

# Ultra-High-Power Resistors

## Series UXP-800

800 W resistor, US Patent-No. 5,355,281

For variable speed drives, power, supplies, control devices, robotics, motor control and other power designs, the easy mounting fixture assures an auto-calibrated pressure to the cooling plate of about 120 to 160 N.

### Features

- 800 W operating power
- Tolerance range  $\pm 10\%$  to  $\pm 5\%$  (tighter on special request)
- Ohmic range 0.1  $\Omega$  to 1 M $\Omega$  (higher on special request)
- Non-Inductive design
- ROHS compliant
- High insulation & partial discharge performance
- Materials in accordance with UL 94 V-0



### Technical Specifications

<b>Resistance value</b>	0.1 $\Omega$ $\leq$ 0.25 $\Omega$ (HC-version) > 0.25 $\Omega$ $\leq$ 1 M $\Omega$ (higher value on request)
<b>Resistance tolerance</b>	$\pm 10\%$ to $\pm 5\%$ $\pm 2\%$ to $\pm 1\%$ on special request for limited ohmic value with the reduction of the max. power / pulse rating (ask for details)
<b>Temperature coefficient</b>	$\pm 500$ ppm/ $^{\circ}$ C (0.1 $\Omega$ $\leq$ 0.25 $\Omega$ ) Standard $\pm 150$ ppm/ $^{\circ}$ C (> 0.25 $\Omega$ $\leq$ 1 M $\Omega$ ) Standard lower TCR on special request for limited ohmic value
<b>Power rating</b>	800 W at 85 $^{\circ}$ C bottom case temperature
<b>Short time overload</b>	1,200 W at 70 $^{\circ}$ C for 10sec., $\Delta R = 0.4\%$ max.
<b>Maximum working voltage</b>	5,000 V DC $\approx$ 3,500 V AC RMS (50 Hz) higher voltage on request, not exceeding max. power
<b>Electric strength voltage</b>	7 kVrms / 50 Hz / 500 VA, test time 1 min. (up to 12 kVrms on request) voltages above 10 kVrms are tested at DC equivalent to avoid pre damage of component
<b>Partial discharge</b>	4 kVrms < 10 pC (up to 7 kVrms < 10 pC on request) acc. to IEC 60270
<b>Peak current</b>	up to 1,500 A depending on pulse length and frequency (ask for details)
<b>Insulation resistance</b>	> 10 G $\Omega$ at 1,000 V
<b>Single shot voltage</b>	up to 12 kV norm wave (1.5/50 $\mu$ sec)
<b>Creeping distance</b>	> 42 mm (standard, higher on request)
<b>Air distance</b>	> 14 mm (standard, higher on request)
<b>Inductance</b>	$\geq 80$ nH (typical), measuring frequency 10 kHz
<b>Capacity/mass</b>	$\geq 140$ pF (typical), measuring frequency 10 kHz
<b>Capacity/parallel</b>	$\geq 40$ pF (typical), measuring frequency 10 kHz
<b>Operating temperature</b>	-55 $^{\circ}$ C to +155 $^{\circ}$ C
<b>Mounting - max. torque for contacts</b>	2 Nm
<b>Mounting - max. torque</b>	1.8 Nm M4 screws
<b>Contacts</b>	standard M5 (M4 on special request) connection screw thread max. 7 mm
<b>Internal Temperature Sensor</b>	PT-1000 / PT-100 / Type K / Type J (ask for details)
<b>Cable variation</b>	HV-cable / Flying leads (ask for details)
<b>Weight</b>	$\sim 120$ g

### General Specifications

#### Electric support

Alumina ceramic metalized with EBG ALTOX film on the bottom for improved heat transfer and optimum discharge

#### Encapsulation

Resin-filled epoxy casing with large creeping distance to mass, large air distance between the terminals and high insulation resistance (CTI 600)

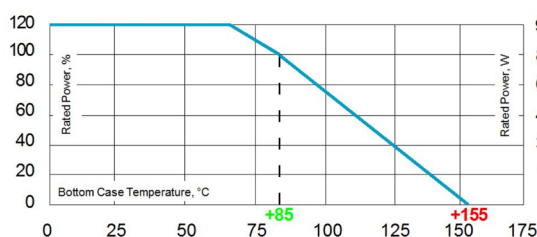
#### Resistance Element

Special design for low inductance and capacitance values. The element employs our special METOXFILM, which demonstrates stability while covering high wattage and pulse loading

#### Contacts

- Easy load connection with M4 and M5 screws (Inch thread terminals on request)
- Connector height available from 25 to 42 mm
- Various sleeves for increasing creeping distance up to 85 mm or potted cable connections are available on request

### Power Rating



Please note most all of our UXP customers have their own custom designed drawing. Therefore please do not hesitate to discuss your special needs with the local representative or contact us directly.

Derating (thermal resist.) UXP-800: 9.09 W/K (0.11 K/W)  
Power rating: 800 W at 85 $^{\circ}$ C bottom case temperature\*  
Please ask for detailed mounting procedure!

\* This value is only applicable when using a thermal conduction to the heat sink  $R_{th-cs} < 0.025$  K/W. This value can be obtained by using a thermal transfer compound with a heat conductivity of at least 1 W/mK. The flatness of the cooling plate must be better than 0.05 mm overall. Surface roughness should not exceed 6.4  $\mu$ m.

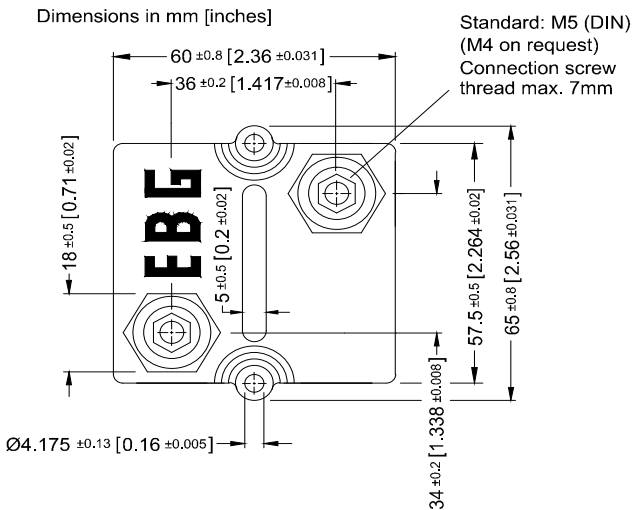
The above spec. sheet features our standard products. For further options please contact our local EBG representative or contact us directly.

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## Series UXP-800

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### Dimensions



### How to make a request

#### ■ Standard terminal

UXP-800\_Ohmic Value\_Tolerance\_Terminal Height\_Contact

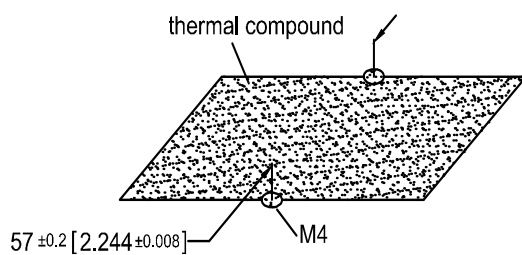
For example

UXP-800 5R 10% 30/32 M5

#### ■ Examples for optional terminals

UXP-800 5R 10% 25/25 M5 or UXP-800-7 5R 10%

### Borehole Distance



### Test Specifications\*

Test	Method	Tolerance Drift**
Short time overload	1,000 W/10sec.	0.40%
Humidity steady state	56 days/40°C/95%	0.25%
Temp. Cycling	-55/+125/5cycles	0.20%
Shock	40g/4,000 times	0.25%
Vibrations	2-500Hz/10g	0.25%
Load life 3,000cyl	PN 30 min. on / 30 min off	0.40%
Terminal strengths f. contacts	200N	0.05%

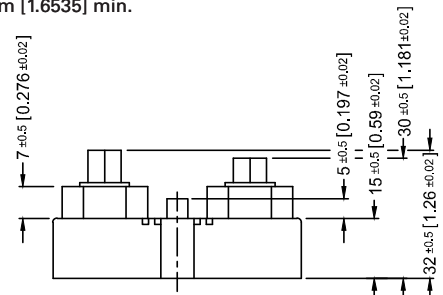
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### Standard Terminals

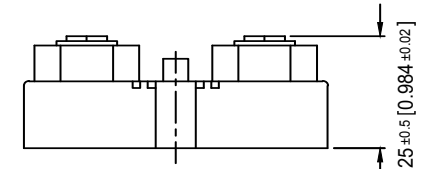
Air distance: 14mm [0.5512] min.

Creeping distance: 42mm [1.6535] min.

#### Terminal height 30/32 Standard



#### Terminal height 25/25 Optional



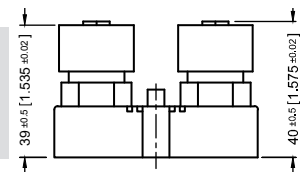
### Terminal Options (for increased air & creeping distances)

Other terminal dimensions available, contact for more information

#### UXP-800-9

Air distance: 25mm [0.984] min.

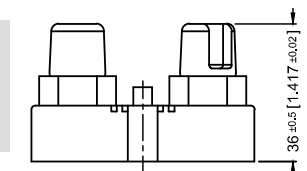
Creeping distance: 83mm [3.267] min.



#### UXP-800-7

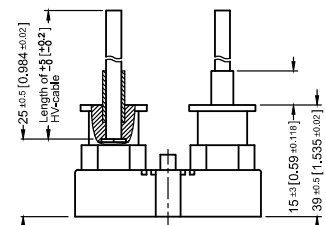
Air distance: 26.7mm [1.0512] min.

Creeping distance: 50mm [1.968] min.



#### UXP-800-8

Air and creeping distance depends on length of HV-cable



\* The test methods are according to IEC 60068-2

\*\* The tolerance drift is the possible change of the resistance value because of the certain test