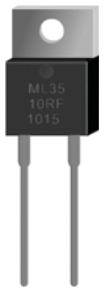
TO220 功率電阻

ML Series
TO220 Power Resistor

Features:

Available in 25W, 35W, 50W .
25/35/50 Watt @ 25°C Case Temperature Heat Sink Mounted.
TO-220 hosing.
Single Screw Mounting to Heat Sink.
High stability film resistance elements
Molded Case for Protection and Easy to Mount.
Low inductance (<50nH)
RoHS compliant



Front side

Back side

Applications:

Switching Power Supplies.
Snubbers Circuits.
Automated Machine Controller.
RF Power Amplifiers.
Low Energy Pulse Loading.
UPS.
Voltage Regulation.

ORDERING PROCEDURE:

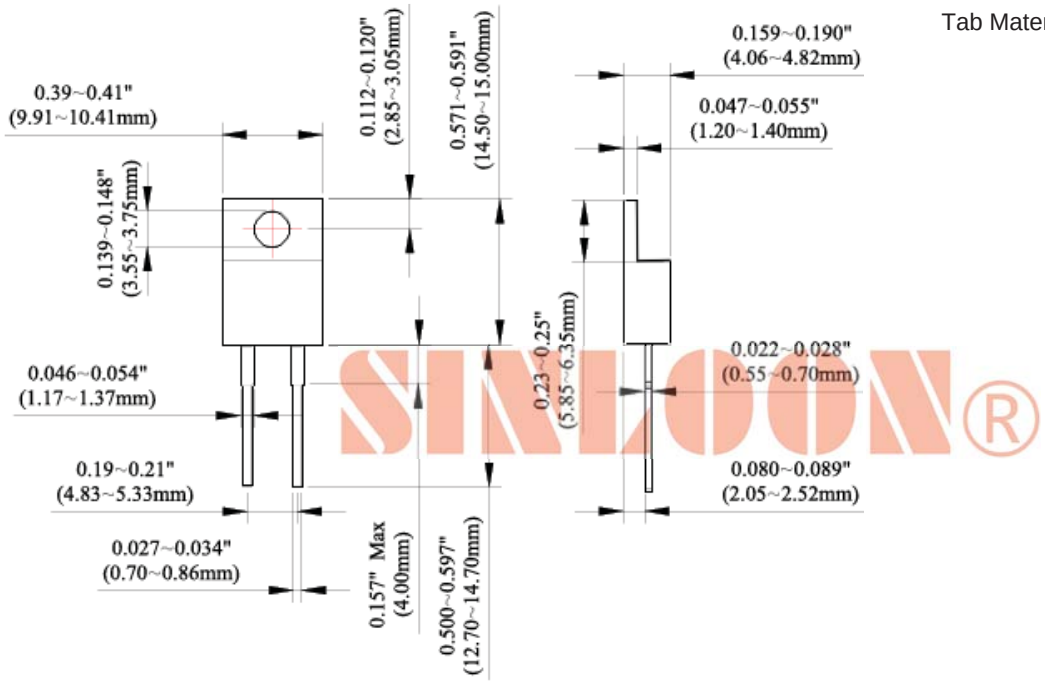
Example: ML35JK25R0P

Type	Power:	Part No.	Tol.	T.C.R/℃	Resistance	Package
TO-220	25W	ML25	J = ±5%	K=±150ppm	R010=0.01Ω	TB = T/Box.
TO-220	35W	ML35	F = ±1%	F=±200ppm	R100=0.1Ω	B = Bulk
TO-220	50W	ML50			1R00=1Ω	R=Reel Type
					10R0=10Ω	P=Plastic Fistulous
					101=100Ω	
					102=1KΩ	
					103=10KΩ	

Dimension: ML25/ML35/ML50 Series

Note: Metal tab is electrically isolated

Leat Material: Tin Plated Copper
Tab Material: Nickel Plated Copper



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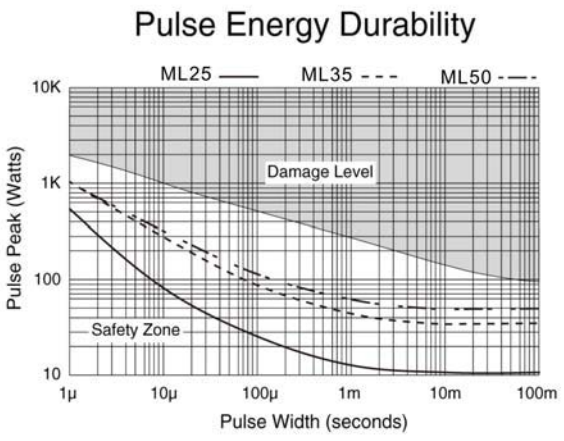
ML series resistors satisfy demanding applications for accurate and stable power resistors housed in the convenient TO-220 case. The resistance element is Isolated from the mounting tab by an alumina ceramic layer, providing very low thermal resistance and ensuring high insulation resistance between terminals and tab.
The non-inductive design makes these products especially useful in high frequency and high speed pulse applications.

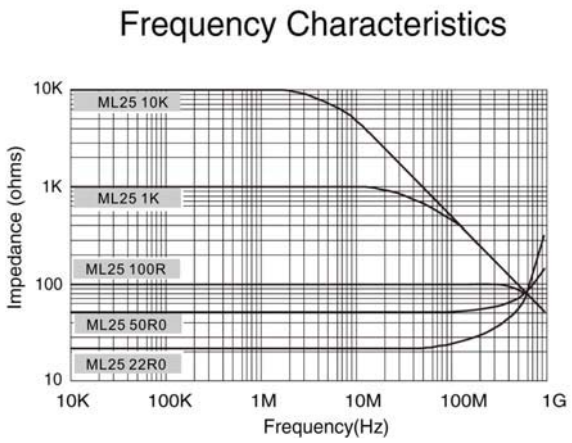
Electrical Characteristics Specification

Power Rating1		Voltage	Thermal	Resistance Range		Tolerance	TCR	Nominal	Package
Heatasinks	Free Air3	Rating4	Resistanc	Min.	Max.	(%)	(ppm/℃)	Resistanc	
25W	2.25W	500V	5.9℃/W	0.01Ω	0.09Ω	±5	±200	E6	Plastic Fistulous
				0.1Ω	9.1Ω	±1, ±5.	±150	E24	
				10Ω	51K Ω	±1, ±5.	±150	E24	
35W	2.25W	500V	3.3℃/W	0.01Ω	0.09Ω	±5	±200	E6	
				0.1Ω	9.1Ω	±1, ±5.	±150	E24	
				10Ω	51K Ω	±1, ±5.	±150	E24	
50W	2.50W	500V	2.3℃/W	0.01Ω	0.09Ω	±5	±200	E6	
				0.1Ω	9.1Ω	±1, ±5.	±150	E24	
				10Ω	51K Ω	±1, ±5.	±150	E24	

1 Maximum current 25 amps
2 Power rating based on 25℃ tab temperature
3 Power rating based on 25℃ ambient temperature
4 Maximum voltage 500V or √PxR
5 See TCR Chart for resistance values below 1 ohm

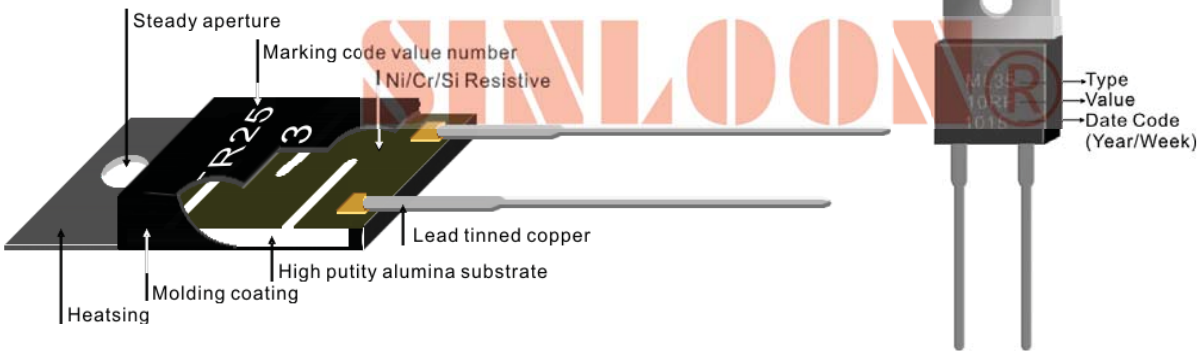


Pulse Widht (seconds)



Frequency (Hz)

CONSTRUCTION:



Body Marking Code

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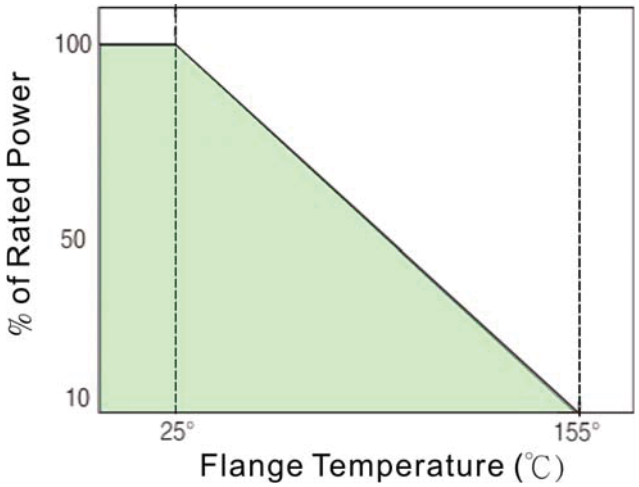
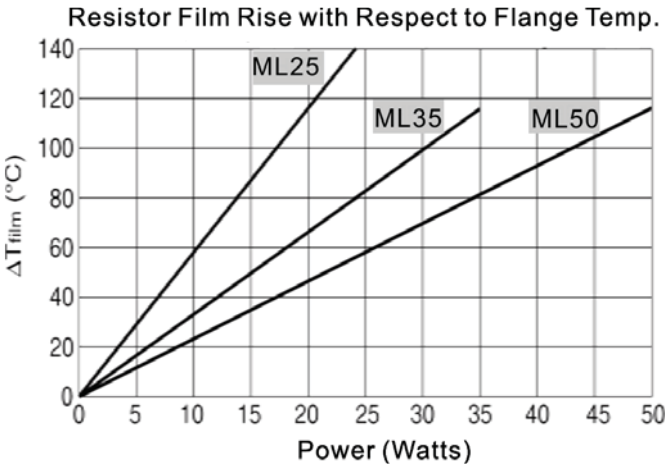
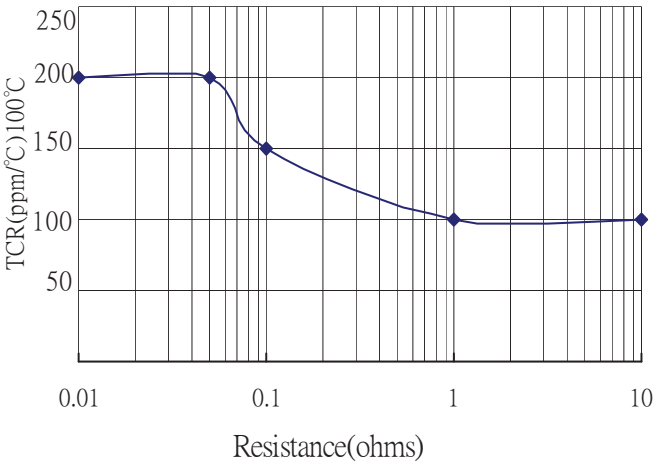
Power Derating Data



Temperature Rise Data



Typical TCR For Values



Application Notes:

1. Insulating material is unnecessary between the heat sink and the tab, as the resistor film is isolated by the internal alumina substrate
2. When mounting with a fastener, thermal grease is recommended
3. Thermal design should satisfy the following equation: Case Temperature(Tc)+[Thermal Resistance(RθJC)x Power applied(Watts)]≦155℃ over the full operating temperature of the application
4. Resistor film temperature is not to exceed 155℃ during operation
5. This product is RoHS compliant by exemption according to RoHS directive 2002/95/EC exemptions 5&7 , as they apply to lead in glass and internal solder connections.

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Environmental Data

Test	Method	Specification - Performance
Thermal Shock	MIL-STD-202 Method 107 Condition F	±0.30%+50mΩ
Moisture Resistance	MIL-STD-202 Method 106	±1.0%+50mΩ
Vibration	MIL-STD-202 Method 204 Condition D	±0.25%50mΩ
Load Life	MIL-STD-202 Method 108 1,000 Hours	±1.0%+50mΩ
Resistance to Solder Heat	MIL-STD-202 Method 210 Condition B	±0.25%+50mΩ
Dielectric Withstanding Voltage	MIL-STD-202 Method 301	2200 volts DC or 1500 volts AC;60 seconds
Insulation Resistance(between terminal and	MIL-STD-202 Method 302	>1000MΩ
Solderability	MIL-STD-202 Method 208	>95% coverage
Operating Temperature Range		-55℃ to +155℃

1. During soldering,the soldering temperature profile must not cause the metal tab of this device to exceed 220℃

Package Mounting Guide

It is important that the packages are correctly mounted if full functionality is to be achieved. Mounting of the package to a heat sink must be done such that there is sufficient pressure from the mounting screws to insure good contact with the heat sink for efficient heat flow. Incorrect mounting may lead to both thermal and mechanical problems. Over tightening the mounting screws will cause the package to warp reducing the contact area with the heat sink and increasing the thermal resistance from the package case to the heat sink, resulting in higher operating die temperatures. Extreme over tightening of the mounting screws beyond the recommended torque force will cause severe physical stress resulting in cracked die and catastrophic IC failure. Though the reliability of the package is excellent, the use of inappropriate techniques or unsuitable tools during the mounting process can affect the long term reliability of the device and even damage it.

Figure (1)

Figure (2)

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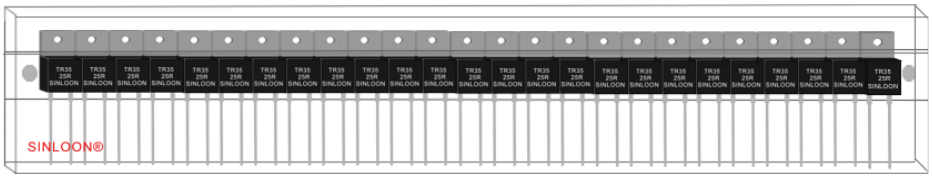
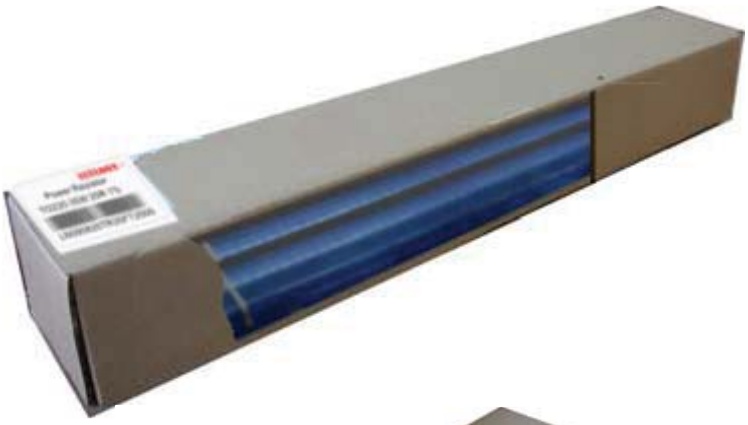
Package

Type:		Power	Fistulous	In Box	Carton
TO-220	ML25	25W	50 pcs	10 Fistulous	5K/Ctn
TO-220	ML35	25W	50 pcs	10 Fistulous	5K/Ctn
TO-220	ML50	30W	50 pcs	10 Fistulous	5K/Ctn

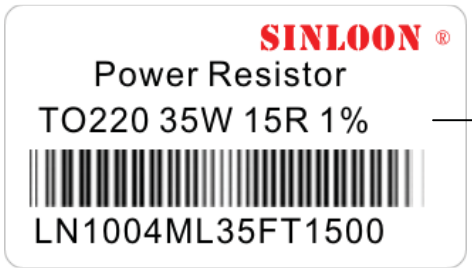
Plastic Fistulous : 50 pcs
Size: 520x33x7.0mm



Inside Box 10 Plastic Fistulous
In box Size:561x83x72mm
Quabtity : 500 pcs



Carton : 10 / In Box
Carton Size: 580x450x175mm
Quantity: 5000 pcs



Brand Label:SINLOON®