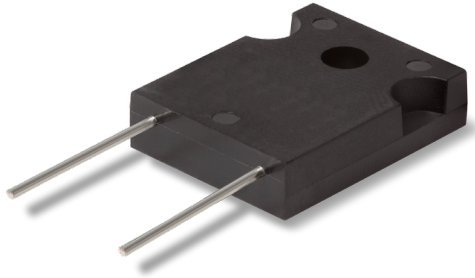


# Data Sheet for Precision Resistors

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..+175°C	

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

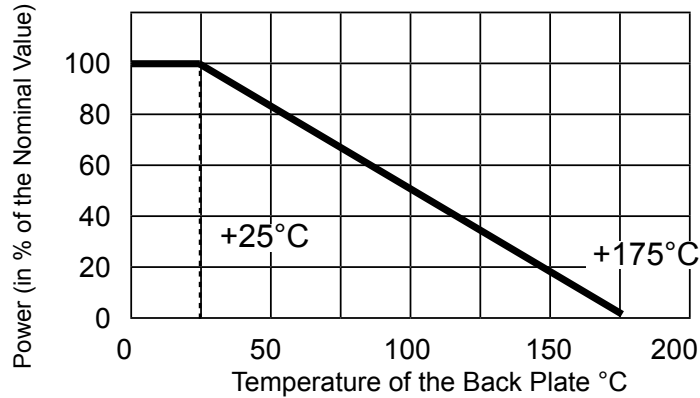
Parameters	Test Conditions	Specification ΔR
Load life	90 min on, 30 min off, 1000h @25°C	±1% +0,05Ω
Moisture resistance	90..95% RH, 0,1W, 1000h @ 40°C	±1% +0,05Ω
Thermal shock	-55°C 30 min, +155°C 30min. 1000h	±0,25% +0,05Ω
Resistance to soldering heat	350°C, 3 sec.	±0,1% +0,05Ω
Vibration	IEC60068-2-6	±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 (M247-2) / 0,9°C (M247-3)		

# Data Sheet for Precision Resistors

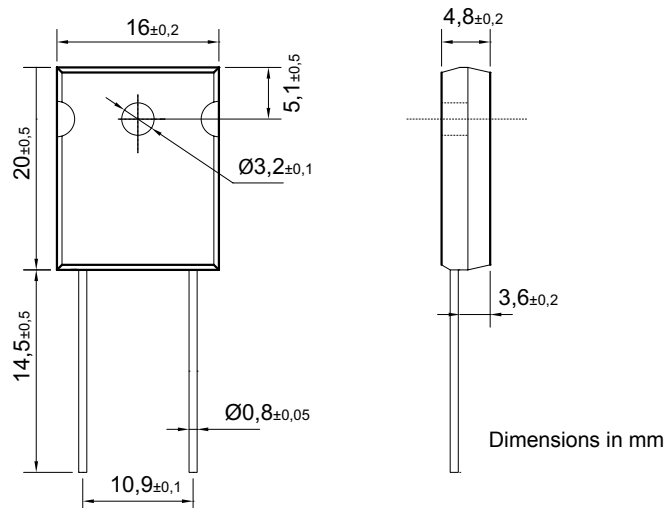
Power Resistor (thin film)

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:

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

- $R_{OH}$  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:

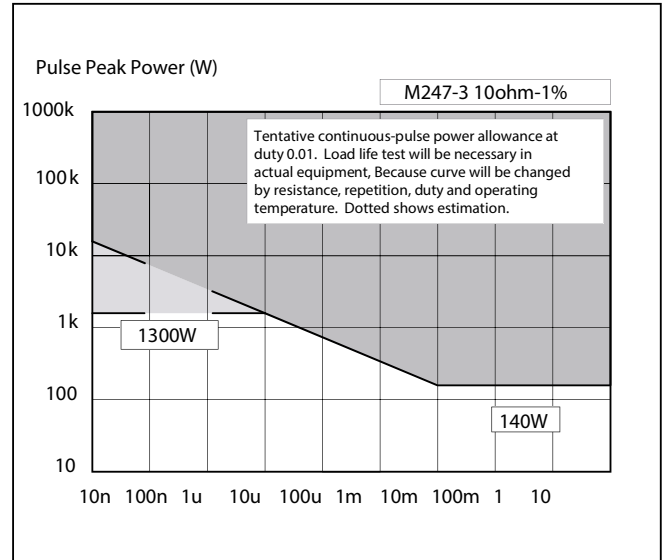
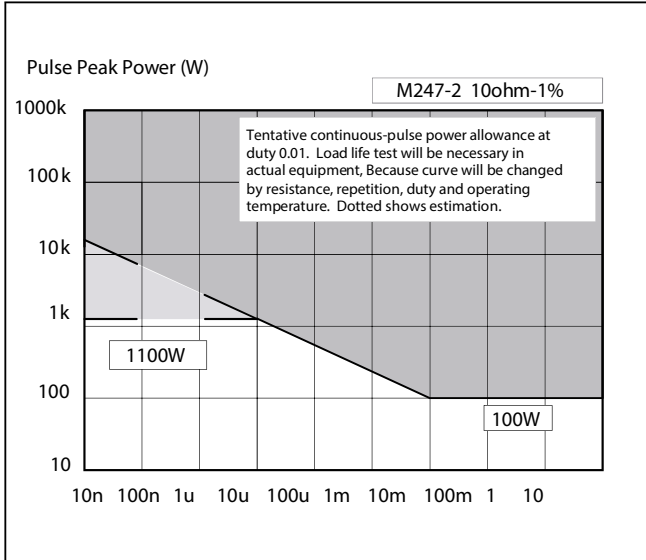
The resistor must be attached to a suitable heat-sink. Mount resistor using thermal grease to a clean, flat surface. Use a compression washer to provide 665 to 1330N of mounting force. Torque mounting screw to 0,9 Nm. Back plate is isolated from both pins.

# Data Sheet for Precision Resistors

Power Resistor (thin film)

Series M247

## Pulse Energy



## Order code

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

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