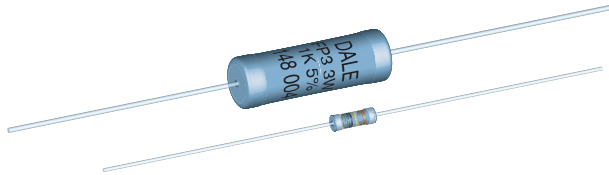




Metal Film Resistors, Industrial, Flameproof



FEATURES

- Small physical size
- Low cost
- FP resistors have the ability to withstand overloads up to 100 times rated power without any trace of flame
- Exceptional frequency characteristics
- Especially suited for circuitry where functions, environments and duty cycles demand power resistors
- Electroplated tin-lead or lead (Pb)-free solder finish leads
- Tighter tolerances available on request
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS*
COMPLIANT

Note

* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{25^{\circ}\text{C}}$ W | POWER RATING $P_{40^{\circ}\text{C}}$ W | POWER RATING $P_{70^{\circ}\text{C}}$ W | MAXIMUM WORKING VOLTAGE ⁽¹⁾ V | RESISTANCE RANGE ⁽²⁾ Ω | TOLERANCE $\pm \%$ | TEMPERATURE COEFFICIENT $\pm \text{ppm}/^{\circ}\text{C}$ |
|--------------|------------------|---|---|---|---|---|-----------------------|--|
| FP01/2 | FP1/2 | - | - | 0.5 | 350 | 10 to 1M | 1, 2, 5, 10 | 150 |
| FP0001 | FP1 | - | - | 1 | 500 | 10 to 1M | 1, 2, 5, 10 | 150 |
| FP0032 | FP32 | - | - | 1 | 500 | 10 to 1M | 1, 2, 5, 10 | 150 |
| FP0002 | FP2 | 3.5 | 3 | 2 | 500 | 25 to 125K | 1, 2, 5, 10 | 150 |
| FP0042 | FP42 | - | - | 2 | 500 | 25 to 125K | 1, 2, 5, 10 | 150 |
| FP0003 | FP3 | 4 | 4 | 3 | 500 | 22 to 125K | 1, 2, 5, 10 | 150 |
| FP0004 | FP4 | 5.5 | 5 | 4 | 500 | 70 to 125K | 1, 2, 5, 10 | 150 |
| FP0005 | FP5 | 6.5 | 6 | 5 | 600 | 70 to 125K | 1, 2, 5, 10 | 150 |
| FP0007 | FP7 | 7.5 | - | 7 | 700 | 25 to 125K | 1, 2, 5, 10 | 150 |
| FP0010 | FP10 | - | 10 | - | 700 | 25 to 125K | 1, 2, 5, 10 | 150 |
| FP0067 | FP67 | 5 | - | - | 500 | 35 to 19K | 1, 2, 5, 10 | 150 |
| FP0069 | FP69 | 3 | - | 2 | 500 | 25 to 126K | 1, 2, 5, 10 | 150 |

Notes

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

⁽²⁾ Contact factory for values outside these published range.

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: FP000251K1F9251B8 (preferred part numbering format)

F P 0 0 0 2 5 1 K 1 F 9 2 5 1 B 8

| GLOBAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | SPEC CODES | PACKAGING ⁽³⁾ |
|--|--|---|------------------------|--|
| (See Standard Electrical Specifications table) | $R = \Omega$ $K = k\Omega$ $M = M\Omega$ $10R0 = 10 \Omega$ $1K30 = 1.3 k\Omega$ $1M00 = 1.0 M\Omega$ | $F = \pm 1 \%$ $G = \pm 2 \%$ $J = \pm 5 \%$ $K = \pm 10 \%$ | (See Spec Codes table) | EK = Lead (Pb)-free, strip EL = Lead (Pb)-free, lacer EA = Lead (Pb)-free, T/R B8 = Tin/lead, strip LB = Tin/lead, lacer CH = Tin/lead, T/R (750 pieces) CJ = Tin/lead, T/R (1000 pieces) G1 = Tin/lead, T/R (600 pieces) |

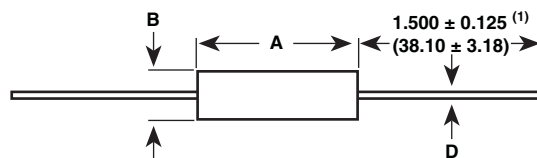
Historical Part Number: FP2 5112 F B8 (will continue to be accepted)

| | | | |
|------------------|------------------|----------------|-----------|
| FP2 | 5112 | F | B8 |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING |

Notes

⁽³⁾ Some packaging codes are model specific.

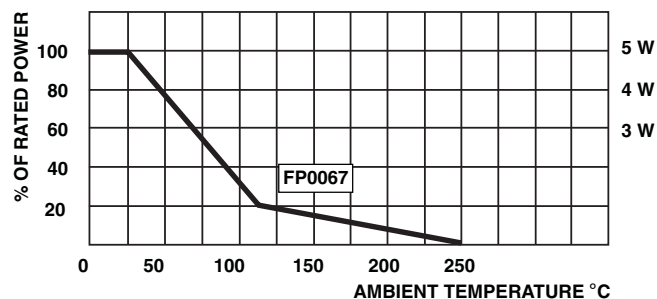
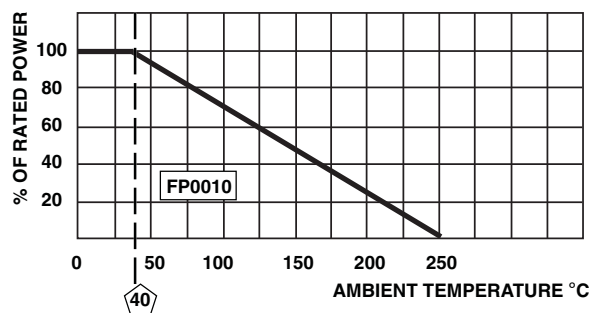
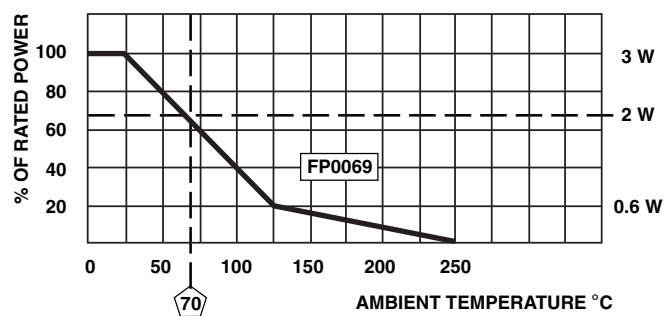
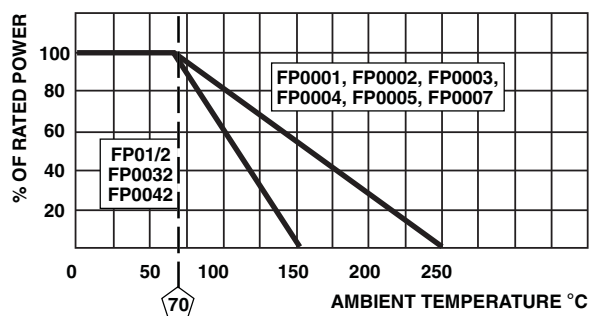
⁽⁴⁾ For additional information on packaging, refer to the Through Hole Resistor Packaging document (www.vishay.com/doc?31544).

**DIMENSIONS** in inches (millimeters)

| GLOBAL MODEL | A | B | D |
|--------------|--|--|-----------------------------|
| FP01/2 | 0.360 ± 0.020 (9.14 ± 0.51) ⁽²⁾ | 0.138 + 0.012 - 0.023 (3.51 + 0.31 - 0.58) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0001 | 0.560 ± 0.031 (14.22 ± 0.79) | 0.190 + 0.005 - 0.030 (4.83 + 0.13 - 0.76) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0032 | 0.560 ± 0.031 (14.22 ± 0.79) | 0.190 + 0.005 - 0.030 (4.83 + 0.13 - 0.76) | 0.040 ± 0.002 (1.02 ± 0.05) |
| FP0002 | 0.687 ± 0.031 (17.45 ± 0.79) | 0.300 ± 0.020 (7.62 ± 0.51) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0042 | 0.687 ± 0.031 (17.45 ± 0.79) | 0.300 ± 0.020 (7.62 ± 0.51) | 0.045 ± 0.002 (1.14 ± 0.05) |
| FP0003 | 0.900 ± 0.031 (22.86 ± 0.79) | 0.300 ± 0.020 (7.62 ± 0.51) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0004 | 1.530 ± 0.035 (38.86 ± 0.89) | 0.300 ± 0.020 (7.62 ± 0.51) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0005 | 1.710 ± 0.035 (43.43 ± 0.89) | 0.300 ± 0.020 (7.62 ± 0.51) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0007 | 2.040 ± 0.035 (51.82 ± 0.89) | 0.300 ± 0.020 (7.62 ± 0.51) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0010 | 2.040 ± 0.035 (51.82 ± 0.89) | 0.300 ± 0.020 (7.62 ± 0.51) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0067 | 0.900 ± 0.031 (22.86 ± 0.79) | 0.300 ± 0.020 (7.62 ± 0.51) | 0.032 ± 0.002 (0.81 ± 0.05) |
| FP0069 | 0.516 ± 0.021 (13.11 ± 0.53) | 0.225 ± 0.012 (5.72 ± 0.31) | 0.032 ± 0.002 (0.81 ± 0.05) |

Notes

- (1) Lead length for product in strip pack. For product supplied in Tape and Reel, the actual lead length would be based on body size, tape spacing and lead trim.
- (2) Clean lead to clean lead dimensions on FP1/2 are 0.347" (11.10 mm) maximum.

DERATING



SPEC CODES

| GLOBAL MODEL | SPEC | RESISTOR TOLERANCE | DESCRIPTION |
|--------------|------|--------------------|---|
| FP01/2 | 5605 | 1, 2, 5, 10 | Color banded, 4 or 5 bands depending on tolerance |
| | 5610 | 1, 2, 5, 10 | Alphanumeric marking |
| FP0001 | 6200 | 2, 5, 10 | Color banded, 4 bands |
| | 6201 | 1 | Color banded, 5 bands |
| FP0032 | 6601 | 1 | Color banded, 5 bands |
| | 6602 | 2, 5, 10 | Color banded, 4 bands |
| FP0002 | 9251 | 1, 2, 5, 10 | Alphanumeric marking |
| FP0042 | 9201 | 1 | Color banded, 5 bands |
| | 9202 | 2, 5, 10 | Color banded, 4 bands |
| FP0003 | 9300 | 1, 2, 5, 10 | Alphanumeric marking |
| | 9320 | 2, 5, 10 | Color banded, 4 bands |
| | 9330 | 1 | Color banded, 5 bands |
| FP0004 | 9400 | 1, 2, 5, 10 | Alphanumeric marking |
| FP0005 | 9500 | 1, 2, 5, 10 | Alphanumeric marking |
| FP0007 | 9700 | 1, 2, 5, 10 | Alphanumeric marking |
| FP0010 | 9800 | 1, 2, 5, 10 | Alphanumeric marking |
| FP0067 | 9550 | 1, 2, 5, 10 | Alphanumeric marking |
| FP0069 | 7500 | 1, 2, 5, 10 | Alphanumeric marking |
| | 7536 | 2, 5, 10 | Color banded, 4 bands |
| | 7538 | 1 | Color banded, 5 bands |

MARKING

| - DALE | - Value | - Tolerance | - Model and case size (Date and source code included on some styles) |
|---|---------|---|---|
| $\pm 1\%$ tolerance parts are marked with 5 color bands. 5 bands, EIA Standard RS196. | | $\pm 2\%$, $\pm 5\%$ and $\pm 10\%$ tolerance parts are marked with 4 color bands. 4 band commercial, EIA Standard. | |
| | | | |



| PERFORMANCE | | | | | | | | | | | | |
|-------------------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| TEST | MAXIMUM ΔR (TYPICAL TEST LOTS) \pm % | | | | | | | | | | | |
| | FP01/2 | FP0001 | FP0032 | FP0002 | FP0042 | FP0003 | FP0004 | FP0005 | FP0007 | FP0010 | FP0067 | FP0069 |
| Short Time Overload | 0.5 | 1.0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Low Temperature Operation | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.25 | 0.25 |
| Moisture Resistance | 1.0 | 1.5 | 1.5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Shock | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Vibration | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Temperature Cycle | 1.0 | 1.0 | 1.0 | 0.5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.5 |
| Load Life (1000 h Rated Conditions) | 1.0 | 2.0 | 2.0 | 5.0 | 2.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 3.0 |
| Terminal Strength | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Dielectric Withstanding Voltage | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.25 | 0.25 |
| Effect Solder Heat | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.25 | 0.25 |

| PACKAGING | | | |
|--------------------------------|----------------|-------------------|----------------|
| GLOBAL MODEL | PACKAGING TYPE | PACKAGING CODE | |
| | | LEAD (Pb)-BEARING | LEAD (Pb)-FREE |
| FP01/2, FP0001, FP0032, FP0069 | Strip | B8 | EK |
| | Tape/reel | CJ | EA |
| FP0002, FP0003, FP0042, FP0067 | Strip | B8 | EK |
| | Tape/reel | CH | EA |
| FP0004 | Lacer | LB | EL |
| | Tape/reel | G1 | EA |
| FP0005, FP0007, FP0010 | Lacer | LB | EL |



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|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| FP0003470RF9300B8 | FP000168K0G6200B8 | FP003210R0J6602B8 | FP003212R0J6602B8 | FP003247R0J6602B8 |
| FP004220R0J9203B8 | FP00012K00J6200B8 | FP0001470RJ6200B8 | FP0002470RJ9251B8 | FP00321K00J6602B8 |
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| FP01\2200KG5605BF | FP00034K70F9300B8 | FP00024K70F9251B8 | FP01\23K90G5605BF | FP00011K50J6200B8 |
| FP01\2820RG5605BF | FP0042100RJ9203B8 | FP0042150RJ9203B8 | FP0002150RG9251B8 | FP0032150RJ6602B8 |
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| FP0001470RJ6200CJ | FP01\25K60F5605BF | FP0001150KJ6200B8 | FP01\2681KF5605BF | FP00422K20J9202B8 |
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| FP0002180RJ9251B8 | FP0001120RJ6200B8 | FP0002910RJ9251B8 | FP0002180RG9251B8 | FP0001100RG6200B8 |
| FP0010100RJ9800LB | FP0032100RJ6602B8 | FP0032120RJ6602B8 | FP0001120RG6200B8 | FP000212K0G9251B8 |
| FP000222K0G9251B8 | FP01\268K0G5605BF | FP000256K0J9251B8 | FP00021K20G9251B8 | FP01\2750RG5605BF |
| FP00011K20G6200B8 | FP01\2110KG5605BF | FP000133K2F6200B8 | FP01\282R0J5605BF | FP01\2560RG5605BF |
| FP0001330KJ6200B8 | FP01\2620KG5605BF | FP01\210R0G5605BF | FP0001430RG6200B8 | FP0001470RG6200B8 |