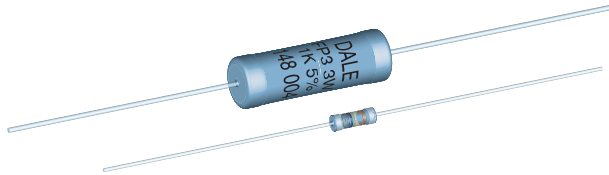




## Metal Film Resistors, Industrial, Flameproof



### 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](http://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<br>$P_{25^{\circ}\text{C}}$<br>W | POWER RATING<br>$P_{40^{\circ}\text{C}}$<br>W | POWER RATING<br>$P_{70^{\circ}\text{C}}$<br>W | MAXIMUM WORKING VOLTAGE <sup>(1)</sup><br>V | RESISTANCE RANGE <sup>(2)</sup><br>$\Omega$ | TOLERANCE<br>$\pm \%$ | TEMPERATURE COEFFICIENT<br>$\pm \text{ppm}/^{\circ}\text{C}$ |
|--------------|------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|---------------------------------------------|---------------------------------------------|-----------------------|--------------------------------------------------------------|
| 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

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

<sup>(2)</sup> Contact factory for values outside these published range.

### GLOBAL PART NUMBER INFORMATION

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

|                                                |          |                                                                                                                                                                                            |          |          |          |                                                                                               |          |          |                        |          |          |                                                                                                                                                                                                                                                                                                            |          |          |          |          |
|------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|-----------------------------------------------------------------------------------------------|----------|----------|------------------------|----------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|----------|
| <b>F</b>                                       | <b>P</b> | <b>0</b>                                                                                                                                                                                   | <b>0</b> | <b>0</b> | <b>2</b> | <b>5</b>                                                                                      | <b>1</b> | <b>K</b> | <b>1</b>               | <b>F</b> | <b>9</b> | <b>2</b>                                                                                                                                                                                                                                                                                                   | <b>5</b> | <b>1</b> | <b>B</b> | <b>8</b> |
| GLOBAL MODEL                                   |          | RESISTANCE VALUE                                                                                                                                                                           |          |          |          | TOLERANCE CODE                                                                                |          |          | SPEC CODES             |          |          | PACKAGING <sup>(3)</sup>                                                                                                                                                                                                                                                                                   |          |          |          |          |
| (See Standard Electrical Specifications table) |          | <b>R</b> = $\Omega$<br><b>K</b> = $\text{k}\Omega$<br><b>M</b> = $\text{M}\Omega$<br><b>10R0</b> = 10 $\Omega$<br><b>1K30</b> = 1.3 $\text{k}\Omega$<br><b>1M00</b> = 1.0 $\text{M}\Omega$ |          |          |          | <b>F</b> = $\pm 1\%$<br><b>G</b> = $\pm 2\%$<br><b>J</b> = $\pm 5\%$<br><b>K</b> = $\pm 10\%$ |          |          | (See Spec Codes table) |          |          | <b>EK</b> = Lead (Pb)-free, strip<br><b>EL</b> = Lead (Pb)-free, lacer<br><b>EA</b> = Lead (Pb)-free, T/R<br><br><b>B8</b> = Tin/lead, strip<br><b>LB</b> = Tin/lead, lacer<br><b>CH</b> = Tin/lead, T/R (750 pieces)<br><b>CJ</b> = Tin/lead, T/R (1000 pieces)<br><b>G1</b> = Tin/lead, T/R (600 pieces) |          |          |          |          |

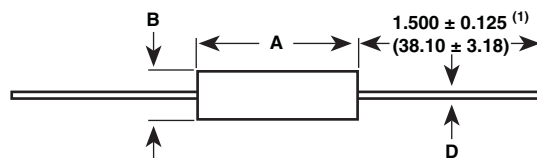
Historical Part Number: FP2 5112 F B8 (will continue to be accepted)

|                  |                  |                |           |
|------------------|------------------|----------------|-----------|
| <b>FP2</b>       | <b>5112</b>      | <b>F</b>       | <b>B8</b> |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING |

### Notes

<sup>(3)</sup> Some packaging codes are model specific.

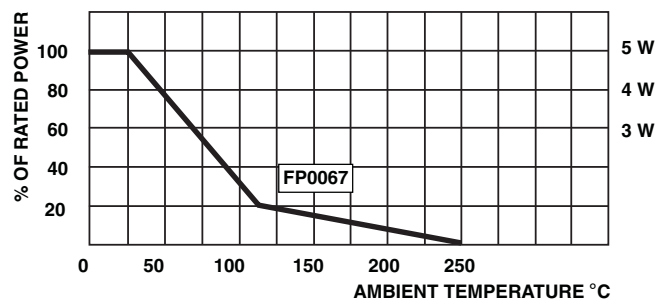
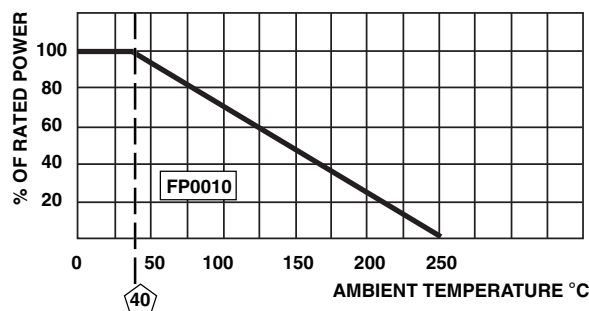
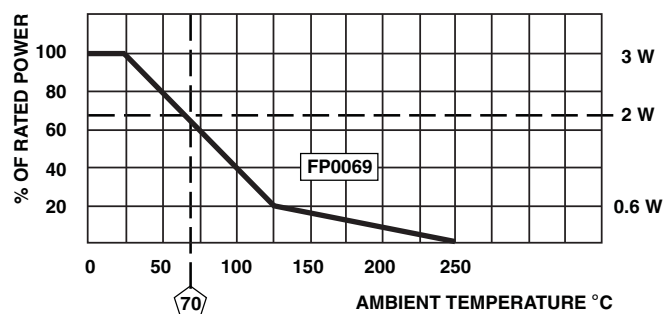
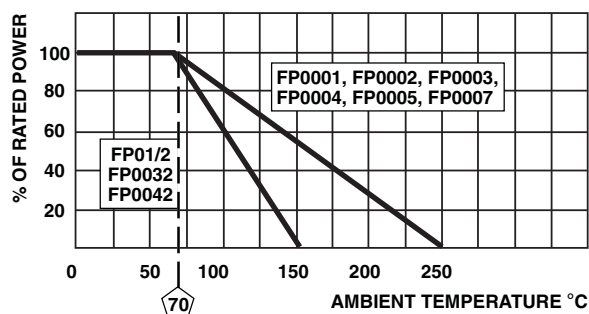
<sup>(4)</sup> For additional information on packaging, refer to the Through Hole Resistor Packaging document ([www.vishay.com/doc?31544](http://www.vishay.com/doc?31544)).

**DIMENSIONS** in inches (millimeters)

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

**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<br>(Date and source code included on some styles) |
|---------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <b><math>\pm 1\%</math> tolerance parts are marked with 5 color bands. 5 bands, EIA Standard RS196.</b> |         | <b><math>\pm 2\%</math>, <math>\pm 5\%</math> and <math>\pm 10\%</math> tolerance parts are marked with 4 color bands. 4 band commercial, EIA Standard.</b> |                                                                         |
|                                                                                                         |         |                                                                                                                                                             |                                                                         |



| PERFORMANCE                         |                                                |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------------------|------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| TEST                                | MAXIMUM $\Delta R$ (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             |



## 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.

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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:

[FP0003470RF9300B8](#) [FP003210R0J6602B8](#) [FP003212R0J6602B8](#) [FP00012K00J6200B8](#) [FP0002470RJ9251B8](#)  
[FP01\275K0G5605BF](#) [FP01\256R2F5605BF](#) [FP0001560RJ6200B8](#) [FP01\2200KG5605BF](#) [FP0042100RJ9203B8](#)  
[FP0042150RJ9203B8](#) [FP0002150RG9251B8](#) [FP0042130RJ9203B8](#) [FP00321K50J6602B8](#) [FP01\25K60G5605BF](#)  
[FP000210K0F9251B8](#) [FP01\239K0G5605BF](#) [FP01\236K0G5605BF](#) [FP006962R0J7500B8](#) [FP0001240RJ6200B8](#)  
[FP000122K6F6200B8](#) [FP0001470RJ6200CJ](#) [FP01\25K60F5605BF](#) [FP00692K20J7500B8](#) [FP00022K40J9251B8](#)  
[FP0005100KJ9500B8](#) [FP0003909RF9300B8](#) [FP0001200KF6200B8](#) [FP0002330RJ9251B8](#) [FP0001330RJ6200B8](#)  
[FP0002180RJ9251B8](#) [FP0001120RJ6200B8](#) [FP0002180RG9251B8](#) [FP000256K0J9251B8](#) [FP01\2750RG5605BF](#)  
[FP01\2110KG5605BF](#) [FP000133K2F6200B8](#) [FP0001330KJ6200B8](#) [FP01\2620KG5605BF](#) [FP0001430RG6200B8](#)  
[FP001082R0J9800B8](#) [FP01\218K0G5605BF](#) [FP00079K09F9700B8](#) [FP006962K0J7500B8](#) [FP0003225KJ9300B8](#)  
[FP42 100K 5%](#) [FP2 51K 5%](#) [FP000147K0G6200B8](#) [FP1 27 2%](#) [FP2P 510 5%](#) [FP1/2 620 2%TR](#) [FP69 7.5K 5%TR](#)  
[FP1 22 5%](#) [FP3 1K 5%TR](#) [FP32 15 1%](#) [FP2 475 1%](#) [FP000210R0J9251EK](#) [FP1 30K 5%TR](#) [FP69 100 1%](#)  
[FP0003330RJ9320EK](#) [FP42 2.2K 5%](#) [FP006968R0J7536A5](#) [FP00691K50J7500EA](#) [FP2 20K 5%](#)  
[FP0004300RJ9400B8](#) [FP1/2 1K 5%](#) [FP00694K75F7500EA](#) [FP0001240KJ6200EA](#) [FP01\2470KG5605BF](#)  
[FP0069680RJ7500B8](#) [FP01\227R4F5605BF](#) [FP01\2301RF5605BF](#) [FP00693K83F7500B8](#) [FP01\2680RG5605BF](#)  
[FP0069499RF7500B8](#) [FP00692K74F7500B8](#) [FP00696K20J7500B8](#) [FP00696K80J7500B8](#) [FP01\22K70G5605BF](#)  
[FP001050R0F9800B8](#) [FP0002150KJ9251B8](#) [FP0001560RG6200B8](#) [FP0002680RG9251B8](#) [FP00015K10J6200B8](#)  
[FP01\224K0G5605BF](#) [FP000315K0J9300B8](#) [FP00023K90G9251B8](#) [FP0002220RG9251B8](#) [FP01\2200RF5605BF](#)  
[FP01\2845KF5605BF](#) [FP0001280KF6200B8](#) [FP000110R0F6200B8](#) [FP00011K00G6200B8](#) [FP000291R0F9251B8](#)  
[FP0002390RG9251B8](#) [FP01\21K30G5605BF](#) [FP0003221RF9300B8](#) [FP000368R0J9300B8](#) [FP00033K90F9300B8](#)  
[FP0042300RJ9203B8](#)