

## 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)

### 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



Available



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

### 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 MODEL / SIZE	POWER RATING		MAXIMUM WORKING VOLTAGE <sup>(1)</sup> V	RESISTANCE RANGE <sup>(2)</sup> $\Omega$	TOLERANCE $\pm \%$	TEMPERATURE COEFFICIENT $\pm$ ppm/ $^{\circ}\text{C}$
	P <sub>70 <math>^{\circ}\text{C}</math></sub> W	P <sub>125 <math>^{\circ}\text{C}</math></sub> 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	025 050 075 100 150 160 200 400 500	R = $\Omega$ K = $k\Omega$ M = $M\Omega$ G = $G\Omega$ 400R = 400 $\Omega$ 10M0 = 10 $M\Omega$ 10G0 = 10 $G\Omega$	F = $\pm 1.0\%$ G = $\pm 2.0\%$ J = $\pm 5.0\%$ K = $\pm 10.0\%$	K = 100 ppm N = 200 ppm	E = Sn100 R = Sn60 / Pb40	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](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

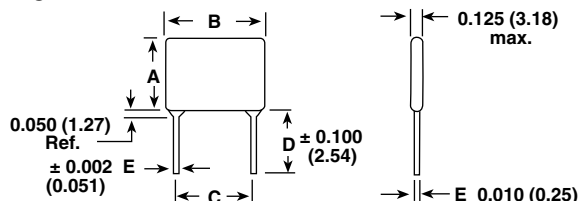
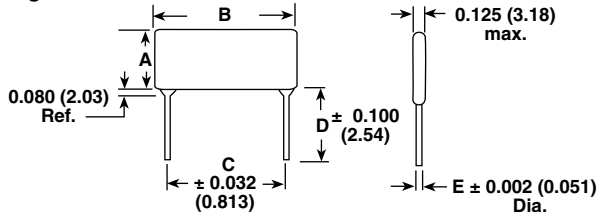


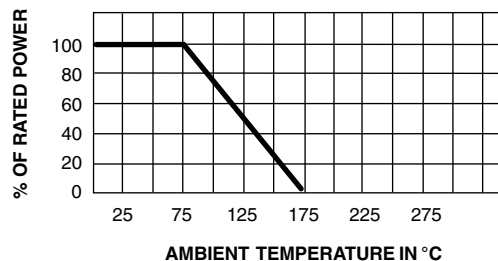
Figure 2



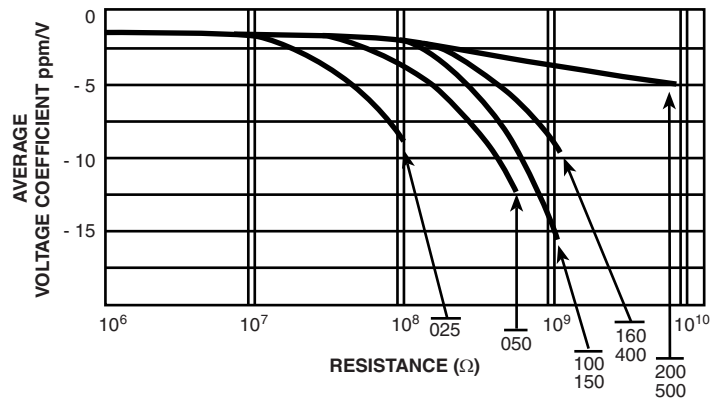
MODEL - SIZE	A (max.) (Height)	B (max.) (Length)	C (Lead Spacing)	D (Lead Length)	E (Lead DIA.)	FIGURE
FHV025	0.300 (7.62)	0.300 (7.62)	0.200 (5.08)	0.250 (6.35)	0.018 (0.457)	1
FHV050	0.380 (9.65)	0.380 (9.65)	0.200 (5.08)	0.360 (9.14)	0.020 (0.508)	1
FHV075	0.210 (5.33)	0.570 (14.48)	0.400 (10.16)	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 $\Delta R$ (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





## 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.

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.