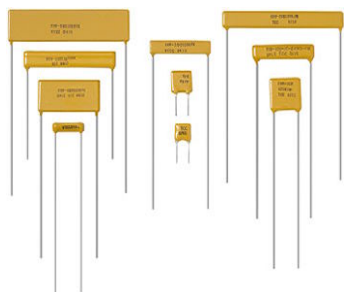


## Thick Film Planar Resistors, Through-Hole, Radial Lead, High Voltage



### MECHANICAL SPECIFICATIONS

**Terminal Strength:** 5 pound pull test

**Solderability:** continuous satisfactory coverage when tested in accordance with MIL-R-10509

### MATERIAL SPECIFICATIONS

**Element:** high temperature fired cermet film

**Core:** high purity 96 % alumina

**Coating:** conformal coat epoxy

**Termination:** standard lead material is tin plated copper

### FEATURES

- Non-inductive design
- Matched sets available
- Ratio dividers available, see Vishay Techno's TR, TD datasheet
- Special testing available
- Low TCR:  $\pm 200$  ppm/ $^{\circ}\text{C}$  standard,  $\pm 100$  ppm/ $^{\circ}\text{C}$  available
- Tolerance:  $\pm 10\%$ ,  $\pm 5\%$ ,  $\pm 2\%$ ,  $\pm 1\%$  standard
- Tolerance and / or TCR matching available upon request
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS\***  
Available  
**HALOGEN  
FREE**

### Note

\* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

### TEMPERATURE COEFFICIENT CODE

| CODE | TEMPERATURE COEFFICIENT           | RANGE                                             |
|------|-----------------------------------|---------------------------------------------------|
| K    | $\pm 100$ ppm/ $^{\circ}\text{C}$ | -55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$ |
| N    | $\pm 200$ ppm/ $^{\circ}\text{C}$ | -55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$ |

### STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL<br>MODEL / SIZE | POWER RATING                                       |                                                     | MAXIMUM WORKING<br>VOLTAGE <sup>(1)</sup><br>V | RESISTANCE<br>RANGE <sup>(2)</sup><br>$\Omega$ | TOLERANCE<br>$\pm \%$ | TEMPERATURE<br>COEFFICIENT<br>$\pm$ ppm/ $^{\circ}\text{C}$ |
|------------------------|----------------------------------------------------|-----------------------------------------------------|------------------------------------------------|------------------------------------------------|-----------------------|-------------------------------------------------------------|
|                        | P <sub>70 <math>^{\circ}\text{C}</math></sub><br>W | P <sub>125 <math>^{\circ}\text{C}</math></sub><br>W |                                                |                                                |                       |                                                             |
| FHV025                 | 0.25                                               | 0.125                                               | 750                                            | 10K to 100M                                    | 1, 2, 5, 10           | 100, 200                                                    |
| FHV050                 | 0.50                                               | 0.25                                                | 1.5K                                           | 10K to 100M                                    | 1, 2, 5, 10           | 100                                                         |
|                        |                                                    |                                                     |                                                | 10K to 500M                                    | 1, 2, 5, 10           | 200                                                         |
| FHV075                 | 0.25                                               | 0.125                                               | 3.75K                                          | 500 to 500M                                    | 1, 2, 5, 10           | 100                                                         |
|                        |                                                    |                                                     |                                                | 100 to 1G                                      | 1, 2, 5, 10           | 200                                                         |
| FHV100                 | 1                                                  | 0.50                                                | 7.5K                                           | 500 to 1G                                      | 1, 2, 5, 10           | 100                                                         |
|                        |                                                    |                                                     |                                                | 100 to 1G                                      | 1, 2, 5, 10           | 200                                                         |
|                        |                                                    |                                                     |                                                | 1.1G to 2G                                     | 5, 10                 | 200                                                         |
| FHV150                 | 1.5                                                | 0.75                                                | 11.25K                                         | 1M to 1G                                       | 1, 2, 5, 10           | 100                                                         |
|                        |                                                    |                                                     |                                                | 10K to 1G                                      | 1, 2, 5, 10           | 200                                                         |
|                        |                                                    |                                                     |                                                | 1.1G to 2G                                     | 5, 10                 | 200                                                         |
| FHV160                 | 1                                                  | 0.50                                                | 3.5K                                           | 500 to 1G                                      | 1, 2, 5, 10           | 100                                                         |
|                        |                                                    |                                                     |                                                | 100 to 1G                                      | 1, 2, 5, 10           | 200                                                         |
|                        |                                                    |                                                     |                                                | 1.1G to 2G                                     | 5, 10                 | 200                                                         |
| FHV200                 | 2                                                  | 1                                                   | 15K                                            | 500 to 1G                                      | 1, 2, 5, 10           | 100                                                         |
|                        |                                                    |                                                     |                                                | 200 to 1G                                      | 1, 2, 5, 10           | 200                                                         |
|                        |                                                    |                                                     |                                                | 1.1G to 8G                                     | 5, 10                 | 200                                                         |
| FHV400                 | 2                                                  | 1                                                   | 7.5K                                           | 1M to 1G                                       | 1, 2, 5, 10           | 100                                                         |
|                        |                                                    |                                                     |                                                | 20K to 1G                                      | 1, 2, 5, 10           | 200                                                         |
|                        |                                                    |                                                     |                                                | 1.1G to 2G                                     | 5, 10                 | 200                                                         |
| FHV500                 | 4                                                  | 2                                                   | 15K                                            | 1M to 1G                                       | 1, 2, 5, 10           | 100                                                         |
|                        |                                                    |                                                     |                                                | 30K to 1G                                      | 1, 2, 5, 10           | 200                                                         |
|                        |                                                    |                                                     |                                                | 1.1G to 10G                                    | 5, 10                 | 200                                                         |

### Notes

<sup>(1)</sup> Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less

<sup>(2)</sup> All resistance values are calibrated at 100 V<sub>DC</sub>. Calibration at other voltages upon request

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: FHV02510K0FNEB (preferred part number format)

| GLOBAL MODEL | SIZE                                                        | RESISTANCE VALUE                                                                                                                     | TOLERANCE                                                                 | TCR                        | TERMINAL FINISH              | PACKAGING            |
|--------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------|------------------------------|----------------------|
| FHV          | 025<br>050<br>075<br>100<br>150<br>160<br>200<br>400<br>500 | R = $\Omega$<br>K = $k\Omega$<br>M = $M\Omega$<br>G = $G\Omega$<br>400R = 400 $\Omega$<br>10M0 = 10 $M\Omega$<br>10G0 = 10 $G\Omega$ | F = $\pm 1.0\%$<br>G = $\pm 2.0\%$<br>J = $\pm 5.0\%$<br>K = $\pm 10.0\%$ | K = 100 ppm<br>N = 200 ppm | E = Sn100<br>R = Sn60 / Pb40 | B = bag<br>S = strip |

Historical Part Numbering: FHV0251002FMe3 (will continue to be accepted)

| HISTORICAL MODEL | SIZE | RESISTANCE VALUE | TOLERANCE | TCR | TERMINAL FINISH |
|------------------|------|------------------|-----------|-----|-----------------|
| FHV              | 025  | 1002             | F         | M   | e3              |

### Notes

- For additional information on packaging, refer to the Through Hole Resistor Packaging document ([www.vishay.com/doc?31544](http://www.vishay.com/doc?31544))
- The TCR listed in this datasheet is for resistance values up to 1 G $\Omega$ . For resistance values > 1 G $\Omega$ , please contact factory

## DIMENSIONS in inches (millimeters)

Figure 1

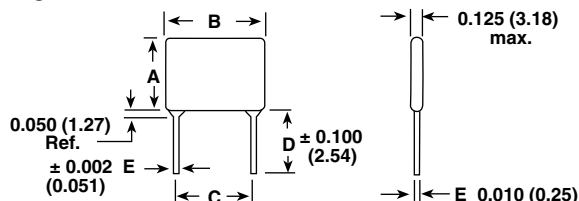
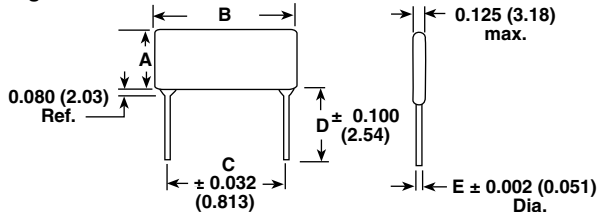


Figure 2

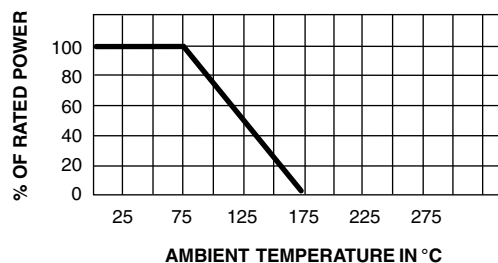


| MODEL - SIZE | A (max.) (Height) | B (max.) (Length) | C (Lead Spacing) | D (Lead Length) | E (Lead DIA.) | FIGURE |
|--------------|-------------------|-------------------|------------------|-----------------|---------------|--------|
| FHV025       | 0.300 (7.62)      | 0.300 (7.62)      | 0.200 (5.08)     | 0.250 (6.35)    | 0.018 (0.457) | 1      |
| FHV050       | 0.380 (9.65)      | 0.380 (9.65)      | 0.200 (5.08)     | 0.360 (9.14)    | 0.020 (0.508) | 1      |
| FHV075       | 0.210 (5.33)      | 0.570 (14.48)     | 0.400 (10.16)    | 1.50 (38.10)    | 0.025 (0.635) | 2      |
| FHV100       | 0.280 (7.11)      | 1.07 (27.18)      | 0.900 (22.86)    | 1.50 (38.10)    | 0.032 (0.813) | 2      |
| FHV150       | 0.330 (8.38)      | 1.57 (39.88)      | 1.40 (35.56)     | 1.50 (38.10)    | 0.032 (0.813) | 2      |
| FHV160       | 0.550 (13.97)     | 0.550 (13.97)     | 0.400 (10.16)    | 1.50 (38.10)    | 0.032 (0.813) | 2      |
| FHV200       | 0.330 (8.38)      | 2.04 (51.82)      | 1.90 (48.26)     | 1.50 (38.10)    | 0.032 (0.813) | 2      |
| FHV400       | 0.550 (13.97)     | 1.05 (26.67)      | 0.900 (22.86)    | 1.50 (38.10)    | 0.032 (0.813) | 2      |
| FHV500       | 0.550 (13.97)     | 2.07 (52.58)      | 1.90 (48.26)     | 1.50 (38.10)    | 0.032 (0.813) | 2      |

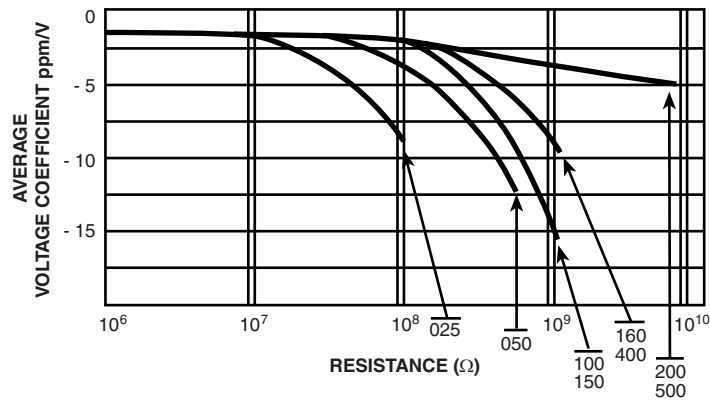
## ENVIRONMENTAL PERFORMANCE

| TEST                            | MAXIMUM $\Delta R$<br>(Typical Test Lots) |
|---------------------------------|-------------------------------------------|
| Short time overload             | < $\pm 0.2\%$                             |
| Moisture resistance             | < $\pm 0.5\%$                             |
| Shock                           | < $\pm 0.2\%$                             |
| Vibration                       | < $\pm 0.2\%$                             |
| Temperature cycling             | < $\pm 0.5\%$                             |
| Load life                       | < $\pm 1.0\%$                             |
| Dielectric withstanding voltage | < $\pm 0.15\%$                            |
| Resistance to soldering heat    | < $\pm 0.1\%$                             |

## DERATING



## VOLTAGE COEFFICIENT





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