



PERFORMANCE		
TESTS	CONDITIONS	REQUIREMENTS
Momentary Overload	IEC 60115-1 2 x P <sub>r</sub> / 10 s U <sub>max.</sub> ≤ U <sub>L</sub> = 5000 V	± (0.25 % + 0.05 Ω)
Rapid Temperature Change	IEC 60115-1/IEC 60068-2-14 Test Na 50 cycles -55 °C to +155 °C	± (0.5 % + 0.05 Ω)
Load Life	IEC 60115-1 1000 h (90/30) P <sub>r</sub> at 85 °C	± (0.5 % + 0.05 Ω)
Humidity (Steady State)	IEC 60115-1 56 days RH 95 % / 40 °C	± (0.5 % + 0.05 Ω)
Vibration	MIL STD 202 method 204 cond. D (10 g; 5/500 Hz)	± (0.25 % + 0.05 Ω)
Climatic Sequence	IEC 60115-1 (55 / 155 / 56)	± (1 % + 0.05 Ω)

**RECOMMENDATIONS FOR MOUNTING ONTO A HEATSINK**

- Surfaces in contact must be carefully cleaned.
- The heatsink must have an acceptable flatness: from 0.05 mm to 0.1 mm/100 mm.
- Roughness of the heatsink must be around 6.3 μm. In order to improve thermal conductivity, surfaces in contact (alumina, heatsink) should be coated with a silicone grease (type Bluesil Past 340 from BlueStar Silicones) or a thermal film (type Q Pad II) easier and faster to install than the grease.
- The fastening of the resistor to the heatsink is under pressure control of two screws tightened at 2 Nm for full power availability.

Tightening Torque on Heatsink	LPS 600
	2 Nm

- The following accessories are supplied with each product:
  - 2 screws CHC M4 x 25 class 8.8 and 2 M4 contact lock washers for heatsink mounting
  - 2 screws TH M4 x 6/6 and 2 M4 contact lock washers for connections

**CHOICE OF THE HEATSINK**

The user must choose the heatsink according to the working conditions of the component (power, room temperature). Maximum working temperature must not exceed 155 °C. The dissipated power is simply calculated by the following ratio:

$$P = \frac{\Delta T}{R_{TH(j-c)} + R_{TH(c-h)} + R_{TH(h-a)}}$$

- P: Expressed in W
- ΔT: Difference between maximum working temperature and room temperature
- R<sub>TH(j-c)</sub>: Thermal resistance value measured between resistive layer and outer side of the resistor. It is the thermal resistance of the component: (see specifications environmental paragraph).
- R<sub>TH(c-h)</sub>: Thermal resistance value measured between outer side of the resistor and upper side of the heatsink. This is the thermal resistance of the interface (grease, thermal pad), and the quality of the fastening device.
- R<sub>TH(h-a)</sub>: Thermal resistance of the heatsink.

**Example:**

R<sub>TH(c-a)</sub> for LPS 600 power dissipation 180 W at + 50 °C room temperature.

ΔT ≤ 155 °C - 50 °C = 105 °C

R<sub>TH(j-c)</sub> + R<sub>TH(c-h)</sub> + R<sub>TH(h-a)</sub> =  $\frac{\Delta T}{P} = \frac{105}{180} = 0.58 \text{ °C/W}$

R<sub>TH(j-c)</sub> = 0.112 °C/W

R<sub>TH(c-h)</sub> + R<sub>TH(h-a)</sub> = 0.58 °C/W - 0.112 °C/W = 0.468 °C/W



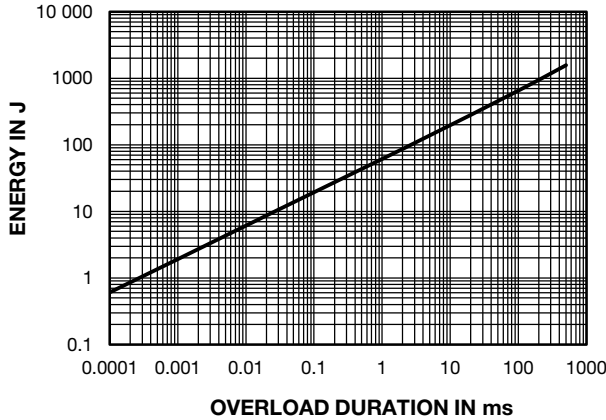
**OVERLOADS**

In any case the applied voltage must be lower than  $U_L = 5000\text{ V}$ .

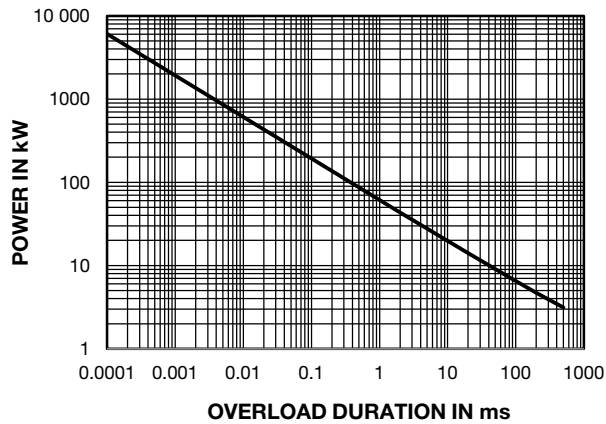
**Short time overload:**  $2 \times P_r/10\text{ s}$

**Accidental overload:** The values indicated on the following graph are applicable to resistors in air or mounted onto a heatsink.

**ENERGY CURVE**



**POWER CURVE**



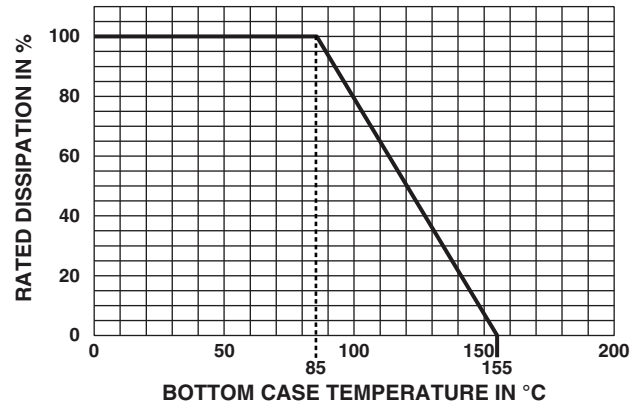
**MARKING**

Series, style, ohmic value (in  $\Omega$ ), tolerance (in %), manufacturing date, Vishay Sfernice trademark.

**POWER RATING**

The temperature of the case should be maintained within the limits specified in the following figure.

To optimize the thermal conduction, contacting surfaces should be coated with silicone grease or thermal film, and heatsink mounting screws tightened to 2 Nm.

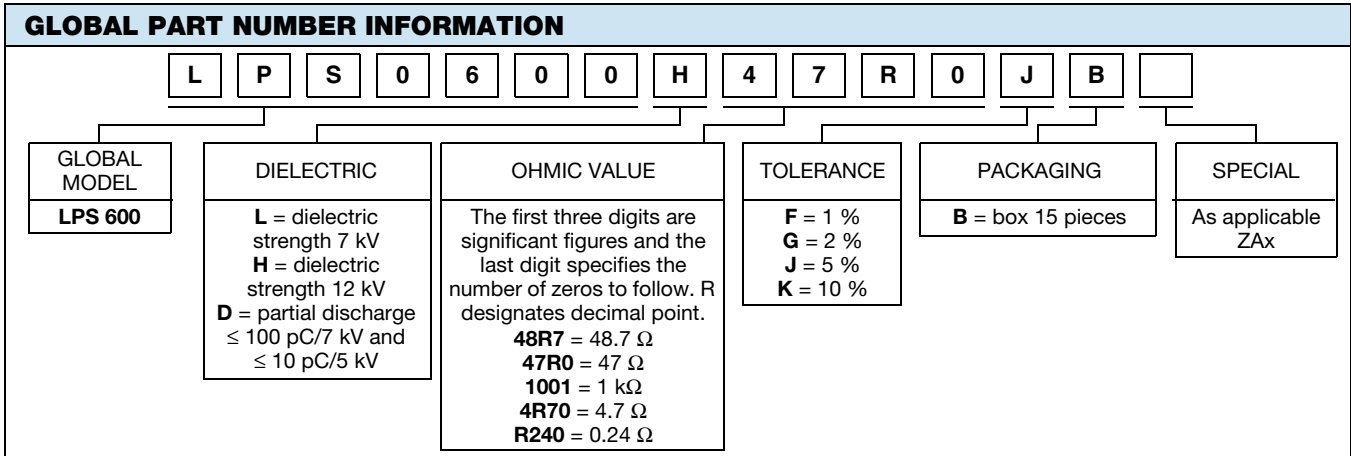


**PACKAGING**

Box of 15 units



ORDERING INFORMATION						
LPS	600	100 kΩ	± 1 %	xxx	BO15	e
MODEL	STYLE	RESISTANCE VALUE	TOLERANCE	CUSTOM DESIGN	PACKAGING	LEAD (Pb)-FREE
			± 1 % ± 2 % ± 5 % ± 10 %	Optional on request: special TCR, shape etc.		





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