

# Carbon Film Resistors

JARO COMPONENTS, INC. LEADED RESISTORS

## PROFESSIONAL TYPE

Miniature Style [M Series]



### FEATURES

Excellent Long-Term Stability

Miniature in Size

Coating and Marking Resist Trichlorethylene, Freon, and Other Cleaning Agents

Resistance Tolerance:  $\pm 5\%$

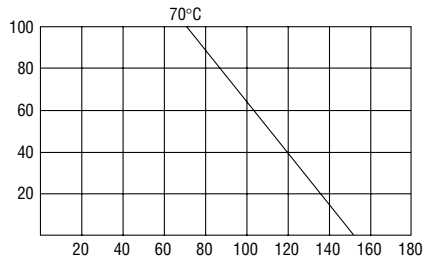
Resistance Range:  $1\Omega$ ~ $10M\Omega$

### INTRODUCTION

The M Series are manufactured by Coating a homogeneous film of pure carbon on high grade ceramic rods, resistance less than  $10\Omega$  have an electroless-deposited nickel film. The resistors are coated with layers of tan color lacquer.

### DERATING CURVE

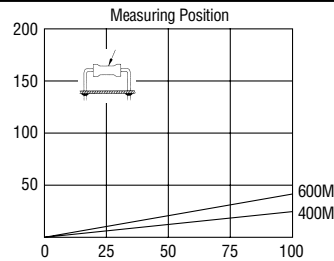
Rated Load (%)



Ambient Temperature (°C)

### HOT-SPOT TEMPERATURE

Surface Temp. Rise (°C)

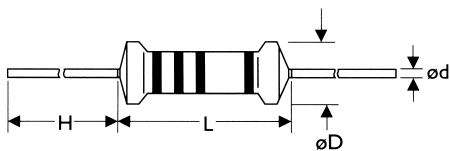


Applied Load, % of RCWV

### FIG. 1 TEMPERATURE COEFFICIENT

STYLE	Max. Value of Temp. Coefficient ppm/°C		
	under $100K\Omega$	100K to $1M\Omega$ excl.	$1M\Omega$ and over
400M, 600M	+350 -500	+350 -700	+350 -1000

### DIMENSIONS



Unit : mm				
STYLE	L	øD	H	ød
400M	$3.3\pm 0.4$	$1.8\pm 0.3$	$28\pm 2.0$	$0.5\pm 0.05$
600M	$6.3\pm 0.5$	$2.3\pm 0.3$	$28\pm 2.0$	$0.6\pm 0.05$

# M Series

## ELECTRICAL CHARACTERISTICS

STYLE	400M	600M
Power Rating at 70°C	0.4W	0.6W
Operating Temp. Range	-55°C to +155°C	
Maximum Working Voltage	200V	300V
Maximum Overload Voltage	400V	600V
Dielectric Withstanding Voltage	400V	500V
Value Range ±5%	1Ω-10MΩ	
Temperature Coefficient (by Type)	see FIG. 1	

\* Standard resistance is 1Ω-10MΩ, below or over this resistance on request.

## ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD	TEST METHOD	APPRAISE
Short Time Overload	JIS-C-5202 5.5	2.5 Times RCWV for 5 Seconds	±(0.75%+0.05Ω)
Dielectric Withstanding Voltage	JIS-C-5202 5.7	in V-Block for 60 Seconds	by Type
Temperature Coefficient of Resistance	JIS-C-5202 5.2	-55°C to +155°C	by Type
Insulation Resistance	JIS-C-5202 5.6	in V-Block	>1000MΩ
Solderability	JIS-C-5202 6.5	235°C for 5±0.5 Seconds	95% Min. Coverage
Resistance to Solvent and Markings	JIS-C-5202 6.9	Trichroethane for 1 Min. with Ultrasonic	No Deterioration of Coatings
Terminal Strength	Direct load for 10 Sec. in The Direction of The Terminal Leads		≥2.5kg (24.5N)
Pulse Overload	JIS-C-5202 5.8	4 Times RCWV 10000 Cycles (1 Sec. on , 25 Sec. off)	±(1%+0.05Ω)
Load Life in Humidity	JIS-C-5202 7.9	40±2°C, 90-95% RH at RCWV for 1000 Hrs. (1.5 Hrs. on , 0.5 Hrs. off)	±(3%+0.05Ω)
Load Life	JIS-C-5202 7.10	70°C at RCWV for 1000 Hrs. (1.5 Hrs. on , 0.5 Hrs. off)	±(3%+0.05Ω)
Temperature Cycling	JIS-C-5202 7.4	-65°C·Room Temp.·150°C·Room Temp. for 5 Cycles	±(1%+0.05Ω)
Resistance to Soldering Heat	JIS-C-5202 6.4	350°C±10°C for 3±0.5 Seconds	±(1%+0.05Ω)

\* Rated Continuous Working Voltage (RCWV)=√Power Rating x Resistance Value