

## Hermetic Flat-Pak Resistor Networks



Product may not  
be to scale

### FEATURES

- Lead (Pb)-free available
- Military/Aerospace
- Hermetically sealed



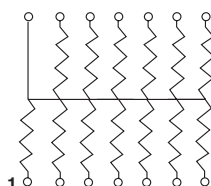
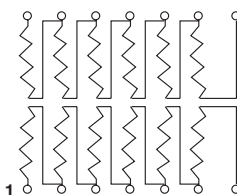
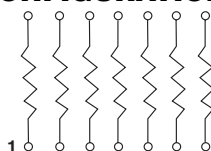
**RoHS\***  
COMPLIANT

Vishay Thin Film offers a broad line of precision resistor networks in hermetic Flat-Packs for surface mount requirements in military, space or other harsh environmental applications. These networks provide the long-term stability necessary to insure continuous specification and performance over the 20 to 30 year life required for space applications. The fabrication of these devices is performed under tight procedural and environmental controls to insure conformance to all 883C Level H or K requirements. Custom configurations, values and tolerance combinations are available with fast turnaround.

### PRODUCT CAPABILITIES

|                               |                                         |
|-------------------------------|-----------------------------------------|
| Material                      | Passivated nichrome                     |
| Resistance Range              | 10 $\Omega$ to 1 M $\Omega$ total       |
| Absolute Resistance Tolerance | 1 % to 0.05 %                           |
| Resistance Ratio Tolerance    | 0.1 % to 0.01 %                         |
| Absolute TCR                  | $\pm 10, 25, 50$ ppm/ $^{\circ}$ C      |
| Ratio TCR                     | $\pm 5$ ppm/ $^{\circ}$ C standard      |
| Absolute Resistor Stability   | 1000 ppm/2000 h at 70 $^{\circ}$ C      |
| Ratio Resistor Stability      | 300 ppm/2000 h at 70 $^{\circ}$ C       |
| Package Power Dissipation     | 800 mW/70 $^{\circ}$ C                  |
| Operating Temperature Range   | - 55 $^{\circ}$ C to + 125 $^{\circ}$ C |

### STANDARD CONFIGURATIONS



#### FP200

|                     |                               |
|---------------------|-------------------------------|
| Number of Resistors | 7, 8                          |
| Number of Leads     | 14, 16                        |
| Type Connection     | Isolated                      |
| Values Available    | 500 $\Omega$ - 100 k $\Omega$ |

#### FP201

|                     |                               |
|---------------------|-------------------------------|
| Number of Resistors | 12, 14                        |
| Number of Leads     | 14, 16                        |
| Type Connection     | Series                        |
| Values Available    | 500 $\Omega$ - 100 k $\Omega$ |

#### FP202

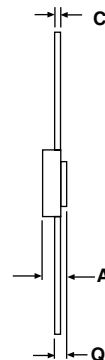
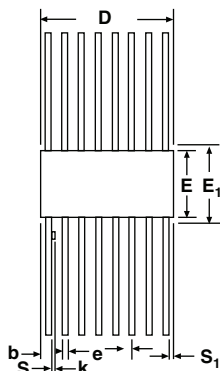
|                     |                               |
|---------------------|-------------------------------|
| Number of Resistors | 13, 15                        |
| Number of Leads     | 14, 16                        |
| Type Connection     | Common                        |
| Values Available    | 500 $\Omega$ - 100 k $\Omega$ |

\* Pb containing terminations are not RoHS compliant, exemptions may apply

## FP 200, 201, 202

Vishay Thin Film

Hermetic Flat-Pak Resistor Networks

PACKAGE OUTLINE DRAWING AND DIMENSIONS  
FLAT-PAK FP200

| DIMENSIONS in inches |         |         |         |         |
|----------------------|---------|---------|---------|---------|
|                      | 14 LEAD |         | 16 LEAD |         |
|                      | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM |
| A                    | 0.086   | 0.106   | 0.045   | 0.115   |
| b                    | 0.015   | 0.019   | 0.015   | 0.019   |
| C                    | 0.004   | 0.007   | 0.003   | 0.009   |
| D                    | 0.373   | 0.383   | -       | 0.440   |
| e                    | 0.047   | 0.053   | 0.050   | BSC     |
| E                    | 0.250   | 0.260   | 0.245   | 0.285   |
| E <sub>1</sub>       | -       | 0.290   | -       | 0.315   |
| E <sub>2</sub>       | 0.158   | 0.172   | 0.130   | -       |
| E <sub>3</sub>       | 0.030   | -       | 0.030   | -       |
| L                    | -       | -       | 0.250   | 0.370   |
| Q                    | 0.026   | -       | 0.26    | 0.045   |
| S                    | -       | 0.045   | -       | 0.045   |
| S <sub>1</sub>       | 0.005   | -       | 0.005   | -       |
| K                    | -       | -       | 0.008   | 0.015   |

| DIMENSIONS in millimeters |         |         |         |         |
|---------------------------|---------|---------|---------|---------|
|                           | 14 LEAD |         | 16 LEAD |         |
|                           | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM |
| A                         | 2.18    | 2.69    | 1.14    | 2.92    |
| b                         | 0.38    | 0.48    | 0.38    | 0.48    |
| C                         | 0.10    | 0.18    | 0.08    | 0.23    |
| D                         | 9.47    | 9.73    | -       | 11.18   |
| e                         | 1.19    | 1.35    | 1.27    | BSC     |
| E                         | 6.35    | 6.60    | 6.22    | 7.24    |
| E <sub>1</sub>            | -       | 7.37    | -       | 8.00    |
| E <sub>2</sub>            | 4.01    | 4.37    | 3.30    | -       |
| E <sub>3</sub>            | 0.76    | -       | 0.76    | -       |
| L                         | -       | -       | 6.35    | 9.40    |
| Q                         | 0.66    | -       | 0.66    | 1.14    |
| S                         | -       | 1.14    | -       | 1.14    |
| S <sub>1</sub>            | 0.13    | -       | 0.13    | -       |
| K                         | -       | -       | 0.20    | 0.38    |

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: FP2001681001BFBCW (preferred part number format)

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | P | 2 | 0 | 0 | 1 | 6 | 8 | 1 | 0 | 0 | 1 | B | F | B | C | W |   |
| F | P | 2 | 0 | 2 | 1 | 6 | 1 | 3 | 1 | 0 | 0 | 1 | B | F | B | C | W |

| GLOBAL MODEL | CASE SIZE | NUMBER OF RESISTORS (1 or 2 digits) | OHMIC VALUE                                                                                                                                                                                          | ABSOLUTE TOLERANCE                                                                                         | RATIO TOLERANCE                                                                                                  | ABSOLUTE TCR                                                      | RATIO TCR                                                                               | PACKAGING                     |
|--------------|-----------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------|
| FP200        | 14<br>16  | 7<br>8                              | The first 3 digits are significant figures and the last digit specifies the number of zeros to follow. "R" designates the decimal point.<br>Example:<br>10R0 = 10 Ω<br>1000 = 100 Ω<br>1001 = 1000 Ω | A = 0.05 %<br>B = 0.1 %<br>C = 0.2 %<br>D = 0.5 %<br>F = 1 %<br>G = 2 %<br>J = 5 %<br>K = 10 %<br>M = 20 % | B = 0.01 %<br>C = 0.025 %<br>D = 0.05 %<br>F = 0.1 %<br>H = 0.25 %<br>J = 0.5 %<br>K = 1 %<br>X = Not applicable | A = 10 ppm/°C<br>B = 25 ppm/°C<br>D = 50 ppm/°C<br>E = 100 ppm/°C | *C = 2 ppm<br>*D = 3 ppm<br>F = 5 ppm<br>G = 10 ppm<br>X = N/A<br><br>* Value dependant | W = WAFFLE<br>100 min. 1 mult |
| FP201        | 14<br>16  | 12<br>14                            |                                                                                                                                                                                                      |                                                                                                            |                                                                                                                  |                                                                   |                                                                                         |                               |
| FP202        | 14<br>16  | 13<br>16                            |                                                                                                                                                                                                      |                                                                                                            |                                                                                                                  |                                                                   |                                                                                         |                               |

Historical Part Number example: FP2001681002BFBC (will continue to be accepted)

|       |                 |                     |            |                    |                 |              |           |
|-------|-----------------|---------------------|------------|--------------------|-----------------|--------------|-----------|
| FP200 | 16              | 8                   | 1002       | B                  | F               | B            | C         |
| MODEL | NUMBER OF LEADS | NUMBER OF RESISTORS | RESISTANCE | ABSOLUTE TOLERANCE | RATIO TOLERANCE | ABSOLUTE TCR | RATIO TCR |



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