

Surface Mount Multilayer Ceramic Chip Capacitors for Non-Magnetic Applications



FEATURES

- Specialty: Non-magnetic MLCCs
- Manufactured with non-magnetic materials
- Safety screened for magnetic properties
- C0G (NP0) and X7R/X5R dielectrics offered
- Wide range of case sizes, voltage ratings and capacitance values
- Allowed assembly methods are conductive epoxy bonding and IR reflow
- Wet built process
- Reliable Noble Metal Electrode (NME) system
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

- Magnetic Resonance Imaging (MRI)
- Medical test and diagnostic equipment
- High Rel medical systems
- High Rel aviation systems
- Laboratory analysis systems
- Navigation and electronic test equipment
- Audio amplifiers

ELECTRICAL SPECIFICATIONS

NON-MAGNETIC C0G (NP0)

GENERAL SPECIFICATION

Note

Electrical characteristics at + 25 °C unless otherwise specified

Operating Temperature: - 55 °C to + 125 °C

Capacitance Range: 0.5 pF to 56 nF

Voltage Range: 10 V_{DC} to 3000 V_{DC}

Temperature Coefficient of Capacitance (TCC):

0 ppm/°C ± 30 ppm/°C from - 55 °C to + 125 °C

Dissipation Factor (DF):

0.1 % maximum at 1.0 V_{RMS} and

1 MHz for values ≤ 1000 pF

0.1 % maximum at 1.0 V_{RMS} and

1 kHz for values > 1000 pF

Insulating Resistance:

At + 25 °C 100 000 MΩ min. or 1000 ΩF whichever is less

At + 125 °C 10 000 MΩ min. or 100 ΩF whichever is less

Aging: 0 % maximum per decade

Dielectric Strength Test:

Performed per method 103 of EIA 198-2-E.

Applied test voltages

≤ 200 V_{DC}-rated: 250 % of rated voltage

500 V_{DC}-rated: 200 % of rated voltage

630 V_{DC}, 1000 V_{DC}-rated: 150 % of rated voltage

1500 V_{DC} to 3000 V_{DC}-rated: 120 % of rated voltage

NON-MAGNETIC X7R/X5R

GENERAL SPECIFICATION

Note

Electrical characteristics at + 25 °C unless otherwise specified

Operating Temperature: - 55 °C to + 125 °C

Capacitance Range: 100 pF to 6.8 μF

Voltage Range: 6.3 V_{DC} to 3000 V_{DC}

Temperature Coefficient of Capacitance (TCC):

X5R: ± 15 % from - 55 °C to + 85 °C, with 0 V_{DC} applied

X7R: ± 15 % from - 55 °C to + 125 °C, with 0 V_{DC} applied

Dissipation Factor (DF):

≤ 6.3 V, 10 V ratings: 5 % maximum at 1.0 V_{RMS} and 1 kHz

16 V, 25 V ratings: 3.5 % maximum at 1.0 V_{RMS} and 1 kHz

≥ 50 V ratings: 2.5 % maximum at 1.0 V_{RMS} and 1 kHz

Insulating Resistance:

At + 25 °C 100 000 MΩ min. or 1000 ΩF whichever is less

At + 125 °C 10 000 MΩ min. or 100 ΩF whichever is less

Aging Rate: 1 % maximum per decade

Dielectric Strength Test:

Performed per method 103 of EIA 198-2-E.

Applied test voltages

≤ 200 V_{DC}-rated: 250 % of rated voltage

500 V_{DC}-rated: min. 150 % of rated voltage

630 V_{DC}, 1000 V_{DC}-rated: 150 % of rated voltage

1500 V_{DC}, 3000 V_{DC}-rated: 120 % of rated voltage



| QUICK REFERENCE DATA | | | | |
|----------------------|------|---------------------|-------------|---------|
| DIELECTRIC | CASE | MAXIMUM VOLTAGE (V) | CAPACITANCE | |
| | | | MINIMUM | MAXIMUM |
| C0G (NP0) | 0402 | 100 | 0.5 pF | 180 pF |
| | 0603 | 200 | 0.5 pF | 1.8 nF |
| | 0805 | 500 | 0.5 pF | 3.3 nF |
| | 1206 | 600 | 0.5 pF | 10 nF |
| | 1210 | 500 | 0.5 pF | 12 nF |
| | 1808 | 3000 | 10 pF | 10 nF |
| | 1812 | 3000 | 10 pF | 22 nF |
| | 1825 | 1000 | 15 pF | 39 nF |
| | 2220 | 1000 | 100 pF | 47 nF |
| | 2225 | 1000 | 120 pF | 56 nF |
| X5R | 0402 | 16 | 27 nF | 100 nF |
| | 0603 | 6.3 | 120 nF | 150 nF |
| X7R | 0402 | 100 | 100 pF | 22 nF |
| | 0603 | 100 | 270 pF | 100 nF |
| | 0805 | 200 | 390 pF | 390 nF |
| | 1206 | 500 | 680 pF | 1.0 μF |
| | 1210 | 500 | 1.0 nF | 1.0 μF |
| | 1808 | 3000 | 220 pF | 270 nF |
| | 1812 | 3000 | 270 pF | 1.0 μF |
| | 1825 | 1000 | 10 nF | 2.7 μF |
| | 2220 | 3000 | 1.0 nF | 2.2 μF |
| | 2225 | 2000 | 5.6 nF | 4.7 μF |
| | 3640 | 500 | 15 nF | 6.8 μF |

Note

- Detail ratings see "Selection Chart"

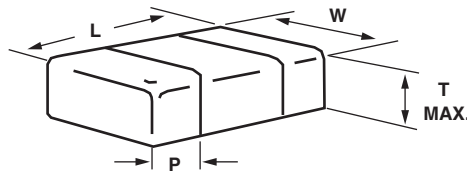


| ORDERING INFORMATION | | | | | | | |
|--------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VJ0603 | Y | 102 | K | N | A | A | O |
| CASE CODE | DIELECTRIC | CAPACITANCE NOMINAL CODE | CAPACITANCE TOLERANCE | TERMINATION | DC VOLTAGE RATING ⁽¹⁾ | MARKING | PACKAGING |
| 0402 0603 0805 1206 1210 1808 1812 1825 2220 2225 3640 | A = COG Y = X7R G = X5R ⁽²⁾ | Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier. An "R" indicates a decimal point. Examples 102 = 1000 pF 1R0 = 1.0 pF | COG(NP0): < 10 pF C = ± 0.25 pF D = 0.5 pF ≥ 10 pF F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 % X5R/X7R: J = ± 5 % K = ± 10 % M = ± 20 % | N = Non-magnetic | Q = 10 V J = 16 V X = 25 V A = 50 V K = 75 V B = 100 V C = 200 V E = 500 V L = 630 V G = 1000 V R = 1500 V F = 2000 V H = 3000 V | A = Unmarked | T = 7" reel/plastic tape R = 11 1/4"/13" reel/plastic tape O = 7" reel/flamed paper tape I = 11 1/4"/13" reel/flamed paper tape J = 7" reel (low quantity) |

Notes

- ⁽¹⁾ DC voltage rating should not be exceeded in application
- ⁽²⁾ Selected values for X5R, see dielectric selection chart

DIMENSIONS in inches (millimeters)



| CASE CODE | STYLE | LENGTH (L) | WIDTH (W) | MAXIMUM THICKNESS (T) | TERMINATIONS (P) | |
|-----------|--------|-----------------------------------------------|---------------------------------|-----------------------|------------------|-----------------|
| | | | | | MINIMUM | MAXIMUM |
| 0402 | VJ0402 | 0.040 + 0.006/- 0.004 (1.00 + 0.15/- 0.10) | 0.020 ± 0.004 (0.50 ± 0.10) | 0.024 (0.60) | 0.004 (0.10) | 0.016 (0.41) |
| 0603 | VJ0603 | 0.063 ± 0.006 (1.60 ± 0.15) | 0.031 ± 0.006 (0.80 ± 0.15) | 0.038 (0.92) | 0.012 (0.30) | 0.018 (0.46) |
| 0805 | VJ0805 | 0.079 ± 0.008 (2.00 ± 0.20) | 0.049 ± 0.008 (1.25 ± 0.20) | 0.057 (1.45) | 0.010 (0.25) | 0.028 (0.71) |
| 1206 | VJ1206 | 0.126 ± 0.010 (3.20 ± 0.25) | 0.063 ± 0.010 (1.60 ± 0.25) | 0.067 (1.70) | 0.010 (0.25) | 0.028 (0.71) |
| 1210 | VJ1210 | 0.126 ± 0.010 (3.20 ± 0.25) | 0.098 ± 0.010 (2.50 ± 0.25) | 0.067 (1.70) | 0.010 (0.25) | 0.028 (0.71) |
| 1808 | VJ1808 | 0.177 ± 0.012 (4.50 ± 0.30) | 0.080 ± 0.010 (2.03 ± 0.25) | 0.067 (1.70) | 0.010 (0.25) | 0.030 (0.76) |
| 1812 | VJ1812 | 0.177 ± 0.012 (4.50 ± 0.30) | 0.126 ± 0.010 (3.20 ± 0.25) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |
| 1825 | VJ1825 | 0.177 ± 0.012 (4.50 ± 0.30) | 0.252 ± 0.010 (6.40 ± 0.25) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |
| 2220 | VJ2220 | 0.220 ± 0.008 (5.59 ± 0.20) | 0.200 ± 0.010 (5.08 ± 0.25) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |
| 2225 | VJ2225 | 0.220 ± 0.010 (5.59 ± 0.25) | 0.250 ± 0.010 (6.35 ± 0.25) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |
| 3640 | VJ3640 | 0.360 ± 0.015 (9.14 ± 0.38) | 0.400 ± 0.015 (10.20 ± 0.38) | 0.086 (2.18) | 0.010 (0.25) | 0.030 (0.76) |



| SELECTION CHART | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|-----------|----|----|----|-----|--------|----|----|----|-----|-----|--------|----|----|----|-----|-----|-----|
| DIELECTRIC | | C0G (NP0) | | | | | | | | | | | | | | | | | |
| STYLE | | VJ0402 | | | | | VJ0603 | | | | | | VJ0805 | | | | | | |
| CASE CODE | | 0402 | | | | | 0603 | | | | | | 0805 | | | | | | |
| VOLTAGE (V _{DC}) | | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 | 200 | 10 | 16 | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE | | Q | J | X | A | B | Q | J | X | A | B | C | Q | J | X | A | B | C | E |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | |
| 0R5 | 0.5 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 1R0 | 1.0 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 1R2 | 1.2 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 1R5 | 1.5 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 1R8 | 1.8 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 2R2 | 2.2 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 2R7 | 2.7 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 3R3 | 3.3 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 3R9 | 3.9 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 4R7 | 4.7 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 5R6 | 5.6 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 6R8 | 6.8 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 8R2 | 8.2 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 100 | 10 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 120 | 12 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 150 | 15 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 180 | 18 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 220 | 22 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 270 | 27 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 330 | 33 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 390 | 39 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 470 | 47 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 560 | 56 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 680 | 68 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 820 | 82 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 101 | 100 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 121 | 120 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 151 | 150 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 181 | 180 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 221 | 220 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 271 | 270 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 331 | 330 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 391 | 390 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 471 | 470 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 561 | 560 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 681 | 680 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 821 | 820 pF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 102 | 1.0 nF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 122 | 1.2 nF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 152 | 1.5 nF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 182 | 1.8 nF | | | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • | • |
| 222 | 2.2 nF | | | | | | | | | | | | • | • | • | • | • | • | • |
| 272 | 2.7 nF | | | | | | | | | | | | • | • | • | • | • | • | • |
| 332 | 3.3 nF | | | | | | | | | | | | • | • | • | • | • | • | • |
| 392 | 3.9 nF | | | | | | | | | | | | | | | | | | |
| 472 | 4.7 nF | | | | | | | | | | | | | | | | | | |
| 562 | 5.6 nF | | | | | | | | | | | | | | | | | | |
| 682 | 6.8 nF | | | | | | | | | | | | | | | | | | |
| 822 | 8.2 nF | | | | | | | | | | | | | | | | | | |
| 103 | 10 nF | | | | | | | | | | | | | | | | | | |
| 123 | 12 nF | | | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | |
|----------------------------|--------|-----------|----|----|-----|-----|-----|--------|----|----|-----|-----|-----|
| DIELECTRIC | | COG (NP0) | | | | | | | | | | | |
| STYLE | | VJ1206 | | | | | | VJ1210 | | | | | |
| CASE CODE | | 1206 | | | | | | 1210 | | | | | |
| VOLTAGE (V _{DC}) | | 16 | 25 | 50 | 100 | 200 | 500 | 600 | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE | | J | X | A | B | C | E | N | X | A | B | C | E |
| CAP. CODE | CAP. | | | | | | | | | | | | |
| 0R5 | 0.5 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 1R0 | 1.0 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 1R2 | 1.2 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 1R5 | 1.5 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 1R8 | 1.8 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 2R2 | 2.2 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 2R7 | 2.7 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 3R3 | 3.3 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 3R9 | 3.9 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 4R7 | 4.7 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 5R6 | 5.6 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 6R8 | 6.8 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 8R2 | 8.2 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 100 | 10 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 120 | 12 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 150 | 15 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 180 | 18 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 220 | 22 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 270 | 27 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 330 | 33 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 390 | 39 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 470 | 47 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 560 | 56 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 680 | 68 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 820 | 82 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 101 | 100 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 121 | 120 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 151 | 150 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 181 | 180 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 221 | 220 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 271 | 270 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 331 | 330 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 391 | 390 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 471 | 470 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 561 | 560 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 681 | 680 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 821 | 820 pF | • | • | • | • | • | • | • | • | • | • | • | • |
| 102 | 1.0 nF | • | • | • | • | • | • | • | • | • | • | • | • |
| 122 | 1.2 nF | • | • | • | • | • | • | • | • | • | • | • | • |
| 152 | 1.5 nF | • | • | • | • | • | • | • | • | • | • | • | • |
| 182 | 1.8 nF | • | • | • | • | • | | | • | • | • | • | • |
| 222 | 2.2 nF | • | • | • | • | • | | | • | • | • | • | |
| 272 | 2.7 nF | • | • | • | • | • | | | • | • | • | • | |
| 332 | 3.3 nF | • | • | • | • | | | | • | • | • | • | |
| 392 | 3.9 nF | • | • | • | • | | | | • | • | • | • | |
| 472 | 4.7 nF | • | • | • | • | | | | • | • | • | • | |
| 562 | 5.6 nF | • | • | • | | | | | • | • | • | • | |
| 682 | 6.8 nF | • | • | • | | | | | • | • | • | | |
| 822 | 8.2 nF | • | • | • | | | | | • | • | | | |
| 103 | 10 nF | • | • | • | | | | | • | • | | | |
| 123 | 12 nF | | | | | | | | • | • | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|-----------|----|-----|-----|-----|-----|------|------|------|------|--------|----|-----|-----|-----|-----|------|------|------|------|
| DIELECTRIC | | COG (NP0) | | | | | | | | | | | | | | | | | | | |
| STYLE | | VJ1808 | | | | | | | | | | VJ1812 | | | | | | | | | |
| CASE CODE | | 1808 | | | | | | | | | | 1812 | | | | | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 1500 | 2000 | 3000 | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 1500 | 2000 | 3000 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | R | F | H | X | A | B | C | E | L | G | R | F | H |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | | | |
| 100 | 10 pF | | | | | | • | • | • | • | • | | | | | | • | • | • | • | • |
| 120 | 12 pF | | | | | | • | • | • | • | • | | | | | | • | • | • | • | • |
| 150 | 15 pF | | | | | | • | • | • | • | • | | | | | | • | • | • | • | • |
| 180 | 18 pF | | | | | | • | • | • | • | • | | | | | | • | • | • | • | • |
| 220 | 22 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 270 | 27 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 330 | 33 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 390 | 39 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 470 | 47 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 560 | 56 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 680 | 68 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 820 | 82 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 101 | 100 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 121 | 120 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 151 | 150 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 181 | 180 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 221 | 220 pF | • | • | • | • | • | • | • | • | • | • | | | | | | • | • | • | • | • |
| 271 | 270 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 331 | 330 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 391 | 390 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 471 | 470 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 561 | 560 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 681 | 680 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 821 | 820 pF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 102 | 1.0 nF | • | • | • | • | • | • | • | | | | | | | | | • | • | • | • | • |
| 122 | 1.2 nF | • | • | • | • | • | | | | | | | | | | | • | • | • | • | • |
| 152 | 1.5 nF | • | • | • | • | • | | | | | | | | | | | • | • | • | • | • |
| 182 | 1.8 nF | • | • | • | • | • | | | | | | | | | | | • | • | • | • | • |
| 222 | 2.2 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 272 | 2.7 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 332 | 3.3 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 392 | 3.9 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 472 | 4.7 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 562 | 5.6 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 682 | 6.8 nF | • | • | • | • | | | | | | | | | | | | • | • | • | • | • |
| 822 | 8.2 nF | • | • | • | | | | | | | | | | | | | • | • | • | • | • |
| 103 | 10 nF | • | • | | | | | | | | | | | | | | • | • | • | • | • |
| 123 | 12 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 153 | 15 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 183 | 18 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 223 | 22 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 273 | 27 nF | | | | | | | | | | | | | | | | • | • | • | • | • |
| 333 | 33 nF | | | | | | | | | | | | | | | | | | | | |
| 393 | 39 nF | | | | | | | | | | | | | | | | | | | | |
| 473 | 47 nF | | | | | | | | | | | | | | | | | | | | |
| 563 | 56 nF | | | | | | | | | | | | | | | | | | | | |
| 683 | 68 nF | | | | | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|-----------|----|-----|-----|-----|-----|--------|----|----|-----|-----|-----|--------|------|----|----|-----|-----|-----|-----|------|
| DIELECTRIC | | C0G (NP0) | | | | | | | | | | | | | | | | | | | | |
| STYLE | | VJ1825 | | | | | | VJ2220 | | | | | | VJ2225 | | | | | | | | |
| CASE CODE | | 1825 | | | | | | 2220 | | | | | | 2225 | | | | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 25 | 50 | 100 | 200 | 500 | 630 | 1000 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | X | A | B | C | E | L | G | X | A | B | C | E | L | G |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | | | | |
| 100 | 10 pF | | | | | | | | | | | | | | | | | | | | | |
| 120 | 12 pF | | | | | | | | | | | | | | | | | | | | | |
| 150 | 15 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 180 | 18 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 220 | 22 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 270 | 27 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 330 | 33 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 390 | 39 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 470 | 47 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 560 | 56 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 680 | 68 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 820 | 82 pF | | | | | | • | • | | | | | | | | | | | | | | |
| 101 | 100 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | | | | | | |
| 121 | 120 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | • | • | • | • | • | |
| 151 | 150 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | • | • | • | • | • | |
| 181 | 180 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | • | • | • | • | • | |
| 221 | 220 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | | | • | • | • | • | • | |
| 271 | 270 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 331 | 330 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 391 | 390 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 471 | 470 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 561 | 560 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 681 | 680 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 821 | 820 pF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 102 | 1.0 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 122 | 1.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 152 | 1.5 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 182 | 1.8 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 222 | 2.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 272 | 2.7 nF | • | • | • | • | • | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 332 | 3.3 nF | • | • | • | • | • | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 392 | 3.9 nF | • | • | • | • | • | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 472 | 4.7 nF | • | • | • | • | • | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 562 | 5.6 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | • | • | • | • | • | |
| 682 | 6.8 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | |
| 822 | 8.2 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | |
| 103 | 10 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | |
| 123 | 12 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | • |
| 153 | 15 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | |
| 183 | 18 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | |
| 223 | 22 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | |
| 273 | 27 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | |
| 333 | 33 nF | • | • | • | • | • | | | • | • | • | • | • | | | | • | • | • | • | • | |
| 393 | 39 nF | • | • | | | | | | • | • | | | | | | | • | • | • | • | • | |
| 473 | 47 nF | | | | | | | | • | • | | | | | | | • | • | • | • | • | |
| 563 | 56 nF | | | | | | | | | | | | | | | | • | • | | | | |
| 683 | 68 nF | | | | | | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|------------------------|--------|--------|----|----|--------|--------|----|----|----|----|--------|----|----|----|----|-----|-----|
| DIELECTRIC | | X7R/X5R ⁽¹⁾ | | | | | | | | | | | | | | | | | |
| STYLE | | VJ0402 | | | | | VJ0603 | | | | | | VJ0805 | | | | | | |
| CASE CODE | | 0402 | | | | | 0603 | | | | | | 0805 | | | | | | |
| VOLTAGE (V _{DC}) | | 6.3 | 10 | 16 | 25 | 50 | 100 | 6.3 | 10 | 16 | 25 | 50 | 100 | 10 | 16 | 25 | 50 | 100 | 200 |
| VOLTAGE CODE | | Y | Q | J | X | A | B | Y | Q | J | X | A | B | Q | J | X | A | B | C |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | |
| 101 | 100 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 121 | 120 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 151 | 150 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 181 | 180 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 221 | 220 pF | •• | •• | •• | •• | •• | •• | | | | | | | | | | | | |
| 271 | 270 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | | | | | | |
| 331 | 330 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | | | | | | |
| 391 | 390 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 471 | 470 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 561 | 560 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 681 | 680 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 821 | 820 pF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 102 | 1.0 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 122 | 1.2 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 152 | 1.5 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 182 | 1.8 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 222 | 2.2 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 272 | 2.7 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 332 | 3.3 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 392 | 3.9 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 472 | 4.7 nF | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 562 | 5.6 nF | •• | •• | •• | •• | •• | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 682 | 6.8 nF | •• | •• | •• | •• | •• | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 822 | 8.2 nF | •• | •• | •• | •• | •• | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 103 | 10 nF | •• | •• | •• | •• | •• | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 123 | 12 nF | •• | •• | •• | •• | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 153 | 15 nF | •• | •• | •• | •• | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 183 | 18 nF | •• | •• | •• | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 223 | 22 nF | •• | •• | •• | | | | •• | •• | •• | •• | •• | •• | • | • | • | • | • | • |
| 273 | 27 nF | X5R •• | X5R •• | X5R •• | | | | •• | •• | •• | •• | •• | | • | • | • | • | • | • |
| 333 | 33 nF | X5R •• | X5R •• | X5R •• | | | | •• | •• | •• | •• | •• | | • | • | • | • | • | • |
| 393 | 39 nF | X5R •• | | | | | | •• | •• | •• | •• | •• | | • | • | • | • | • | • |
| 473 | 47 nF | X5R •• | | | | | | •• | •• | •• | •• | •• | | • | • | • | • | • | • |
| 563 | 56 nF | X5R •• | | | | | | •• | •• | •• | •• | | | • | • | • | • | • | • |
| 683 | 68 nF | X5R •• | | | | | | •• | •• | •• | •• | | | • | • | • | • | • | • |
| 823 | 82 nF | X5R •• | | | | | | •• | •• | •• | •• | | | • | • | • | • | • | • |
| 104 | 100 nF | X5R •• | | | | | | •• | •• | •• | •• | | | • | • | • | • | | |
| 124 | 120 nF | | | | | | | X5R •• | | | | | | • | • | • | • | | |
| 154 | 150 nF | | | | | | | X5R •• | | | | | | • | • | • | • | | |
| 184 | 180 nF | | | | | | | | | | | | | • | • | • | | | |
| 224 | 220 nF | | | | | | | | | | | | | • | • | • | | | |
| 274 | 270 nF | | | | | | | | | | | | | • | • | • | | | |
| 334 | 330 nF | | | | | | | | | | | | | • | • | • | | | |
| 394 | 390 nF | | | | | | | | | | | | | • | | | | | |
| 474 | 470 nF | | | | | | | | | | | | | | | | | | |
| 564 | 560 nF | | | | | | | | | | | | | | | | | | |
| 684 | 680 nF | | | | | | | | | | | | | | | | | | |
| 824 | 820 nF | | | | | | | | | | | | | | | | | | |
| 105 | 1.0 μF | | | | | | | | | | | | | | | | | | |
| 125 | 1.2 μF | | | | | | | | | | | | | | | | | | |

Notes

•• RoHS-compliant

•• Flamed paper tape • Plastic tape

(1) See selection chart for values only available as X5R. All other values X7R.



| SELECTION CHART | | | | | | | | | | | | | | |
|----------------------------|--------|--------|----|----|-----|-----|-----|--------|----|----|----|-----|-----|-----|
| DIELECTRIC | | VJ1206 | | | | | | X7R | | | | | | |
| STYLE | | 1206 | | | | | | VJ1210 | | | | | | |
| CASE CODE | | 1206 | | | | | | 1210 | | | | | | |
| VOLTAGE (V _{DC}) | | 16 | 25 | 50 | 100 | 200 | 500 | 16 | 25 | 50 | 75 | 100 | 200 | 500 |
| VOLTAGE CODE | | J | X | A | B | C | E | J | X | A | K | B | C | E |
| CAP. CODE | CAP. | | | | | | | | | | | | | |
| 101 | 100 pF | | | | | | | | | | | | | |
| 121 | 120 pF | | | | | | | | | | | | | |
| 151 | 150 pF | | | | | | | | | | | | | |
| 181 | 180 pF | | | | | | | | | | | | | |
| 221 | 220 pF | | | | | | | | | | | | | |
| 271 | 270 pF | | | | | | | | | | | | | |
| 331 | 330 pF | | | | | | | | | | | | | |
| 391 | 390 pF | | | | | | | | | | | | | |
| 471 | 470 pF | | | | | | | | | | | | | |
| 561 | 560 pF | | | | | | | | | | | | | |
| 681 | 680 pF | • | • | • | • | • | • | | | | | | | |
| 821 | 820 pF | • | • | • | • | • | • | | | | | | | |
| 102 | 1.0 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 122 | 1.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 152 | 1.5 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 182 | 1.8 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 222 | 2.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 272 | 2.7 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 332 | 3.3 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 392 | 3.9 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 472 | 4.7 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 562 | 5.6 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 682 | 6.8 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 822 | 8.2 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 103 | 10 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 123 | 12 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 153 | 15 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 183 | 18 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 223 | 22 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 273 | 27 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 333 | 33 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 393 | 39 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 473 | 47 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 563 | 56 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 683 | 68 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 823 | 82 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 104 | 100 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 124 | 120 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 154 | 150 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 184 | 180 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 224 | 220 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 274 | 270 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 334 | 330 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 394 | 390 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 474 | 470 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 564 | 560 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 684 | 680 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 824 | 820 nF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 105 | 1.0 μF | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 125 | 1.2 μF | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--------|--------|----|-----|-----|-----|-----|------|------|------|------|--------|----|----|-----|-----|-----|-----|-----|------|------|------|------|
| DIELECTRIC | | X7R | | | | | | | | | | | | | | | | | | | | | |
| STYLE | | VJ1808 | | | | | | | | | | VJ1812 | | | | | | | | | | | |
| CASE CODE | | 1808 | | | | | | | | | | 1812 | | | | | | | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 1500 | 2000 | 3000 | 25 | 50 | 75 | 100 | 200 | 250 | 500 | 630 | 1000 | 1500 | 2000 | 3000 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | R | F | H | X | A | K | B | C | P | E | L | G | R | F | H |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | | | | | | | |
| 221 | 220 pF | | | | | | | | | | • | | | | | | | | | | | | |
| 271 | 270 pF | | | | | | | | | | • | | | | | | | • | • | • | • | • | |
| 471 | 470 pF | | | | | | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 561 | 560 pF | | | | | | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 681 | 680 pF | | | | | | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 821 | 820 pF | | | | | | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 102 | 1.0 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 122 | 1.2 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 152 | 1.5 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 182 | 1.8 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 222 | 2.2 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 272 | 2.7 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 332 | 3.3 nF | • | • | • | • | • | • | • | • | • | • | | | | | | | • | • | • | • | • | |
| 392 | 3.9 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 472 | 4.7 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 562 | 5.6 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 682 | 6.8 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 822 | 8.2 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 103 | 10 µF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 123 | 12 µF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 153 | 15 µF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 183 | 18 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 223 | 22 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 273 | 27 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 333 | 33 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 393 | 39 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 473 | 47 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 563 | 56 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 683 | 68 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 823 | 82 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 104 | 100 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 124 | 120 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 154 | 150 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 184 | 180 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 224 | 220 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 274 | 270 nF | • | • | • | • | • | • | • | • | • | • | | • | • | • | • | • | • | • | • | • | • | |
| 334 | 330 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 394 | 390 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 474 | 470 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 564 | 560 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 684 | 680 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 824 | 820 nF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 105 | 1.0 µF | | | | | | | | | | | | • | • | • | • | • | • | • | • | • | • | |
| 125 | 1.2 µF | | | | | | | | | | | | | | | | | | | | | | |
| 155 | 1.5 µF | | | | | | | | | | | | | | | | | | | | | | |
| 185 | 1.8 µF | | | | | | | | | | | | | | | | | | | | | | |
| 225 | 2.2 µF | | | | | | | | | | | | | | | | | | | | | | |
| 275 | 2.7 µF | | | | | | | | | | | | | | | | | | | | | | |
| 335 | 3.3 µF | | | | | | | | | | | | | | | | | | | | | | |
| 395 | 3.9 µF | | | | | | | | | | | | | | | | | | | | | | |
| 475 | 4.7 µF | | | | | | | | | | | | | | | | | | | | | | |
| 565 | 5.6 µF | | | | | | | | | | | | | | | | | | | | | | |
| 685 | 6.8 µF | | | | | | | | | | | | | | | | | | | | | | |
| 825 | 8.2 µF | | | | | | | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



| SELECTION CHART | | | | | | | | | | | | | | | | | |
|----------------------------|--------|--------|----|-----|-----|-----|-----|--------|----|----|-----|-----|-----|-----|------|------|------|
| DIELECTRIC | | X7R | | | | | | | | | | | | | | | |
| STYLE | | VJ1825 | | | | | | VJ2220 | | | | | | | | | |
| CASE CODE | | 1825 | | | | | | 2220 | | | | | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 2000 | 3000 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | X | A | B | C | E | L | G | F | H |
| CAP. CODE | CAP. | | | | | | | | | | | | | | | | |
| 221 | 220 pF | | | | | | | | | | | | | | | | |
| 271 | 270 pF | | | | | | | | | | | | | | | | |
| 471 | 470 pF | | | | | | | | | | | | | | | | |
| 561 | 560 pF | | | | | | | | | | | | | | | | |
| 681 | 680 pF | | | | | | | | | | | | | | | | |
| 821 | 820 pF | | | | | | | | | | | | | | | | |
| 102 | 1.0 nF | | | | | | | | | | | | | | | | • |
| 122 | 1.2 nF | | | | | | | | | | | | | | | | • |
| 152 | 1.5 nF | | | | | | | | | | | | | | | | • |
| 182 | 1.8 nF | | | | | | | | | | | | | | | | • |
| 222 | 2.2 nF | | | | | | | | | | | | | | | | • |
| 272 | 2.7 nF | | | | | | | | | | | | | | | | |
| 332 | 3.3 nF | | | | | | | | | | | | | | | | |
| 392 | 3.9 nF | | | | | | | | | | | | | | | | |
| 472 | 4.7 nF | | | | | | | | | | | | | | | | |
| 562 | 5.6 nF | | | | | | | | | | | | | | | | • |
| 682 | 6.8 nF | | | | | | | | | | | | | | | | • |
| 822 | 8.2 nF | | | | | | | | | | | | | | | | • |
| 103 | 10 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 123 | 12 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 153 | 15 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 183 | 18 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 223 | 22 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 273 | 27 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 333 | 33 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 393 | 39 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 473 | 47 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 563 | 56 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 683 | 68 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 823 | 82 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 104 | 100 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 124 | 120 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 154 | 150 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 184 | 180 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 224 | 220 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 274 | 270 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 334 | 330 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 394 | 390 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 474 | 470 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 564 | 560 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 684 | 680 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 824 | 820 nF | • | • | • | • | • | | | • | • | • | • | • | • | | | |
| 105 | 1.0 μF | • | • | • | | | | | • | • | • | • | • | | | | |
| 125 | 1.2 μF | • | • | • | | | | | • | • | • | • | • | | | | |
| 155 | 1.5 μF | • | • | • | | | | | • | • | • | • | • | | | | |
| 185 | 1.8 μF | • | • | | | | | | • | • | | | | | | | |
| 225 | 2.2 μF | • | | | | | | | • | • | | | | | | | |
| 275 | 2.7 μF | • | | | | | | | | | | | | | | | |
| 335 | 3.3 μF | | | | | | | | | | | | | | | | |
| 395 | 3.9 μF | | | | | | | | | | | | | | | | |
| 475 | 4.7 μF | | | | | | | | | | | | | | | | |
| 565 | 5.6 μF | | | | | | | | | | | | | | | | |
| 685 | 6.8 μF | | | | | | | | | | | | | | | | |
| 825 | 8.2 μF | | | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



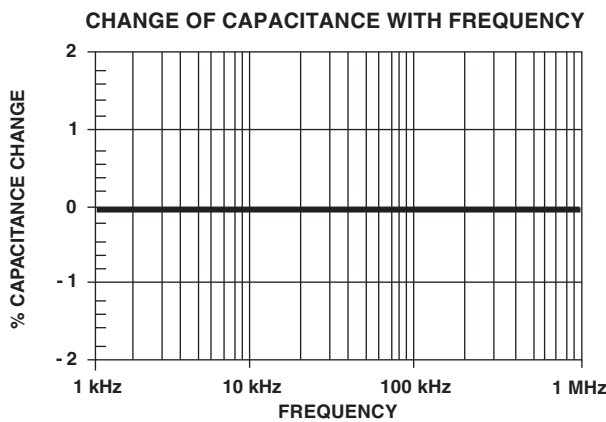
| SELECTION CHART | | | | | | | | | | | | | | | |
|----------------------------|--------|--------|----|-----|-----|-----|-----|------|------|--------|----|----|-----|-----|-----|
| DIELECTRIC | | X7R | | | | | | | | | | | | | |
| STYLE | | VJ2225 | | | | | | | | VJ3640 | | | | | |
| CASE CODE | | 2225 | | | | | | | | 3640 | | | | | |
| VOLTAGE (V _{DC}) | | 25 | 50 | 100 | 200 | 500 | 630 | 1000 | 1500 | 2000 | 25 | 50 | 100 | 200 | 500 |
| VOLTAGE CODE | | X | A | B | C | E | L | G | R | F | X | A | B | C | E |
| CAP. CODE | CAP. | | | | | | | | | | | | | | |
| 102 | 1.0 nF | | | | | | | | | | | | | | |
| 122 | 1.2 nF | | | | | | | | | | | | | | |
| 152 | 1.5 nF | | | | | | | | | | | | | | |
| 182 | 1.8 nF | | | | | | | | | | | | | | |
| 222 | 2.2 nF | | | | | | | | | | | | | | |
| 272 | 2.7 nF | | | | | | | | | | | | | | |
| 332 | 3.3 nF | | | | | | | | | | | | | | |
| 392 | 3.9 nF | | | | | | | | | | | | | | |
| 472 | 4.7 nF | | | | | | | | | | | | | | |
| 562 | 5.6 nF | | | | | | | | • | • | | | | | |
| 682 | 6.8 nF | | | | | | | | • | • | | | | | |
| 822 | 8.2 nF | | | | | | | | • | • | | | | | |
| 103 | 10 nF | • | • | • | • | • | • | • | • | • | | | | | |
| 123 | 12 nF | • | • | • | • | • | • | • | • | • | | | | | |
| 153 | 15 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 183 | 18 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 223 | 22 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 273 | 27 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 333 | 33 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 393 | 39 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 473 | 47 nF | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| 563 | 56 nF | • | • | • | • | • | • | • | | | • | • | • | • | • |
| 683 | 68 nF | • | • | • | • | • | • | • | | | • | • | • | • | • |
| 823 | 82 nF | • | • | • | • | • | • | • | | | • | • | • | • | • |
| 104 | 100 nF | • | • | • | • | • | • | • | | | • | • | • | • | • |
| 124 | 120 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 154 | 150 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 184 | 180 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 224 | 220 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 274 | 270 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 334 | 330 nF | • | • | • | • | • | | | | | • | • | • | • | • |
| 394 | 390 nF | • | • | • | • | | | | | | • | • | • | • | • |
| 474 | 470 nF | • | • | • | • | | | | | | • | • | • | • | • |
| 564 | 560 nF | • | • | • | • | | | | | | • | • | • | • | • |
| 684 | 680 nF | • | • | • | • | | | | | | • | • | • | • | • |
| 824 | 820 nF | • | • | • | • | | | | | | • | • | • | • | |
| 105 | 1.0 μF | • | • | • | • | | | | | | • | • | • | • | |
| 125 | 1.2 μF | • | • | • | • | | | | | | • | • | • | • | |
| 155 | 1.5 μF | • | • | • | | | | | | | • | • | • | • | |
| 185 | 1.8 μF | • | • | • | | | | | | | • | • | • | • | |
| 225 | 2.2 μF | • | • | | | | | | | | • | • | • | | |
| 275 | 2.7 μF | • | • | | | | | | | | • | • | • | | |
| 335 | 3.3 μF | • | | | | | | | | | • | • | • | | |
| 395 | 3.9 μF | • | | | | | | | | | • | • | • | | |
| 475 | 4.7 μF | • | | | | | | | | | • | • | | | |
| 565 | 5.6 μF | | | | | | | | | | • | | | | |
| 685 | 6.8 μF | | | | | | | | | | • | | | | |
| 825 | 8.2 μF | | | | | | | | | | | | | | |

Notes

- RoHS-compliant
- Flamed paper tape • Plastic tape



NON-MAGNETIC COG (NP0) DIELECTRIC - TYPICAL PARAMETERS





NON-MAGNETIC X7R DIELECTRIC - TYPICAL PARAMETERS

RATED VOLTAGE VS. TEMPERATURE



MIN. INSULATION RESISTANCE VS. TEMPERATURE



AGING RATE



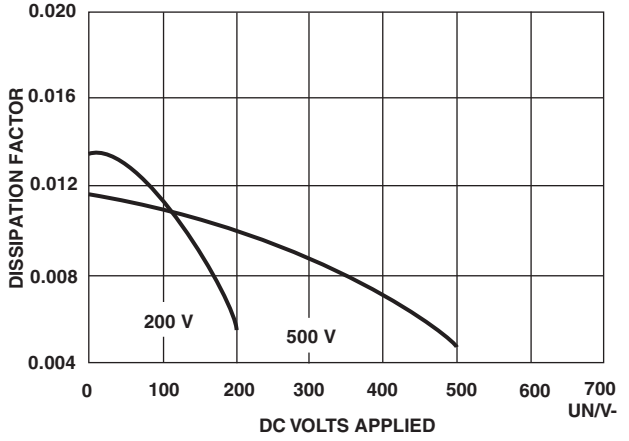
DISSIPATION FACTOR VS. TEMPERATURE



DISSIPATION FACTOR VS. VOLTAGE

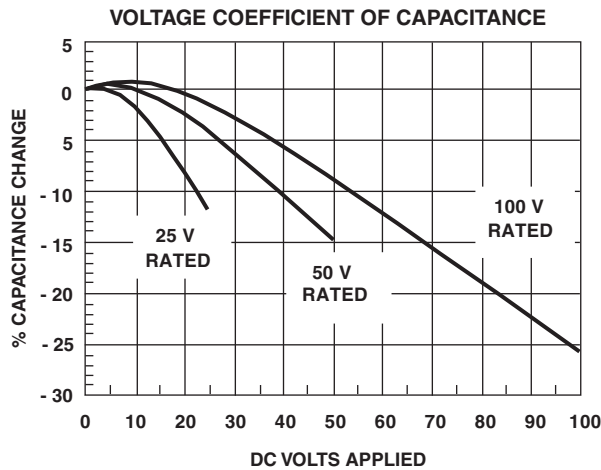


DISSIPATION FACTOR VS. VOLTAGE





NON-MAGNETIC X7R DIELECTRIC - TYPICAL PARAMETERS





| STANDARD PACKAGING QUANTITIES (1)(2)(3) | | | | | | |
|-----------------------------------------|-----------|-------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| CASE CODE | TAPE SIZE | 7" REEL QUANTITIES | | | 11 1/4" AND 13" REEL QUANTITIES | |
| | | PAPER TAPE PACKAGING CODE "O" | PLASTIC TAPE PACKAGING CODE "T" | LOW QUANTITY PACKAGING CODE "J" | PAPER TAPE PACKAGING CODE "I" | PLASTIC TAPE PACKAGING CODE "R" |
| 0402 | 8 mm | 5000 | n/a | 1000 | 10 000 | n/a |
| 0603 (4) | 8 mm | 4000 | 4000 | 1000 | 10 000 | 10 000 |
| 0805 (4) | 8 mm | 3000 | 3000 | 1000 | 10 000 | 10 000 |
| 1206 (4) | 8 mm | n/a | 3000/2500 | 1000 | n/a | 10 000/9000 |
| 1210 (4) | 8 mm | n/a | 3000/2500/2000 | 1000 | n/a | 10 000/9000 |
| 1808 | 12 mm | n/a | 2000 | 500 | n/a | 10 000 |
| 1812 | 12 mm | n/a | 1000 | 500 | n/a | 4000 |
| 1825 | 12 mm | n/a | 1000 | 500 | n/a | 4000 |
| 2220 | 12 mm | n/a | 1000 | 500 | n/a | 4000 |
| 2225 | 12 mm | n/a | 1000 | 500 | n/a | 4000 |
| 3640 | 16 mm | n/a | 500 | n/a | n/a | n/a |

Notes

- (1) Vishay Vitramon uses embossed plastic carrier tape
- (2) Reference: EIA standard RS 481 - "Taping of Surface Mount Components for Automatic Placement"
- (3) n/a = Not available
- (4) Packaging code "O/I" or "T/R" and lower quantities can depend from product thickness

| STORAGE AND HANDLING CONDITIONS |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(1) Store the components at 5 °C to + 40 °C ambient temperature and ≤ 70 % related humidity conditions.</p> <p>(2) The product is recommended to be used within a time-frame of 2 years after shipment. Check solderability in case extended shelf life beyond the expiry date is needed.</p> <p>Precautions:</p> <ul style="list-style-type: none"> a. Do not store products in an environment containing corrosive elements, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. This may cause corrosion or oxidization of the terminations, which can easily lead to poor soldering. b. Store products on the shelf and avoid exposure to moisture or dust. c. Do not expose products to excessive shock, vibration, direct sunlight and so on. |



RoHS COMPLIANCE UPDATE

The RoHS compliance of the parts in this datasheet is currently under review. For more information, please contact your local Vishay sales representative.



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9