EBG RESISTORS

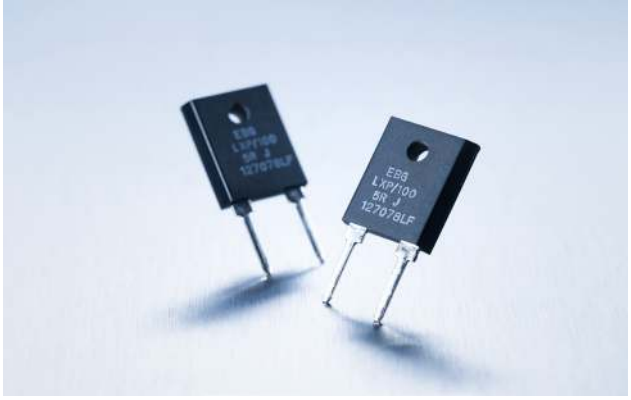
A Miba Group Company

Power Resistors

Series LXP-100 B TO-247

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

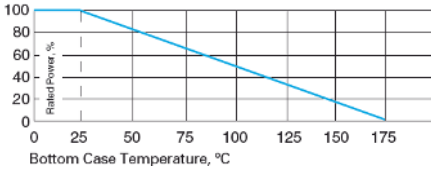
EBG Resistor offers the completely encapsulated and insulated TO-247 package for low ohmic value and Non-Inductive design for high-frequency and pulse-loading applications. Ideal use for power supplies. The LXP-100 B series is rated at 100 W mounted to a heat sink.



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

Power Rating



Technical Specifications

Resistance value	0.05 Ω ≤ 1 MΩ (higher values on special request)
Resistance tolerance	±10 % to ±1 %
Temperature coefficient	> 10 Ω: ±50 ppm/°C referenced to 25°C, ΔR taken at +105°C (other TCR on special request for limited ohmic values)
Power rating	100 W at 25°C bottom case temperature derated to 0 W at 175°C
Short time overload	1.5x rated power with applied voltage not to exceed 1.5x V max. for 5 seconds, ΔR < ±(0.50 % + 0.0005 Ω)
Maximum operating voltage	350 V max. 500 V on special request
Insulation resistance	> 10 GΩ at 1,000 V DC
Dielectric strength voltage	1,800 V AC
Dieletric strength	MIL-STD-202, method 301 (1,800 V AC, 60 sec.) ΔR < ±(0.15 % + 0.0005 Ω)
Load life	MIL-R-39009D 4.8.13, 2,000 hours at rated power, ΔR < ±(1.0 % + 0.0005 Ω)
Moisture resistance	-10°C to +65°C, RH > 90 % cycle 240 h, ΔR < ±(0.50 % + 0.0005 Ω)
Thermal shock	MIL-STD-202, method 107, Cond. F, ΔR < ±(0.50 % + 0.0005 Ω)
Terminal strength	MIL-STD-202, method 211, Cond. A (Pull Test) 2.4 N ΔR < ±(0.20 % + 0.0005 Ω)
Vibration, high frequency	MIL-STD-202, method 204, Cond. D, ΔR < ±(0.40 % + 0.0005 Ω)
Inductance (serial)	typical 20 nH
Lead material	tinned copper
Mounting - max. torque	0.9 Nm M4 using a M3 screw and a compression wahser mounting technique
Weight	~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 thermo-couple 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 bettern than 0.05 mm overall. Surface roughness should not exceed 6.4 µm.

How to make a request

LXP-100 B_Ohmic Value_Tolerance

For example:
LXP-100 B 20R 10%

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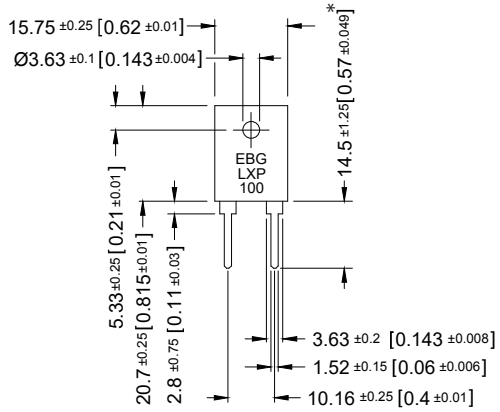
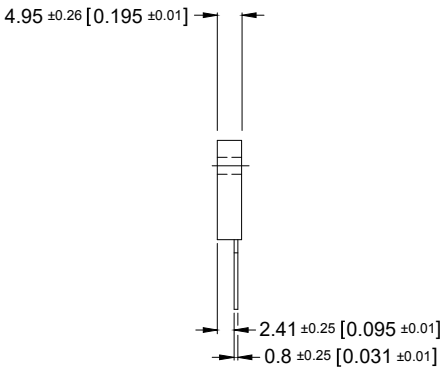
Dimensions in mm [inches]





* longer contacts availabe (ask for details)

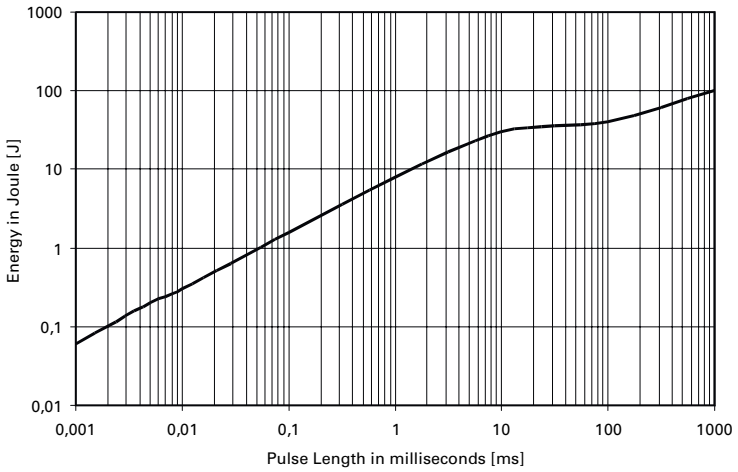
Pulse Energy Curve (typical rating for LXP-100 B)

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 0,05 ms tau the LXP-100 B can withstand an energy level of about 1 J, when the pulse pause time is ≥ 1s

At a symmetrical frequency > 1 kHz at pulse length ≥ 10 µsec. 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 W / F)