Coated Type Kit Resistors

multicomp PRO

General Specifications:

RoHS Compliant

Ratings

Rated Power at 70°C	: 0.5W
Max. Working Voltage	: 350V
Max. Overload Voltage	: 700V
Dielectric Withstanding Voltage	: 700V
Rated Ambient Temperature	: 70°C
Operating Temp. Range	: -55°C to +155°C
Resistance Tolerance	: ±5%
Resistance Range	: 1Ω to 10MΩ

Power Rating:

Resistors shall have a power rating based on continuous full load operation at an ambient temperature of 70°C. For temperature in excess of 70°C, the load shall be derated as shown in the below figure.

Voltage rating:

Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercial line frequency and waveform corresponding to the power rating , as determined from the following formula:

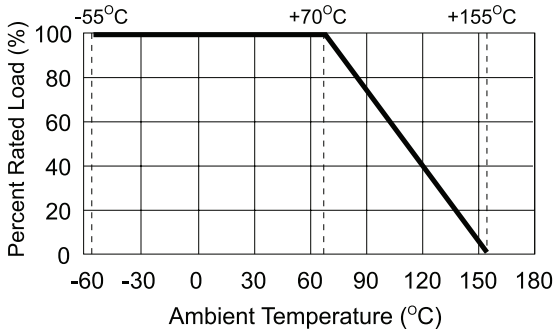
$$RCWV = \sqrt{P \times R}$$

Were : RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt)

P = Power Rating (watt)

R = Nominal Resistance (ohm)

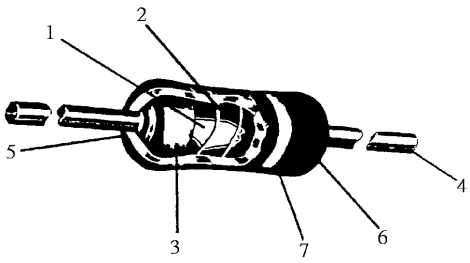
In no case shall the rated DC or RMS AC continuous working voltage be greater than the applicable maximum value.



Nominal resistance:

Nominal resistance shall be in accordance with E-24 series and resistance tolerance shall be ±5%

Construction



No.	Name	Material
1	Basic Body	Rod Type Ceramics
2	Resistance Film	Carbon Film
3	End Cap	Steel (Tin plated iron surface)
4	Lead Wire	Annealed copper wire coated with tin
5	Joint	By welding
6	Coating	Insulated resin (Colour : Beige)
7	Colour Code	Epoxy Resin

Characteristics

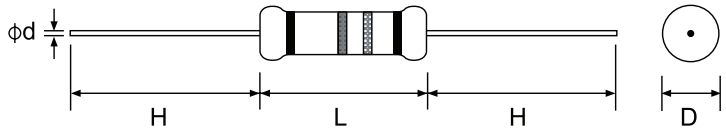
<table>
<tr><th>Characteristics</th><th>Limits</th><th>Test Methods (JIS C 5201-1)</th></tr>
<tr><td>DC resistance</td><td>Must be within the specified tolerance</td><td>The limit of error of measuring apparatus shall not exceed allowable range or 5% of resistance tolerance</td></tr>
<tr><td>Insulation resistance</td><td>Insulation resistance is 10,000MΩ Min.</td><td>Resistors shall be clamped in the trough of a 90° metallic V-block or foil method use a metal foil shall be wrapped closely around the body of the resistor. After that shall be tested at DC potential respectively specified in the above list for 60 +10/-0 secs.</td></tr>
<tr><td>Dielectric withstanding voltage</td><td>No evidence of flashover mechanical damage, arcing or insulation break down</td><td>Resistors shall be clamped in the trough of a 90° metallic V-block or foil method use a metal foil shall be wrapped closely around the body of the resistor. After that shall be tested at AC potential respectively specified in the ratings specification, for 60 +10/-0 secs.</td></tr>
<tr><td>Temperature coefficient</td><td><table><tr><th>Resistance Range</th><th>TCR (PPM/°C)</th></tr><tr><td>≤10Ω</td><td>0 ±350</td></tr><tr><td>11Ω 99kΩ</td><td>0 -450</td></tr><tr><td>100k 1M</td><td>0 -700</td></tr><tr><td>1.1M 10M</td><td>0 -1500</td></tr></table></td><td>Natural resistance change per temperature 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 temperature plus 100°C (t_2)</td></tr>
<tr><td>Short time overload</td><td>Resistance change rate is ±(1% + 0.05Ω) 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>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 direction for a total of 3 rotations</td></tr>
<tr><td>Solderability</td><td>95% coverage minimum</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 to 3 seconds</td></tr>
<tr><td>Soldering temperature reference</td><td>Electrical characteristics shall be satisfied. Without distinct deformation in appearance.
(95 % coverage Min.)</td><td>The leads immersed into solder bath to 3.2 to 4.8mm from the body. Permanent resistance change shall be checked.
Wave soldering condition: (2 cycles Max.)
Pre-heat : 100 ~ 120°C, 30 ± 5 sec.
Suggestion solder temp. : 235 ~ 255°C, 10 sec. (Max.)
Peak temp. : 260°C
Hand soldering condition:
Hand Soldering bit temp. : 380 ±10°C
Dwell time in solder : 3 +1/-0 sec.</td></tr>
<tr><td>Resistance to soldering heat</td><td>Resistance change rate is ±(1% + 0.05Ω) Max. with no evidence of mechanical damage.</td><td>Permanent resistance change when leads immersed to 3.2mm to 4.8mm from the body in 350°C ±10°C solder for 3 ±0.5 seconds</td></tr>
</table>

Coated Type Kit Resistors

multicomp PRO

Characteristics	Limits	Test Methods (JIS C 5201-1)
Temperature cycling	Resistance change rate is ±(1% + 0.05Ω) max. with no evidence of mechanical damage	Resistance change after continuous 5 cycles for duty shown below: Step 1: -55°C ±3°C, 30 minutes Step 2: Room temperature, 10 to 15 minutes Step 3: +155°C ±2°C, 30 minutes Step 4: Room temperature, 10 to 15 minutes
Vibration	Resistance change rate is ±(1% + 0.05Ω) Max.	55Hz, 3 planes 2hrs each Total amplitude = 1.5mm
Load life in humidity	Normal Type: <100kΩ ΔR/R ±3%; ≥100kΩ ΔR/R ±5%	Resistance change after 1,000 hours operating at RCWV with duty cycle of (1.5 hours "ON", 0.5 hour "OFF") in a humidity test chamber controlled at 40°C ±2°C and 90% to 95% relative humidity
Load life	Normal Type: <56kΩ ΔR/R ±2%; ≥56kΩ ΔR/R ±3%	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
Resistance to solvent	No deterioration of protective coatings and markings	Specimens shall be immersed in a bath of trichroethane completely for 3 minutes with ultrasonic

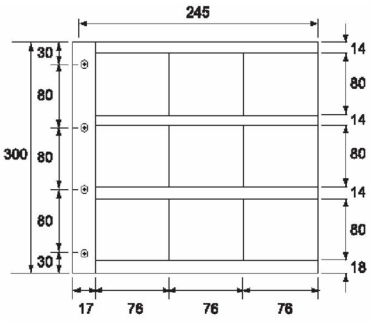
Dimension



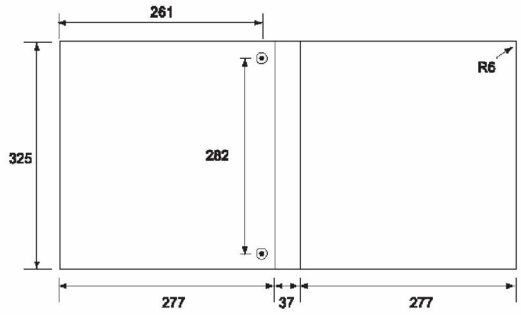
Part Number	Power Rating	Dimension (mm)			
		D Max.	L Max.	d ±0.05	H ±3
CFR0S2JE006KIL	1/2 W-S	3mm	9mm	0.54mm	28mm

Dimension of Kit Resistors

Insert for Coated Kit



Album for Coated Kit



Dimensions : Millimetres

Newark.com/multicomp-pro
Farnell.com/multicomp-pro
Element14.com/multicomp-pro

multicomp PRO

Coated Type Kit Resistors

This E6 Series has 37 Values (Part Numbers)
There are listed below:

Description	Part Number
Resistor, 500mW 5% 10R	MCF 0.5W 10R
Resistor, 500mW 5% 15R	MCF 0.5W 15R
Resistor, 500mW 5% 22R	MCF 0.5W 22R
Resistor, 500mW 5% 33R	MCF 0.5W 33R
Resistor, 500mW 5% 47R	MCF 0.5W 47R
Resistor, 500mW 5% 68R	MCF 0.5W 68R
Resistor, 500mW 5% 100R	MCF 0.5W 100R
Resistor, 500mW 5% 150R	MCF 0.5W 150R
Resistor, 500mW 5% 220R	MCF 0.5W 220R
Resistor, 500mW 5% 330R	MCF 0.5W 330R
Resistor, 500mW 5% 470R	MCF 0.5W 470R
Resistor, 500mW 5% 680R	MCF 0.5W 680R
Resistor, 500mW, 5% 1K	MCF 0.5W 1K
Resistor, 500mW 5% 1K5	MCF 0.5W 1K5
Resistor, 500mW, 5% 2.2K	MCF 0.5W 2K2
Resistor, 500mW 5% 3K3	MCF 0.5W 3K3
Resistor, 500mW 5% 4K7	MCF 0.5W 4K7
Resistor, 500mW 5% 6K8	MCF 0.5W 6K8
Resistor, 500mW, 5% 10K	MCF 0.5W 10K

Description	Part Number
Resistor, 500mW 5% 15K	MCF 0.5W 15K
Resistor, 500mW 5% 22K	MCF 0.5W 22K
Resistor, 500mW 5% 33K	MCF 0.5W 33K
Resistor, 500mW 5% 47K	MCF 0.5W 47K
Resistor, 500mW 5% 68K	MCF 0.5W 68K
Resistor, 500mW 5% 100K	MCF 0.5W 100K
Resistor, 500mW 5% 150K	MCF 0.5W 150K
Resistor, 500mW 5% 220K	MCF 0.5W 220K
Resistor, 500mW 5% 330K	MCF 0.5W 330K
Resistor, 500mW 5% 470K	MCF 0.5W 470K
Resistor, 500mW 5% 680K	MCF 0.5W 680K
Resistor, 500mW 5% 1M	MCF 0.5W 1M
Resistor, 500mW 5% 1M5	MCF 0.5W 1M5
Resistor, 500mW 5% 2M2	MCF 0.5W 2M2
Resistor, 500mW 5% 3M3	MCF 0.5W 3M3
Resistor, 500mW 5% 4M7	MCF 0.5W 4M7
Resistor, 500mW 5% 6M8	MCF 0.5W 6M8
Resistor, 500mW 5% 10M	MCF 0.5W 10M

Part Number Table

Description	Part Number
Axial Resistor Kit, 100-Pieces each, 37 Values	CFR0S2JE006KIL