

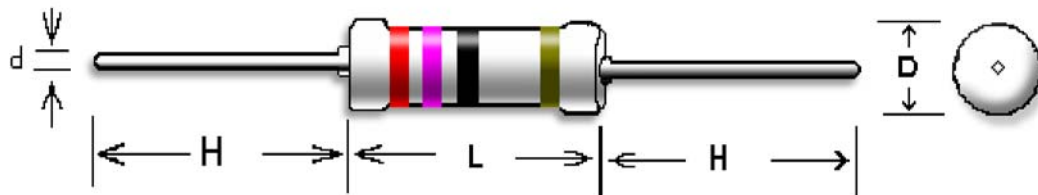
# M-series Metal Film Fixed Resistor

### Specifications Per

- IEC-115-1
- MIL R-10509F
- DIN 44051

### Features

- Conformal Multi-layer Coating
- Color Code Per MIL & EIA Standards
- Special Tin Plated Electrolytic Copper Lead Wire



### Dimensions:

Type	Body Length (L, mm)	Body Diameter (D, mm)	Lead Wire Length (H, mm)	Lead Wire Diameter (d, mm)	Net Weight Per 1000Pcs
M16	3.2±1.0	1.9±0.2	28±3.0	0.45±0.02	145 Grams
M20	3.2±1.0	1.9±0.2	28±3.0	0.45±0.02	145 Grams
M25	6.5±1.0	2.4±0.2	26±3.0	0.55±0.03	220 Grams
M207	6.5±1.0	2.4±0.2	26±3.0	0.55±0.03	220 Grams
M51	8.8±1.0	3.2±0.2	26±3.0	0.60±0.03	340 Grams
M100	11.0±1.0	4.5±0.5	26±3.0	0.70±0.03	600 Grams
M200	15.0±1.0	5.5±0.5	26±3.0	0.80±0.03	1200 Grams

### General Specifications:

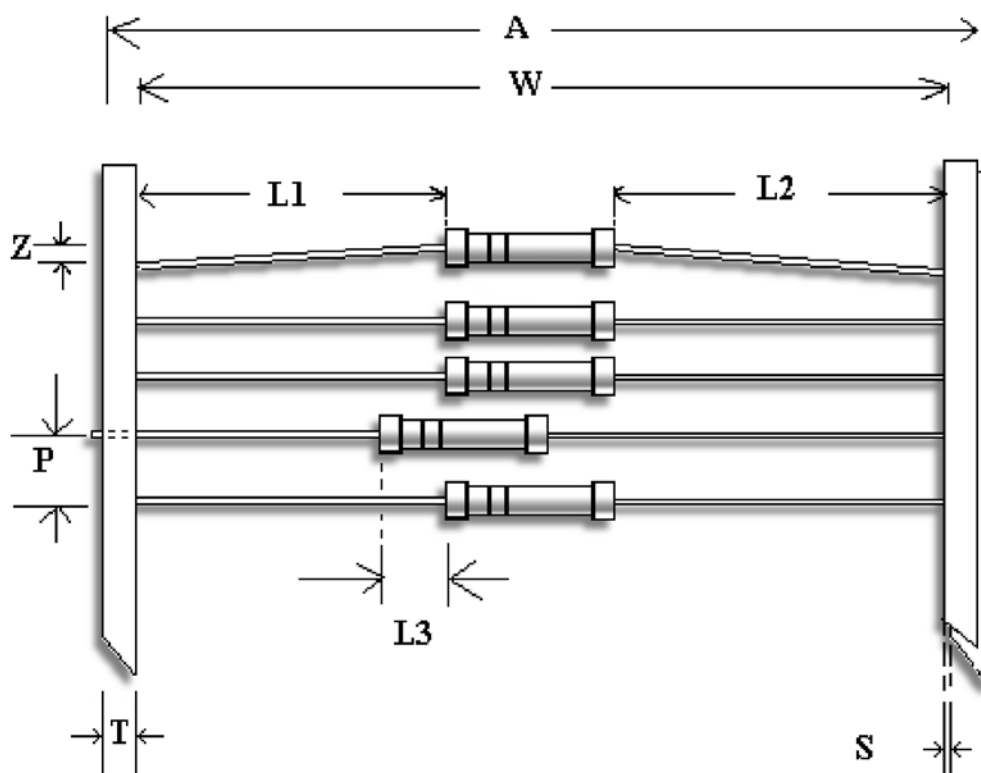
Type	Power Rating At 70°C	Max. Working Voltage	Max. Overload Voltage	Min. Resistance	Max. Resistance	Resistance Tolerance	Standard Resistance Values
M16	1/6W	200V	400V	1Ω	1MΩ	±1%	E-24/E-96
M20	1/4W	250V	400V	1Ω	330KΩ	±1%	E-24/E-96
M25	1/4W	250V	500V	1Ω	1MΩ	±1%	E-24/E-96
M207	3/5W	300V	500V	1Ω	4.7MΩ	±1%	E-24/E-96
M51	1/2W	350V	700V	1Ω	1MΩ	±1%	E-24/E-96
M100	1W	500V	1000V	1Ω	1MΩ	±1%	E-24/E-96
M200	2W	500V	1000V	1Ω	1MΩ	±1%	E-24/E-96

*Special sizes, values, and specifications not listed available on special order.*

Sep. 30, 2004

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Taping/Packing Specifications:



Unit (mm)

Type	A Max.	L1-L2 (Max.)	L3 (Max.)	P ±0.5	S (Max.)	T ±0.5	W ±1.5	Z (Max.)
M16	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
M20	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
M25	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
M207	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
M51	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
M100	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
M200	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2

Type	Packing Type	M16	M20	M25	M207	M51	M100	M200
Minimum Packing QTY (pcs)	Reel	5000	5000	5000	5000	3000	2000	1000
	Ammo pack	5000	5000	5000	5000	2000	1000	500

Sep. 30, 2004

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## Technical Specifications:

Characteristics	Limits	
Dielectric Withstanding Voltage, VAC or DC	M-16 / M-20	300
	M-25 / M-207	500
	M-51	700
	M-100 / M-200	1000
Temperature Coefficient, PPM / °C	±50, ±100	
Operating Temperature Range, °C	-55~+155	
Insulation Resistance, MΩ	10 <sup>4</sup>	
Voltage Coefficient, PPM / V	25	
Power Derating, linear	100% at 70°C, down to zero at 155°C	

## Performance Specifications:

Test Characteristics	Test Conditions	Limits
Short Time Over Load	IEC 60115-1 4.13 5 seconds 2.5x rated voltage (not over max. overload voltage)	±(0.25%+0.05R)
Load Life In Humidity	IEC 60115-1 4.24 56 days at 40°C and 93% relative humidity	±(1%+0.05R)
Load Life 1,000 hours	IEC 60115-1 4.25.1 Rated load 1.5 hours ON, 0.5 hours OFF, at 70°C	±(1%+0.05R)
Resistance To Soldering Heat	IEC 60115-1 4.18 10 seconds at 260°C solder bath temperature	±(0.25%+0.05R)
Solderability	MIL-STD-202 Method 208 Solder area covered after 230±5°C/5±0.5 seconds w/ flux applied	95% Min.
Vibration	IEC 60115-1 4.22 Six hours in each parallel and axial direction w/ a simple harmonic motion having an amplitude of 0.75mm and 10 to 500 Hz.	±(0.25%+0.05R)
Terminal Endurance	IEC 60115-1 4.25.3 1000 hours at 155°C without load	±(0.2%+0.05R)
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +155°C 30minutes, 5 cycles	±(0.25%+0.05R)

## Ordering Information

Type	Tolerance	Temperature Coefficient	Resistance Value	Packaging	Special Request (Optional)
M16 M25	F (1%)	TK100	10K	TB (Tape/Box)	LV (Low value)

Sep. 30, 2004