

# Series LXP-100 B TO-247

100 W Thick Film Resistor for high-frequency and pulse-loading applications  
Version B for enforced mechanical stability

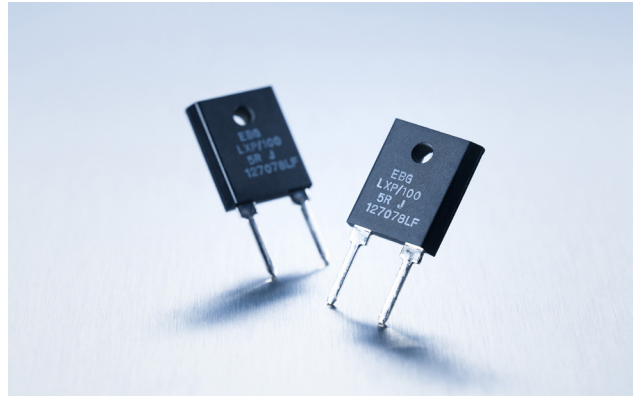
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EBG Resistor offers the completely encapsulated and insulated TO-247 package for low ohmic value and Non-Inductive design for high-frequency and pulse-loading applications. Ideal use for power supplies. The LXP-100 B series is rated at 100 W mounted to a heat sink.

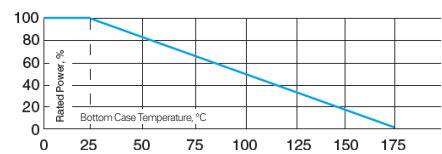
## Features

- 100 W operating power
- **TO-247 package** configuration
- Single-screw mounting simplifies attachment to heat sink
- A fully molded housing for environmental protection
- Resistor package completely insulated from heat sink
- **Tube packing available (packing unit: 35 pcs. / tube)**
- For perfect heat dissipation, the use of mounting clamps is suggested (ask for details)
- Non-Inductive design
- ROHS compliant
- Materials in accordance with UL 94 V-0



## Technical Specifications

<b>Resistance value</b>	0.05 Ω ≤ 1 MΩ (other values on special request)
<b>Resistance tolerance</b>	±10 % to ±1 %
<b>Temperature coefficient</b>	> 10 Ω: ±50 ppm/°C referenced to 25°C, ΔR taken at +105°C (other TCR on special request for limited ohmic values)
<b>Power rating</b>	100 W at 25°C bottom case temperature derated to 0 W at 175°C
<b>Short time overload</b>	1.5x rated power with applied voltage not to exceed 1.5x V max. for 5 seconds, ΔR < ±(0.50 % + 0.0005 Ω)
<b>Maximum operating voltage</b>	350 V, max. 500 V on special request
<b>Insulation resistance</b>	> 10 GΩ at 1,000 V DC
<b>Dielectric strength voltage</b>	1,800 V AC
<b>Dielectric strength</b>	MIL-STD-202, method 301 (1,800 V AC, 60 sec.) ΔR < ±(0.15 % + 0.0005 Ω)
<b>Load life</b>	MIL-R-39009D 4.8.13, 2,000 hours at rated power, ΔR < ±(1.0 % + 0.0005 Ω)
<b>Moisture resistance</b>	-10°C to +65°C, RH > 90 % cycle 240 h, ΔR < ±(0.50 % + 0.0005 Ω)
<b>Thermal shock</b>	MIL-STD-202, method 107, Cond. F, ΔR < ±(0.50 % + 0.0005 Ω)
<b>Terminal strength</b>	MIL-STD-202, method 211, Cond. A (Pull Test) 2.4 N ΔR < ±(0.20 % + 0.0005 Ω)
<b>Vibration, high frequency</b>	MIL-STD-202, method 204, Cond. D, ΔR < ±(0.40 % + 0.0005 Ω)
<b>Inductance (serial)</b>	typical 20 nH, measuring frequency 10 kHz
<b>Lead material</b>	tinned copper
<b>Mounting - torque</b>	0.7 Nm to 0.9 Nm M4 using a M3 screw and a compression washer mounting technique
<b>Weight</b>	~4 g



**Derating (thermal resist.) LXP-100 B:**  
0.66 W/K (1.5 K/W)

Without a heat sink, when in open air at 25°C, the LXP-100 B is rated for 3 W. Derating for temperature above 25°C is 0.023 W/K.

Case temperature must be used for definition of the applied power limit. Case temperature measurement must be done with a thermocouple contacting the center of the component mounted on the designed heat sink. Thermal grease should be applied properly.

This value is only applicable when using thermal conduction to heat sink Rth-cs < 0.025 K/W. This value can be attained by using a thermal transfer compound with a heat conductivity of 1 W/mK. The flatness of the cooling plate must be better than 0.05 mm overall. Surface roughness should not exceed 6.4 μm.

## How to make an order

LXP-100 B\_Ohmic Value\_Tolerance

**For example:**  
LXP-100 B 20R 10%

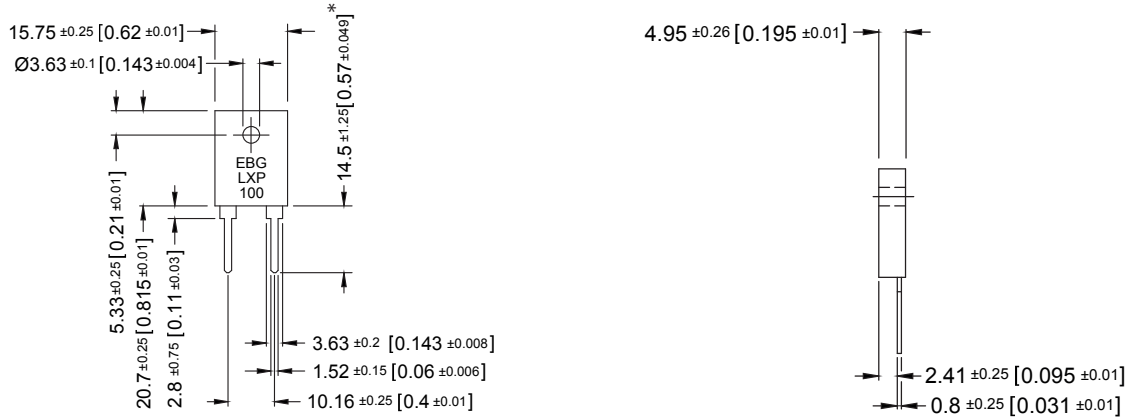
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## Dimensions in mm [inches]



\* longer contacts available (ask for details)

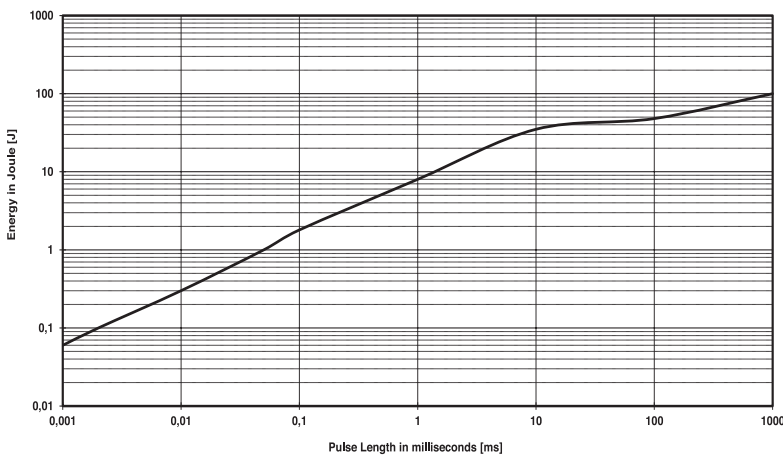
## Pulse Energy Curve (typical rating for LXP-100 B)

Note: These energy values are reference values -> depending on ohmic value and used resistive paste, a variation in max. energy load capability is possible

### Test procedure

Every test resistor was mounted with thermal compound (0.9 W/mK) on a water cooled heatsink

- Constant inlet water temperature: +50°C
- The test time of each tested resistor: 10min.
- Break time between two pulses: 1sec.
- To determine good / defect parts the ohmic value was measured before and after tests: a change of tolerance of more than 0.1% means defect



**Description of Pulse Energy Curve**

- Shape of pulse = e-function
- Time between two pulses = 1 second
- Pulse length = time constant of 1 tau (1 means ... tau = 1ms)

### Example

At 1 ms tau the LXP-100 B can withstand an energy level of about 8 J, when the pulse pause time is  $\geq 1$  s

**At a symmetrical frequency > 1 kHz at pulse length  $\geq 10 \mu\text{sec}$ . the maximum applied pulse energy for LXP-100 B is an result out of the normal power 100 W divided by the operating frequency (at 25°C bottom case) ( $E = 100 \text{ W} / F$ )**

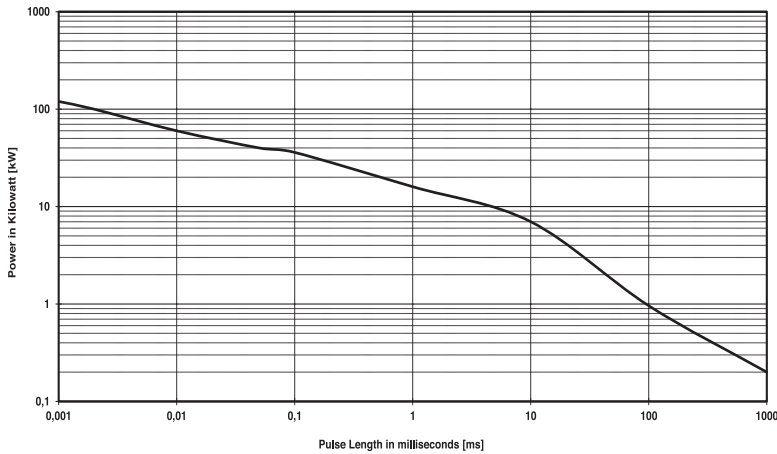
The above spec. sheet features our standard products. For further options please contact our local EBG representative or contact us directly.

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## Pulse Power Curve (typical rating for LXP-100 B)

The power curve shows the max. possible power which can be applied for a certain duration. Referring to the same test procedure as described at page 30.



**Description of Pulse Power Curve**

- Shape of pulse = e-function
- Time between two pulses = 1 second
- Pulse length = time constant of 1 tau (1 means ... tau = 1ms)

### Example

For the time-constant of 1 ms you can apply about 16 kW max. ( $P_p = 2 \cdot E / T$ ) →, if the time between two such peaks is  $\geq 1s$

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