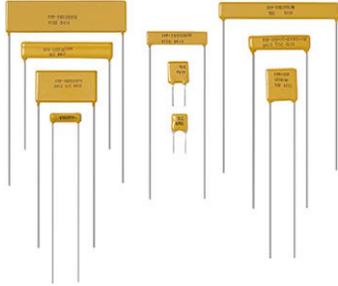


Thick Film Planar Resistors, Through-Hole, Radial Lead, High Voltage



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: ± 200 ppm/ $^{\circ}\text{C}$ standard, ± 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



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 | ± 100 ppm/ $^{\circ}\text{C}$ | -55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$ |
| N | ± 200 ppm/ $^{\circ}\text{C}$ | -55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$ |

STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL / SIZE | POWER RATING | | MAXIMUM WORKING VOLTAGE (1) V | RESISTANCE RANGE (2) Ω | TOLERANCE $\pm \%$ | TEMPERATURE COEFFICIENT \pm ppm/ $^{\circ}\text{C}$ |
|---------------------|--|---|----------------------------------|----------------------------------|-----------------------|--|
| | P _{70 $^{\circ}\text{C}$} W | P _{125 $^{\circ}\text{C}$} 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

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

(2) All resistance values are calibrated at 100 V_{DC}. Calibration at other voltages upon request

GLOBAL PART NUMBER INFORMATION

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

| | | | | | | | | | | | | | |
|----------------------------|--|--|----------|----------|--|----------|---|----------|---|----------|---|----------|----------|
| F | H | V | 0 | 2 | 5 | 1 | 0 | K | 0 | F | N | E | B |
| GLOBAL MODEL FHV | SIZE 025 050 075 100 150 160 200 400 500 | RESISTANCE VALUE R = Ω K = kΩ M = MΩ G = GΩ 400R = 400 Ω 10M0 = 10 MΩ 10G0 = 10 GΩ | | | TOLERANCE F = ± 1.0 % G = ± 2.0 % J = ± 5.0 % K = ± 10.0 % | | TCR K = 100 ppm N = 200 ppm | | TERMINAL FINISH E = Sn100 R = Sn60 / Pb40 | | PACKAGING B = bag S = strip | | |

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

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

Notes

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

DIMENSIONS in inches (millimeters)

Figure 1

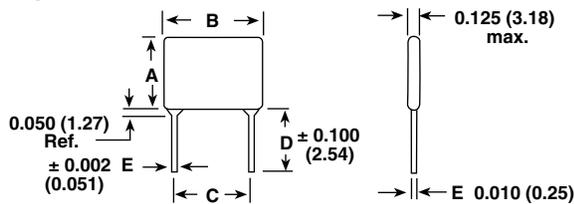
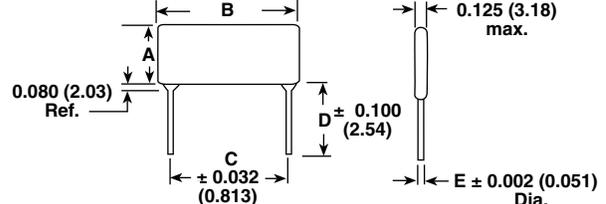


Figure 2

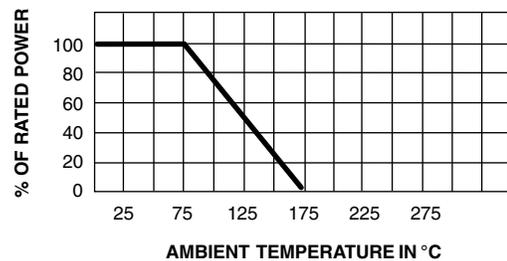


| MODEL - SIZE | A (max.) (Height) | B (max.) (Length) | C (Lead Spacing) | D (Lead Length) | E (Lead DIA.) | FIGURE |
|--------------|-------------------|-------------------|------------------|-----------------|---------------|--------|
| FHV025 | 0.300 (7.62) | 0.300 (7.62) | 0.200 (5.08) | 0.250 (6.35) | 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

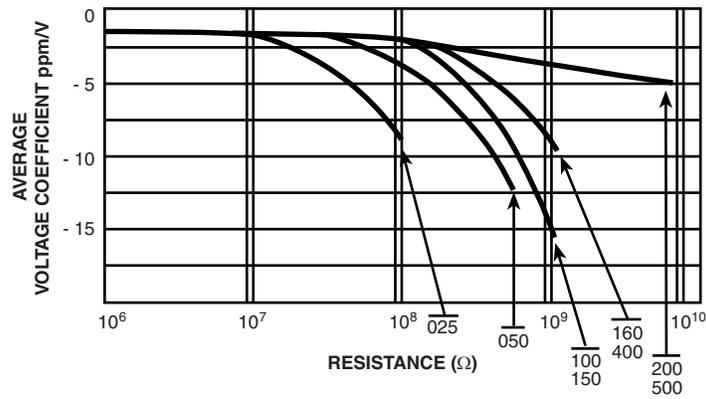
| TEST | MAXIMUM ΔR (Typical Test Lots) |
|---------------------------------|--------------------------------|
| Short time overload | < ± 0.2 % |
| Moisture resistance | < ± 0.5 % |
| Shock | < ± 0.2 % |
| Vibration | < ± 0.2 % |
| Temperature cycling | < ± 0.5 % |
| Load life | < ± 1.0 % |
| Dielectric withstanding voltage | < ± 0.15 % |
| Resistance to soldering heat | < ± 0.1 % |

DERATING





VOLTAGE COEFFICIENT





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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. 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.