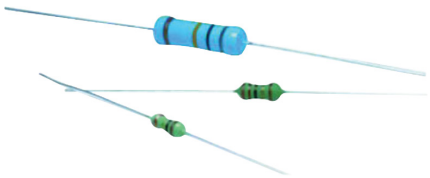
Precision Metal Film Resistor

multicomp PRO

RoHS Compliant

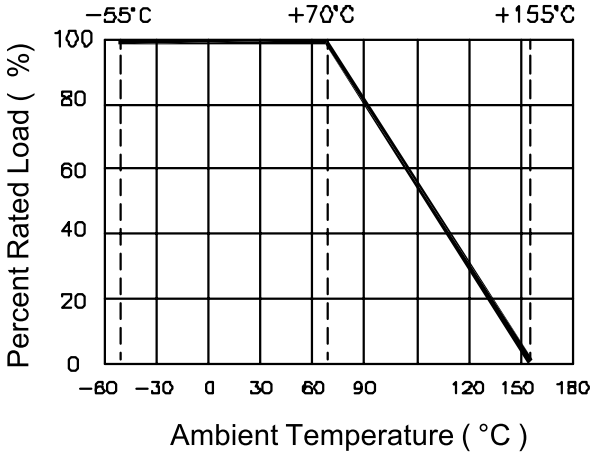


Specifications

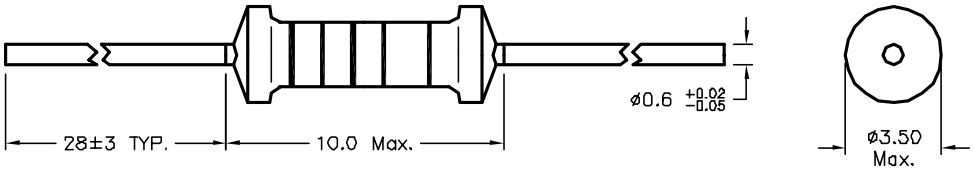
Rating Wattage @ 70°C	: 0.5W
Dielectric With standing Voltage	: 700V
Max. Working Voltage	: 350V
Max. Overload Voltage	: 700V
Tolerance	: 1%
T.C.R.	: ±50PPM/°C
Rated Ambient Temperature	: +70°C
Operating Temperature Range	: -55°C to 155°C

Layer Name	Material
Basic Body	Rod Type Ceramics
Resistance Film	Metal Flim
End Cap	Steel (Tin plated iron surface)
Lead Wire	Annealed Copper Wire (Electrosolder plated surface) Pb Free
Joint	By Welding
Coating	Insulated Resin (Colour: Sky Blue)
Colour Code	Epoxy Resin

Derating Curve



Diagram



Dimensions : Millimetres

<table>
<tr><th>Characteristics</th><th>Limits</th><th>Test Methods (JIS C 5201-1)</th></tr>
<tr><td>DC. Resistance</td><td>Must be within the specified tolerance</td><td>The limit of error of measuring apparatus shall not exceed allowable range or 1% of resistance tolerance</td></tr>
<tr><td>Temperature Coefficient</td><td>Within the temperature coefficient specified below: ±50 PPM/°C Maximum</td><td>Natural resistance change per temp. degree centigrade
$\frac{R_2-R_1}{R_1(t_2-t_1)} \times 10^6$ (PPM/°C)
R_1: Resistance value at room temperature (t_1)
R_2: Resistance value at room temp. plus 100°C (t_2)</td></tr>
<tr><td>Short Time Overload</td><td>Resistance change rate is ±(0.5% +0.05W) Max. with No evidence of mechanical damage.</td><td>Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds</td></tr>
<tr><td>Dielectric withstanding Voltage</td><td>No evidence of flashover mechanical damage, arcing or insulation breakdown.</td><td>Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at AC potential respectively specified in sheet ‘1’</td></tr>
<tr><td>Pulse Overload</td><td>Resistance change rate is ±(1% +0.05W) Max. with no evidence of mechanical damage.</td><td>Resistance change after 10,000 cycles (1 second “ON”, 25 seconds “OFF”) at 4 times RCWV</td></tr>
<tr><td>Terminal Strength</td><td>No evidence of mechanical damage.</td><td>Direct load:
Resistance to a 2.5 kgs direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads.
Twist test:
Terminal leads shall be bent through 90° at a point of about 6mm from the body of the resistor and shall be rotated through 360° about the original axis of the bent terminal in alternating directions for a total of 3 rotations.</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>Resistance change rate is ±(1% +0.05W) Max. with no evidence of mechanical damage.</td><td>Permanent resistance change when leads immersed to 3.2 to 4.8mm from the body in 350°C ±10°C solder for 3 ±0.5 seconds.</td></tr>
<tr><td>Solderability</td><td>95% coverage Min.</td><td>The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes.
Test temperature of solder: 245°C ±3°C
Dwell time in solder: 2-3 seconds</td></tr>
<tr><td>Resistance to Solvent</td><td>No deterioration of protective coating and markings.</td><td>Specimens shall be immersed in a bath of trichroethane completely for 3 mins with ultrasonic.</td></tr>
<tr><td>Temperature Cycling</td><td>Resistance change rate is ±(1% +0.05W) Max. with no evidence of mechanical damage.</td><td>Resistance change after continuous five cycles for duty shown below
<table>
<tr><th>Step</th><th>Temperature</th><th>Time (min)</th></tr>
<tr><td>1</td><td>-55°C ±3°C</td><td>30</td></tr>
<tr><td>2</td><td>Room Temp.</td><td>10 ~ 15</td></tr>
<tr><td>3</td><td>+155°C ±2°C</td><td>30</td></tr>
<tr><td>4</td><td>Room Temp.</td><td>10 ~ 15</td></tr>
</table></td></tr>
<tr><td>Load Life in Humidity</td><td><table><tr><td>Resistance Value</td><td>ΔR/R</td></tr><tr><td>Normal type</td><td>±1.5%</td></tr></table></td><td>Resistance change after 1,000 hours (1.5 hours “ON, 0.5 hour “OFF”) at * RCWV in humidity test chamber controlled at 40°C±2°C and 90 to 95% relative humidity.</td></tr>
</table>

Characteristics	Limits	Test Methods (JIS C 5201-1)
Load life	Resistance Value: ΔR/R Normal type: ±1.5%	Permanent resistance change after 1,000 hours operating at * RCWV with duty cycle of 1.5 hours “on”, 0.5 hour “off” at 70°C ±2°C ambient.
*RCWV = Rated Continuous Working Voltage = $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$		

Part Number Table

Description	Part Number
Metal Film Resistor, 100Ω	MCMF0W2FF1000A10
Metal Film Resistor, 1kΩ	MCMF0W2FF1001A10
Metal Film Resistor, 10kΩ	MCMF0W2FF1002A10
Metal Film Resistor, 100kΩ	MCMF0W2FF1003A10
Metal Film Resistor, 1MΩ	MCMF0W2FF1004A10
Metal Film Resistor, 10Ω	MCMF0W2FF100JA10
Metal Film Resistor, 110Ω	MCMF0W2FF1100A10
Metal Film Resistor, 120Ω	MCMF0W2FF1200A10
Metal Film Resistor, 10kΩ	MCMF0W2FF1202A10
Metal Film Resistor, 120kΩ	MCMF0W2FF1203A10
Metal Film Resistor, 12Ω	MCMF0W2FF120JA10
Metal Film Resistor, 130Ω	MCMF0W2FF1300A10
Metal Film Resistor, 150Ω	MCMF0W2FF1500A10
Metal Film Resistor, 15kΩ	MCMF0W2FF1502A10
Metal Film Resistor, 150kΩ	MCMF0W2FF1503A10
Metal Film Resistor, 15Ω	MCMF0W2FF150JA10
Metal Film Resistor, 160Ω	MCMF0W2FF1600A10
Metal Film Resistor, 16Ω	MCMF0W2FF160JA10
Metal Film Resistor, 180Ω	MCMF0W2FF1800A10
Metal Film Resistor, 18kΩ	MCMF0W2FF1802A10
Metal Film Resistor, 180kΩ	MCMF0W2FF1803A10
Metal Film Resistor, 18Ω	MCMF0W2FF180JA10
Metal Film Resistor, 200Ω	MCMF0W2FF2000A10
Metal Film Resistor, 20Ω	MCMF0W2FF200JA10
Metal Film Resistor, 220Ω	MCMF0W2FF2200A10
Metal Film Resistor, 22kΩ	MCMF0W2FF2202A10
Metal Film Resistor, 220kΩ	MCMF0W2FF2203A10
Metal Film Resistor, 22Ω	MCMF0W2FF220JA10
Metal Film Resistor, 240Ω	MCMF0W2FF2400A10
Metal Film Resistor, 24kΩ	MCMF0W2FF2402A10

Description	Part Number
Metal Film Resistor, 24Ω	MCMF0W2FF240JA10
Metal Film Resistor, 270Ω	MCMF0W2FF2700A10
Metal Film Resistor, 27kΩ	MCMF0W2FF2702A10
Metal Film Resistor, 270kΩ	MCMF0W2FF2703A10
Metal Film Resistor, 27Ω	MCMF0W2FF270JA10
Metal Film Resistor, 300Ω	MCMF0W2FF3000A10
Metal Film Resistor, 30Ω	MCMF0W2FF300JA10
Metal Film Resistor, 330Ω	MCMF0W2FF3300A10
Metal Film Resistor, 33kΩ	MCMF0W2FF3302A10
Metal Film Resistor, 330kΩ	MCMF0W2FF3303A10
Metal Film Resistor, 33Ω	MCMF0W2FF330JA10
Metal Film Resistor, 360Ω	MCMF0W2FF3600A10
Metal Film Resistor, 36Ω	MCMF0W2FF360JA10
Metal Film Resistor, 390Ω	MCMF0W2FF3900A10
Metal Film Resistor, 39kΩ	MCMF0W2FF3902A10
Metal Film Resistor, 390kΩ	MCMF0W2FF3903A10
Metal Film Resistor, 39Ω	MCMF0W2FF390JA10
Metal Film Resistor, 430Ω	MCMF0W2FF4300A10
Metal Film Resistor, 470Ω	MCMF0W2FF4700A10
Metal Film Resistor, 47kΩ	MCMF0W2FF4702A10
Metal Film Resistor, 470kΩ	MCMF0W2FF4703A10
Metal Film Resistor, 47Ω	MCMF0W2FF470JA10
Metal Film Resistor, 510Ω	MCMF0W2FF5100A10
Metal Film Resistor, 51Ω	MCMF0W2FF510JA10
Metal Film Resistor, 560Ω	MCMF0W2FF5600A10
Metal Film Resistor, 56kΩ	MCMF0W2FF5602A10
Metal Film Resistor, 560kΩ	MCMF0W2FF5603A10
Metal Film Resistor, 56Ω	MCMF0W2FF560JA10
Metal Film Resistor, 680Ω	MCMF0W2FF6800A10
Metal Film Resistor, 68kΩ	MCMF0W2FF6802A10

Description	Part Number
Metal Film Resistor, 680kΩ	MCMF0W2FF6803A10
Metal Film Resistor, 68Ω	MCMF0W2FF680JA10
Metal Film Resistor, 75Ω	MCMF0W2FF750JA10
Metal Film Resistor, 820Ω	MCMF0W2FF8200A10
Metal Film Resistor, 82kΩ	MCMF0W2FF8202A10

Description	Part Number
Metal Film Resistor, 820kΩ	MCMF0W2FF8203A10
Metal Film Resistor, 82Ω	MCMF0W2FF820JA10
Metal Film Resistor, 2kΩ	MCMF0W2FF2001A10
Metal Film Resistor, 2.2kΩ	MCMF0W2FF2201A10
Metal Film Resistor, 4.7kΩ	MCMF0W2FF4701A10
Metal Film Resistor, 51kΩ	MCMF0W2FF5102A10