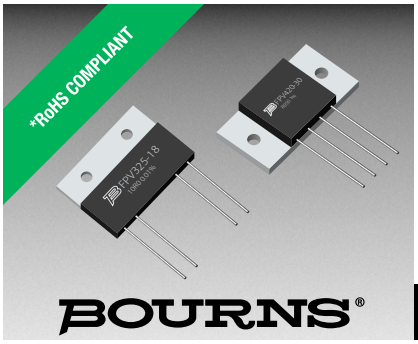



## Features

- Formerly a Riedon™ product
- Resistances from 0.05 Ω to 650 Ω
- Power rating to 50 watts
- Resistance tolerances to ±0.01 %
- TCR to ±1 PPM/°C
- Load stability to 0.01 %
- Isolated backplate
- RoHS compliant*

## Applications

- Current sense
- Battery management systems
- Power supplies
- Motor drives

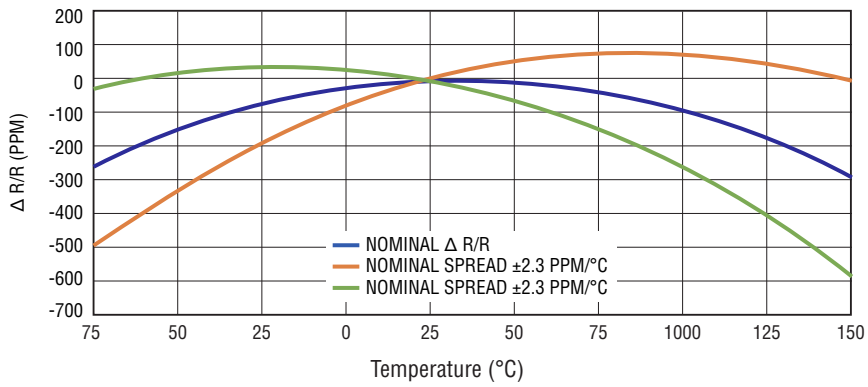
# FPV Series – Riedon™ Ultra Precision Power Resistors by Bourns

## Specifications

| Characteristic | FPV325-18 | FPV420-30 | FPV325-20 | FPV420-50 |
|---|---|---|---|---|
| Resistance Range (Ω)[1] | 0.05 - 650 | 0.05 - 100 | 0.05 - 650 | 0.05 - 100 |
| Power Rating (W)[2]<br>Free Air @ 70 °C<br>With Heat SInk | <br>3<br>18 | <br>2.5<br>30 | <br>3<br>20 | <br>2.5<br>50 |
| Thermal Resistance $R_{thj-c}$ (K/W) | 3.5 | 3.6 | 2.1 | 2.2 |
| Tolerances<br>0.05Ω ≤ R <10 Ω<br>10.0 Ω ≤ R < 50.0 Ω<br>50.0 Ω ≤ R | 0.1 % / 0.25 % / 0.5 % / 1 %<br>0.05 % / 0.1 % / 0.25 % / 0.5 % / 1 %<br>0.01 % / 0.02 % / 0.05 % / 0.1 % / 0.25 % / 0.5 % / 1 % | | | |
| Stability | 0.01 % | | | |
| Shelf Life Stability | 25 PPM / ΔR after 1 year<br>50 PPM / ΔR after 3 years | | | |
| Temperature Coefficient<br>325: (+25 °C to +60 °C)<br>420: (-55 °C to +125 °C) | ±5 PPM/°C<br>±3 PPM/°C (Standard)<br>±1 PPM/°C (only from +25 °C to +60 °C) | | | |
| Voltage Proof | 750 VDC | | | |
| Max. Current | 15 A | | | |
| Thermal EMF | <0.1 μV/K | | | |
| Terminals | 4 | | | |

Notes:
[1] Other resistance values available upon request.
[2] Power rating dependent upon resistance value.

## Temperature Coefficient




## Additional Information

Click these links for more information:

PRODUCT | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

## General Specifications

Operating Temperature Range ..... -55 °C to +155 °C
Resistor Material.....NiCr-Foil
Substrate
18 W / 30 W .....$Al_2O_3$
20 W / 50 W .....AlN
Housing ..... Epoxy + Al-heat sink
Connector Material ..... Cu tinned
Terminals .....4
Max. Torque..... 1.0 Nm

## How to Order

**FPV 325 - 20 - R050 B S**

Model
FPV

Size
325 = 3425
420 = 4020

Power Rating
18 = 18 W
20 = 20 W
30 = 30 W
50 = 50 W

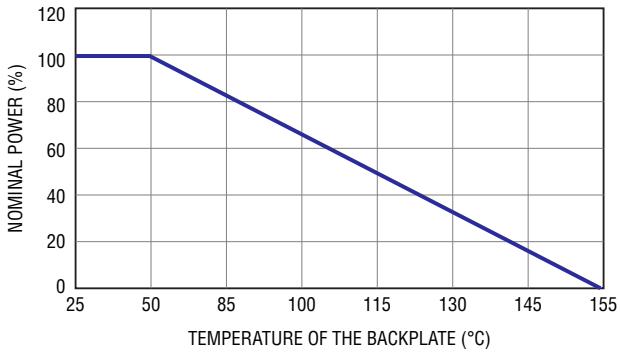
Resistance
"R" represents decimal point
(example: R050 = 0.05 Ω,
650R = 650 Ω)

Tolerance
L = ±0.01 %
P = ±0.02 %
W = ±0.05 %
B = ±0.1 %
C = ±0.25 %
D = ±0.5 %
F = ±1.0 %

TCR (PPM/°C)
K = ±1
S = ±3 (Standard)
M = ±5

**CALIFORNIA WARNING:** Can expose you to lead, a carcinogen and reproductive toxicant.
See www.P65Warnings.ca.gov

## Power Derating Curve




## Power Rating Notes

The FPV Series Resistors must be attached to a suitable heat sink. The maximum internal resistor temperature is 155 °C.
To specify an appropriate heat sink use the following formula:

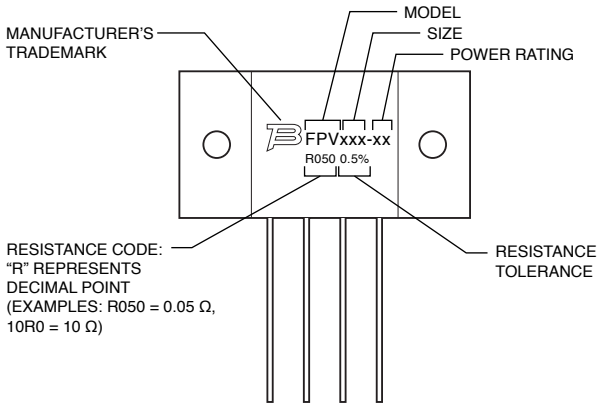
$$R_{\theta H} = \frac{T_{MAX} - (P \times R_{\theta R}) - T_A}{P}$$

Where: $R_{\theta H}$ = Thermal Resistance of Heat Sink (K/W)
$R_{\theta R}$ = Thermal Resistance of Resistor (K/W)
$T_{MAX}$ = Maximum Temperature of Resistor
$T_A$ = Ambient Temperature of Heat Sink (°C)
P = Power Through Resistor (W)

## Packaging Information

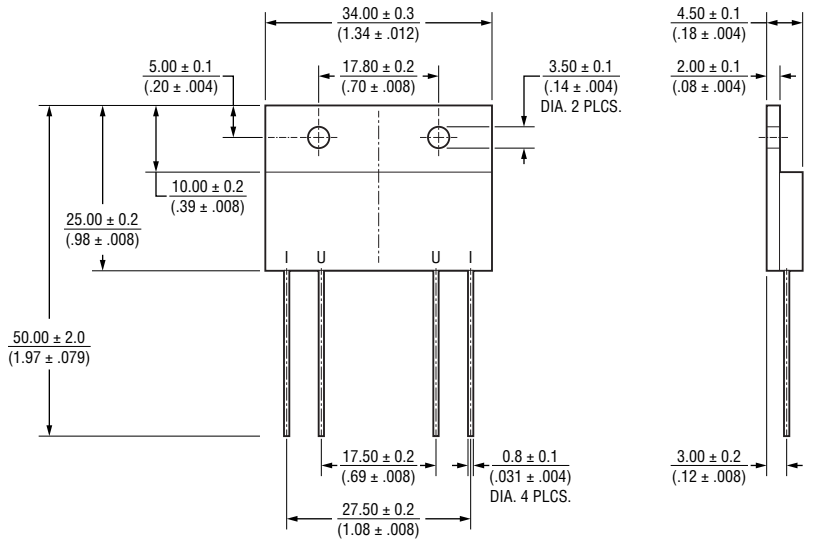
Bulk .....50 pcs./box

## Typical Part Marking

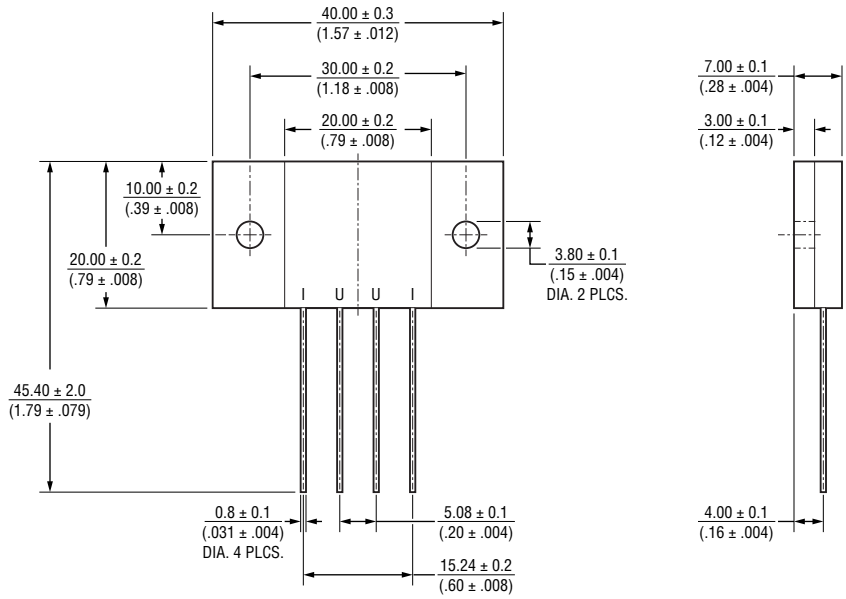


## Product Dimensions

### FPV325




### FPV420




DIMENSIONS: MM (INCHES)

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REV. 11/25

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