

# FPA2K Thick Film Power Resistor



For variable speed drivers, power supplies, control devices, robotics, motor control and other power designs. The easy mounting fixture guarantees an autocalibrated pressure to the cooling plate of approx 300 N

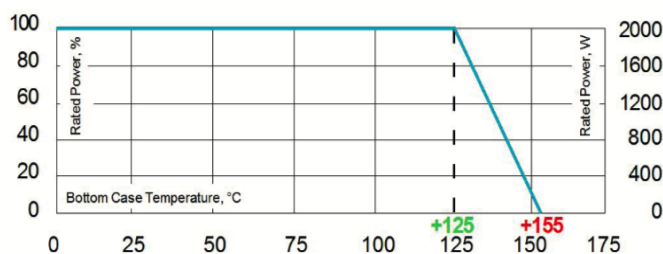
- 2000 Watt operating power
- Non- Inductive Design
- High insulation and partial discharge performance
- Materials in accordance with UL94-V0
- RoHS Compliant



## Characteristics

|                            |                                                                                                                             |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Resistance values          | 1R to 6K                                                                                                                    |
| Resistance tolerance       | J (5%) and K (10%)                                                                                                          |
| Temperature coefficient    | $\pm 150\text{ppm}/^{\circ}\text{C}$ - others available on request, measured $+25^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ |
| Maximum working voltage    | 5kVdc - others available on request not exceeding maximum power                                                             |
| Short time overload        | 2400W at $70^{\circ}\text{C}$ for 10 sec $\Delta R = 0.4\%$ max                                                             |
| Power rating               | 2000W at $125^{\circ}\text{C}$ bottom case temperature resp. $60^{\circ}\text{C}$ heat sink temp                            |
| Maximum continuous current | 120 A                                                                                                                       |
| Electric strength voltage  | 7kVrms/50Hz/500VA , test time 1 min between case and terminal                                                               |
| Single shot voltage        | up to 12kV normwave (1.5/50 $\mu\text{sec}$ )                                                                               |
| Partial discharge          | 4kVrms < 10pC                                                                                                               |
| Insulation resistance      | 10G $\Omega$ min at 1000V                                                                                                   |
| Creepage distance          | >42mm min                                                                                                                   |
| Air distance               | >14mm min                                                                                                                   |
| Inductance                 | $\geq 80\text{nH}$ typical, measuring frequency 10kHz                                                                       |
| Capacity/Mass              | $\geq 120\text{pF}$ typical, measuring frequency 10kHz                                                                      |
| Capacitance/Parallel       | $\geq 40\text{pF}$ typical, measuring frequency 10kHz                                                                       |
| Operating temperature      | $-55^{\circ}\text{C}$ to $+150^{\circ}\text{C}$                                                                             |
| Max torque for contacts    | 1.8 Nm to 2Nm                                                                                                               |
| Max torque for mounting    | 1.6Nm to 1.8 Nm M4 screws                                                                                                   |
| Weight                     | $\sim 120\text{ g}$                                                                                                         |

## Derating Curve



Derating (thermal resist.) FPA2K: 66.6 W/K (0.015K/W)  
Power Rating: 2000 W at  $125^{\circ}\text{C}$  bottom case temperature.

Best results can be reached by using a thermal conduction to the heatsink  $R_{th-cs} < 0.025^{\circ}\text{K/W}$ , which can be reached by using thermal transfer compound with a heat conductivity of 1W/mK. The flatness of the cooling plate must be better than 0.05mm overall. The roughness of the surface should not exceed 6.4 $\mu\text{m}$ .

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The information contained herein does not form part of a contract and is subject to change without notice. Arcol operate a policy of continual product development, therefore, specifications may change.

It is the responsibility of the customer to ensure that the component selected from our range is suitable for the intended application. If in doubt please ask Arcol.

Test Specifications

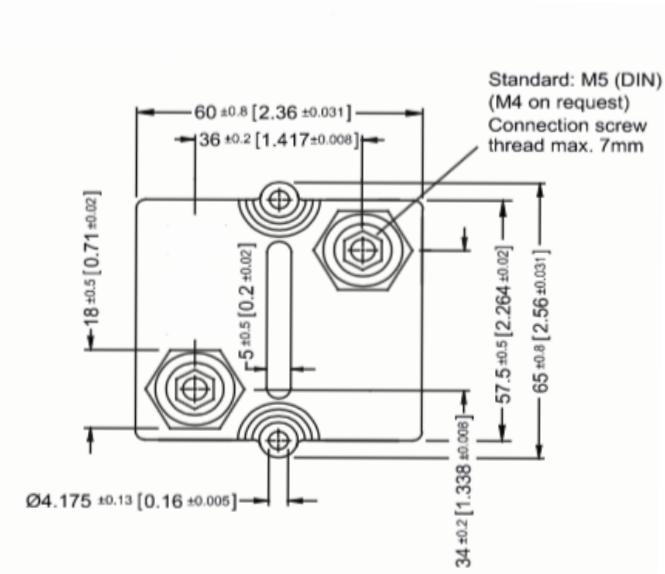
| Test                  | Method                         | Tolerance Drift |
|-----------------------|--------------------------------|-----------------|
| Short time overload   | 2400 W/10 sec                  | 0.40%           |
| Humidity steady state | 56 days/40°C/95%               | 0.25%           |
| Temp. Cycling         | -55/+125/5cycles               | 0.20%           |
| Shock                 | 40g/4000 times                 | 0.25%           |
| Vibrations            | 2-500Hz/10g                    | 0.25%           |
| Load life 3,000 cyl   | PN 30 min on/ 30 min off       | 0.40%           |
| Terminal strengths    | 200N for hexa. thread contacts | 0.05%           |

Ordering Procedure

Standard Resistor: Series, Resistance Value, Tolerance, Connector height

e.g: FPA2K 10R J 30/32 mm

Dimensions (in mm)

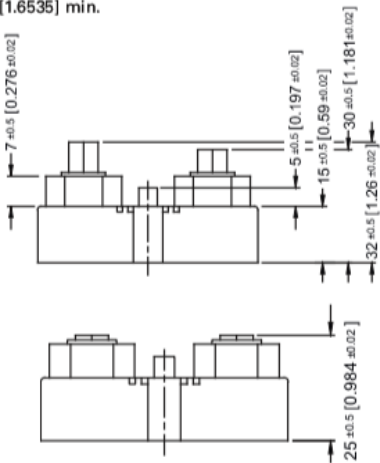


Standard Terminals

Air distance: 14mm [0.5512] min.  
Creeping distance: 42mm [1.6535] min.

Terminal height 30/32  
Standard

Terminal height 25/25  
Optional



General Specifications

- Electric support** \_ Alumina ceramic metalized with ALTOX film on the bottom for improved heat transfer and optimum discharge
- Encapsulation** \_ Resin-filled epoxy casing with large creepage distance to mass, large strike distance between the terminals and high insulation resistance(CTI 600)
- Resistance Element** -Special design for low inductance and capacitance values. The element employs our special METOXFILM, which demonstrates stability whilst covering high wattage and pulse loading

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