0005$<br>Compared to values measured in 4.3.1 |
| <b>SUB-GROUP C1B PART OF SAMPLE OF SUB-GROUP C1</b> |                                                                                                                                                                                                                                                     |                                                                                                                                                                                                              |
| 4.6.1 Initial measurements                          | Capacitance<br>Tangent of loss angle at 100 kHz                                                                                                                                                                                                     |                                                                                                                                                                                                              |
| 4.15 Solvent resistance of the marking              | Isopropylalcohol at room temperature<br>Method: 1<br>Rubbing material: cotton wool<br>Immersion time: 5 min ± 0.5 min                                                                                                                               | No visible damage<br>Legible marking                                                                                                                                                                         |
| 4.6 Rapid change of temperature                     | $\theta A = - 55 \text{ }^{\circ}\text{C}$<br>$\theta B = + 105 \text{ }^{\circ}\text{C}$<br>5 cycles<br>Duration $t = 30 \text{ min}$                                                                                                              |                                                                                                                                                                                                              |
| 4.7 Vibration                                       | Visual examination<br>Mounting:<br>See section “Mounting” of this specification<br>Procedure B4<br>Frequency range: 10 Hz to 55 Hz<br>Amplitude: 0.75 mm or<br>Acceleration 98 m/s <sup>2</sup><br>(whichever is less severe)<br>Total duration 6 h | No visible damage                                                                                                                                                                                            |

# Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type

| SUB-CLAUSE NUMBER AND TEST                                                 | CONDITIONS                                                                                                                                                                             | PERFORMANCE REQUIREMENTS                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.7.2 Final inspection                                                     | Visual examination                                                                                                                                                                     | No visible damage                                                                                                                                                                                                                                                                                                                                 |
| 4.9 Shock                                                                  | Mounting:<br>See section "Mounting" of this specification<br>Pulse shape: Half sine<br>Acceleration: 490 m/s <sup>2</sup><br>Duration of pulse: 11 ms                                  |                                                                                                                                                                                                                                                                                                                                                   |
| 4.9.3 Final measurements                                                   | Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Insulation resistance                                                                                        | No visible damage<br><br>For $C > 0.027\mu\text{F}$ : $ \Delta C/C  \leq 2\%$ or<br>for $C \leq 0.027\mu\text{F}$ : $ \Delta C/C  \leq 3\% + 5\text{ pF}$<br>of the value measured in 4.6.1.<br>Increase of $\tan \delta$ : $\leq 0.0005$<br>Compared to values measured in 4.6.1<br>As specified in chapter "General data" of this specification |
| <b>SUB-GROUP C1 COMBINED SAMPLE OF SPECIMENS OF SUB-GROUPS C1A AND C1B</b> |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                   |
| 4.10 Climatic sequence                                                     |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                   |
| 4.10.2 Dry heat                                                            | Temperature: + 105 °C<br>Duration: 16 h                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                   |
| 4.10.3 Damp heat cyclic<br>Test Db, first cycle                            |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                   |
| 4.10.4 Cold                                                                | Temperature: - 55 °C<br>Duration: 2 h                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                   |
| 4.10.6 Damp heat cyclic<br>Test Db, remaining cycles                       |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                   |
| 4.10.6.2 Final measurements                                                | Voltage proof = $U_{RDC}$ for 1 min within 15 min<br>after removal from testchamber<br>Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Insulation resistance | No breakdown of flash-over<br><br>No visible damage<br>Legible marking<br>$ \Delta C/C  \leq 3\%$ of the value measured in<br>4.4.2 or 4.9.3<br>Increase of $\tan \delta$ : $\leq 0.001$<br>Compared to values measured in<br>4.3.1 or 4.6.1<br>$\geq 50\%$ of values specified in chapters<br>"General data" of this specification               |
| <b>SUB-GROUP C2</b>                                                        |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                   |
| 4.11 Damp heat steady state                                                | 56 days, 40 °C, 90 % to 95 % RH                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                   |
| 4.11.1 Initial measurements                                                | Capacitance<br>Tangent of loss angle at 1 kHz                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                   |
| 4.11.3 Final measurements                                                  | Voltage proof = $U_{RDC}$ for 1 min within 15 min<br>after removal from testchamber<br>Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Insulation resistance | No breakdown of flash-over<br><br>No visible damage<br>Legible marking<br>$ \Delta C/C  \leq 1\% + 5\text{ pF}$ of the value measured in<br>4.11.1.<br>Increase of $\tan \delta \leq 0.0005$<br>Compared to values measured in 4.11.1<br>$\geq 50\%$ of values specified in section<br>"Insulation Resistance" of this specification              |



AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents  
KP/MKP Radial Lacquered Type

| SUB-CLAUSE NUMBER AND TEST                                       | CONDITIONS                                                                                                                                                                                              | PERFORMANCE REQUIREMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SUB GROUP C3</b>                                              |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4.12.1 Endurance                                                 | Duration: 2000 h<br>Temperature: 85 °C<br>Voltage: 1.25 x max. $U_{RDC}$ $V_{rms}$ , 50 Hz<br>Duration: 2000 h<br>Temperature: 105 °C                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4.12.1.1 Initial measurements<br><br>4.12.1.3 Final measurements | Voltage: 0.875 x max. $U_{RDC}$ $V_{rms}$ , 50 Hz<br>Capacitance<br>Tangent of loss angle at 100 kHz<br>Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Insulation resistance | No visible damage<br>Legible marking<br>Temperature: 85 °C<br>For $C > 0.056 \mu F$ : $ \Delta C/C  \leq 2 \% + 5 \text{ pF}$ or<br>for $C > 0.056 \mu F$ : $ \Delta C/C  \leq 3 \% + 5 \text{ pF}$<br>of the value measured in 4.12.1.1<br>Temperature: 105 °C<br>$ \Delta C/C  \leq 5 \% + 5 \text{ pF}$<br>Increase of $\tan \delta$ : $\leq 0.001$<br>Compared to values measured in 4.12.1<br>$\geq 50 \%$ of values specified in chapters<br>“General data” of this specification |
| <b>SUB-GROUP C4</b>                                              |                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4.2.6 Temperature characteristics                                | Capacitance<br><br>Insulation resistance                                                                                                                                                                | As specified in section “Capacitance” of this specification<br>As specified in chapters “General data” of this specification                                                                                                                                                                                                                                                                                                                                                            |



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