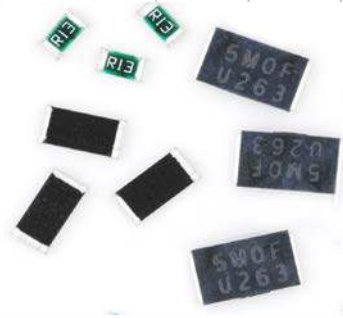


73M1 Series

Current Sensing Resistor – 1 Watt



Features

- Metal Plate Construction – Copper Alloy
- 1 Watt Power Rating @ +70°C
- Resistance Range 3 – 100 milliohms
- Operating Temperature to +180°C
- Surface Mount Package
- Terminal Finish – Matte Tin [e3]
- Reflow Capable per JEDEC J-STD-020, +260°C Maximum
- Tape and Reel Packaging

Applications

- Current Detection
- Current Limiting
- Regulated Battery Circuits
- Motor Control
- Power Supply
- Hard Disk Drives
- Inverter/Converter
- Industrial Equipment
- Infotainment Systems

Description

73M1 Series Current Sensing Resistor is a metal plate packaged device that provides excellent accuracy for current detection. Each resistor has good electrical and thermal characteristics by using a special metallic resistor material.

Ordering Information

Model		Resistor Value	Resistor Tolerance
73M	1	R050	F

Code	Type
1	1 Watt Rating

Code	Tolerance
G	±2%
F	±1%

Code	Resistor Value *
R050	0.050 ohms

* See Addendum for Standard EIA Values and Codes

Notes:

1. No dashes or spaces to appear in part number.

Not all performance combinations and resistor values may be available. Contact your local CTS Representative or CTS Customer Service for availability.

This product is specified for use only in standard commercial applications. Supplier disclaims all express and implied warranties and liability in connection with any use of this product in any non-commercial applications or in any application that may expose the product to conditions that are outside of the tolerances provided in its specification.

Ordering Information

Part Number Examples

Tolerance / Value	4-Digit Code	
	G [±2%]	F [±1%]
5m Ohms	73M1R005G	73M1R005G
8m Ohms	73M1R008G	73M1R008G
15m Ohms	---	73M1R015F
100m Ohms	---	73M1R100F

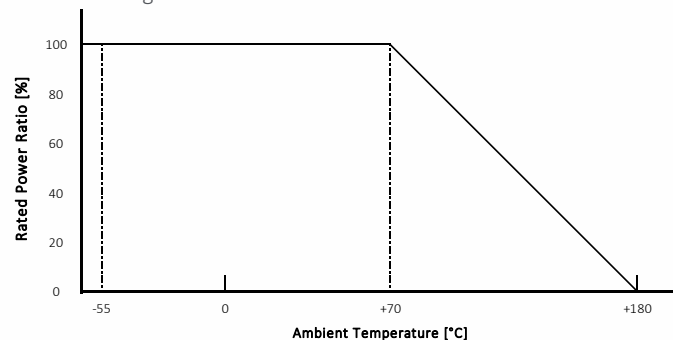
Electrical & Environmental Specifications

Operating Conditions

Model Type	Rated Power [Watts]	Resistance Range [ohms]	Resistance Tolerance [%]	Temperature Coefficient	Rated Ambient Temperature	Operating Temperature Range
73M1	1.0	0.003 - 0.009	±1, ±2	0.003Ω ≤ R < 0.005Ω: ±300ppm/°C	+70°C	-55°C to +180°C
		0.005 ≤ R < 0.010Ω: ±180ppm/°C				
		0.010Ω ≤ R ≤ 0.100Ω: ±100ppm/°C				

Power Derating Curve – Typical

With the rated ambient temperature set to +70°C, the maximum power [maximum current for 0Ω product] at a temperature of no more than rated ambient temperature shall be equal to the rated power [rate current for 0Ω product]. The maximum power at a temperature exceeding the rated ambient temperature shall be a value determined by reducing the rated power according to the power reduction curve in the figure below.



Rated Voltage

The rated voltage shall be the DC or AC [effective power frequency] voltage corresponding to the rated power and shall be determined with the formula shown below. If the determined rated voltage exceeds the maximum operating voltage specified in Operating Conditions table, the maximum operating voltage shall be the rated voltage.

$$E = \sqrt{P \times R}$$

E = Rated Voltage [V]
P = Rated Power [W]
R = Nominal Resistance [Ω]

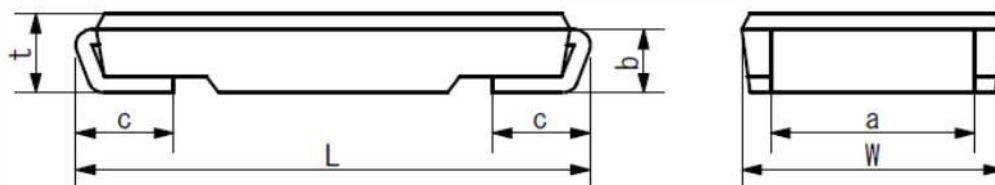
Electrical & Environmental Specifications

Environmental Parameters

Test	Maximum Delta R [%]	Test Description
	73M1	
Short Time Overload	±0.5	2 times rated working voltage for 5 seconds
Moisture Resistance	±2.0	1,000 hours @ +40°C, 95% RH, cycle 1.5h ON & 0.5h OFF
Load Life	±2.0	1,000 hours @ +70°C, rated load, cycle 1.5h ON & 0.5h OFF
Resistance to Solder Heat	±0.5	5 seconds @ +260°C solder

Mechanical Specifications

Package Drawing/Dimensions



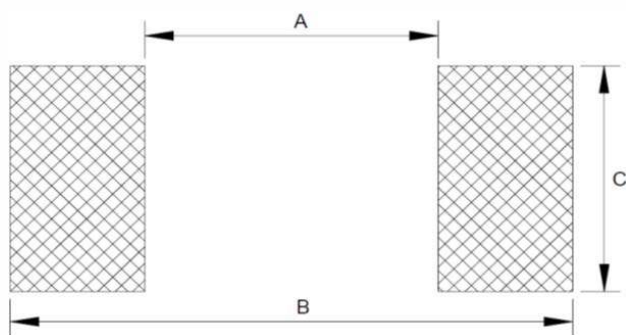
Model Type	Dimensions [mm]					
	L	W	t	a	b	c/d
73M1	6.2 ±0.3	3.1 ±0.2	1.2 Max.	2.5 ±0.2	0.8 ±0.2	1.2 ±0.3

Notes

- Terminal Details
 Base Metal – Copper [Cu] 80m Ohm < R and Brass R ≤ 80m Ohm
 Barrier Plating – Nickel [Ni]
 Finish Plating – Matte Tin [Sn]

Recommended Pad Layout

Model Type	Dimensions [mm]		
	A	B	C
73M1	3.30	7.50	3.10



Mechanical Specifications

Marking Information

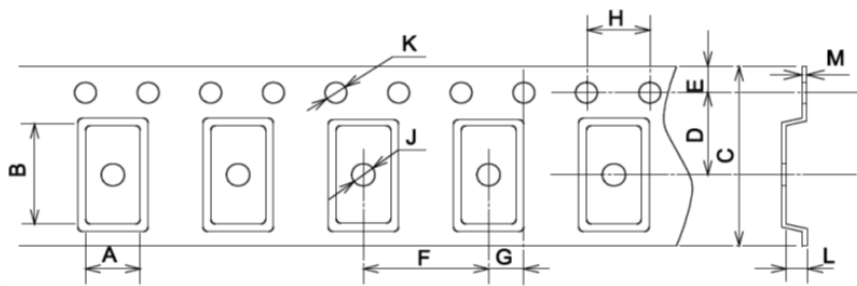
Model Type	Part Marking
73M1	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Rxxx tZYM </div> <p>1 Rxxx = "R" is the decimal point and 3 digits [E24] are significant values. See resistor tables for codes.</p> <p>2 t = Tolerance; F = 1% & G = 2%.</p> <p>3 Z = Product type.</p> <p>4 YM = Date Code.</p> <p>Y = Year</p> <p>M = Month; 1 - 9 is for January through September, O, N and D for October through December respectively.</p>

Packaging

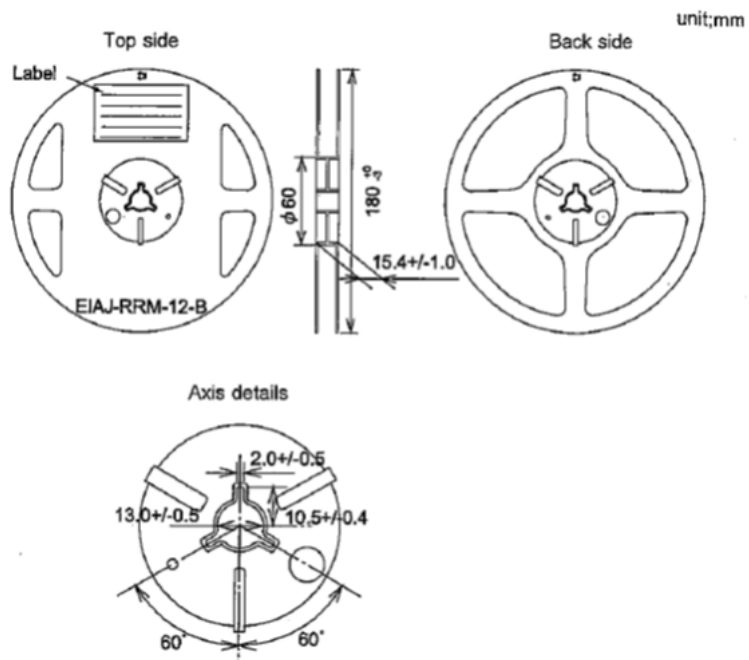
Tape and Reel Information

Embossed Tape

Model Type	A	B	C	D	E	F	G	H	J	K	L	M
73M1	3.5 ±0.1	6.6 ±0.1	12.0 ±0.2	5.5 ±0.1	1.75 ±0.10	8.0 ±0.1	2.0 ±0.1	4.0 ±0.1	1.5 ±0.2	1.5 ^{+0.1} _{-0.0}	1.3 ±0.1	0.30 ±0.05



Model Type	Quantity Per Reel	A [mm]
73M1	1,000	15.4





Addendum

Standard EIA Codes and Resistor Values – E-24 [4-Digit Resistor Code for G&F Tolerances]

CODE	OHMS	CODE	OHMS	CODE	OHMS	CODE	OHMS
R003	0.003	R013	0.013	R036	0.036	R068	0.068
R004	0.004	R015	0.015	R039	0.039	R075	0.075
R005	0.005	R016	0.016	R040	0.040	R082	0.082
R006	0.006	R018	0.018	R043	0.043	R091	0.091
R007	0.007	R020	0.020	R047	0.047	R100	0.100
R008	0.008	R022	0.022	R050	0.050		
R009	0.009	R024	0.024	R051	0.051		
R010	0.010	R027	0.027	R056	0.056		
R011	0.011	R030	0.030	R062	0.062		
R012	0.012	R033	0.033	R067	0.067		