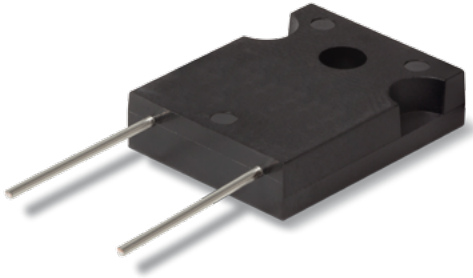


Data Sheet for Precision Resistors

Power Resistor (thin film)

Series M247



- Power rating up to 140 Watt (with heat-sink)
- Resistance range from 0.02Ω..51kΩ
- Resistance tolerance up to ±1%
- TCR up to ±50ppm/°C
- TO-247 housing
- Low inductance (<50 nH)

Electrical Specification	M247-2	M247-3
Resistance range	0.02Ω..51kΩ	
Resistance tolerance	±1%..±5%	
Power rating @ 25°C (0W @ +175°C)	100 W with heat-sink 3 W without heat-sink	140 W with heat-sink 5 W without heat-sink
Max. working voltage	700V or $\sqrt{P+R}$	
TCR-rate	±50ppm/°C @ R ≥ 10Ω ±100ppm/°C @ 0,1Ω ≤ R < 10Ω ±250ppm/°C @ R < 0.1Ω	
Working temperature range (max.)	-55 °C up to +175 °C	

Mechanical Specification

Resistance technology / material	Thin film
Housing material	Epoxy moulded
Design	TO-247
Connections	Radial cooper tinned

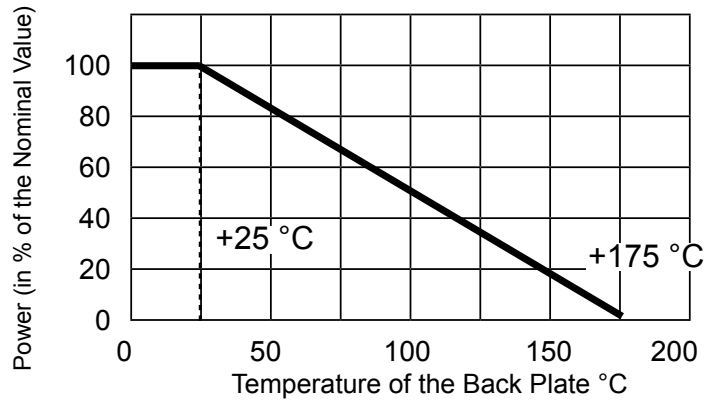
Parameters	Test Conditions	Specification ΔR
Load life	90 min on, 30 min off, 1000h @25 °C	±1% +0.05Ω
Moisture resistance	90..95% RH, 0,1W, 1000h @ 40 °C	±1% +0.05Ω
Thermal shock	-55 °C 30 min, +155 °C 30min. 1000h	±0.25% +0.05Ω
Resistance to soldering heat	350 °C, 3 sec.	±0.1% +0.05Ω
Vibration	IEC60068-2-6	±0.25% +0.05Ω
Dielectric strength: 2500 VAC		
Inductance: 11.7 nH (M247-2) / 12.3 nH (M247-3)		
Isolation resistance: 1 GΩ		
Thermal resistance: 1.3 °C/W (M247-2) / 0.9 °C/W (M247-3)		

Data Sheet for Precision Resistors

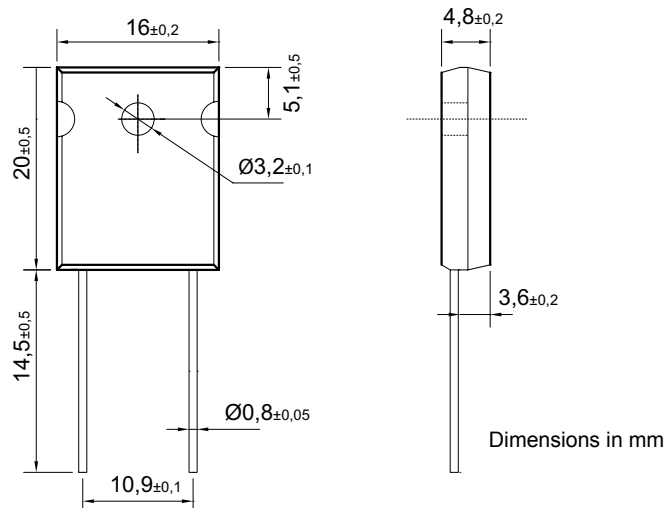
Power Resistor (thin film)

Series M247

Power Derating Curve



Technical Drawing



Power Rating Notes:

The M247 series resistors have to be combined with a correctly dimensioned heat-sink. The internal temperature of the resistor should not exceed 175 °C.

Formula for the calculation of an appropriate heat-sink:

$$R_{OH} = \frac{T_{max} - T_U}{P - (P \times R_{OR})}$$

- R_{OH} Thermal Resistance of the Heat-Sink(°C/W)
- R_{OR} Thermal Resistance of the Resistor (°C/W)
- T_{max} Maximum Temperature of the Resistor
- T_U Ambient Temperature of the Heat-Sink (°C)
- P Power applied to the Resistor (W)

Mounting Notes:

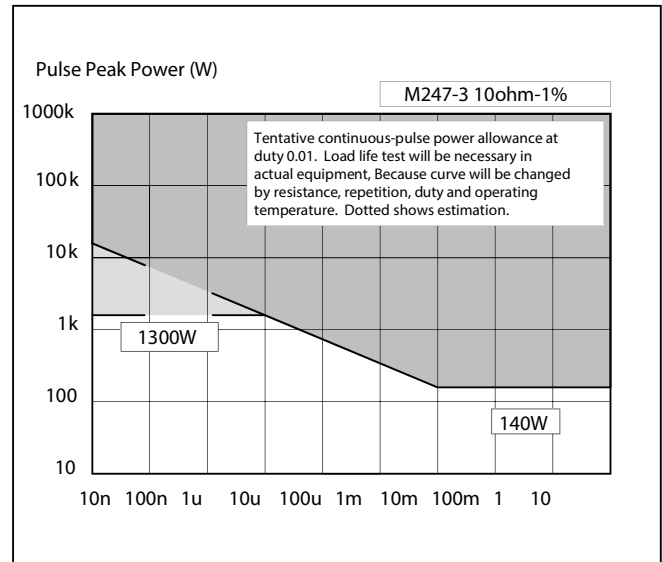
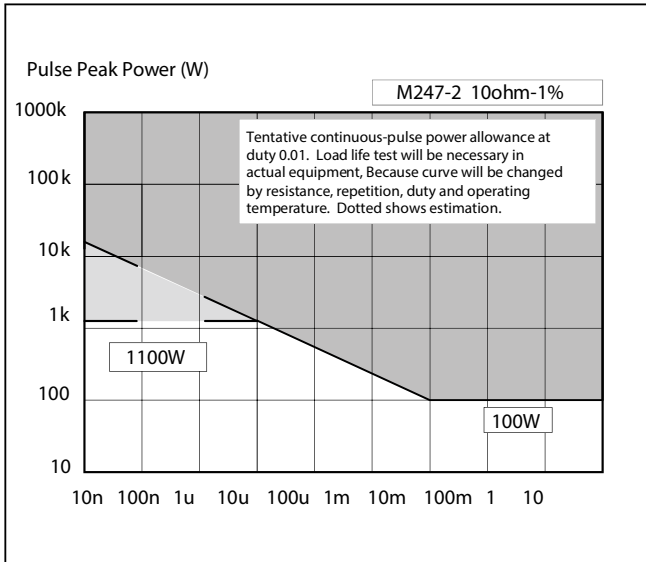
The resistor must be attached to a suitable heat-sink. Mount resistor using thermal grease to a clean, flat surface. Use a compression washer to provide 665 to 1330N of mounting force. Torque mounting screw to 0,9 Nm. Back plate is isolated from both pins.

Data Sheet for Precision Resistors

Power Resistor (thin film)

Series M247

Pulse Energy



Order code

Description	Selection: standard=black/bold , possible <i>options=grey/italic</i>			
Series:	M247			
Resistance tolerance: ±1% @R ≥ 0,1 Ω ±5%		W1% W5%		
Temperature coefficient: ±50ppm/°C @ R ≥ 10Ω ±100ppm/°C @ 0,1Ω ≤ R <10Ω ±250ppm/°C @ R < 0,1Ω			TK50 TK100 TK250	
Resistance value - please choose: From 0,01Ω to ≤ 51kΩ			xxxkxxx	
Power rating: Typ 2 @ 100W Typ 3 @ 140W				2 3

Order Example	Series	Resistance tolerance	Temperature coefficient	Resistance value	Power rating
Choice	M247	±1%	50ppm/°C	10,1kΩ	100W
Code	M247	W1%	TK50	10k100	2