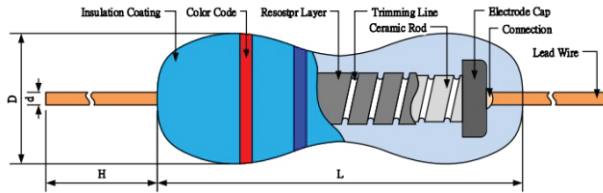


■ INTRODUCTION

Metal Film Resistors are designed to provide MIL performance and reliability at a significantly lower cost. High grade materials make the much smaller space saver size available. Automated production assures uniform quality and low cost.



■ FEATURES

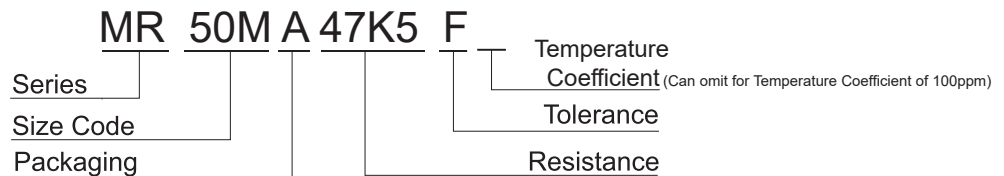
- Operating Temperature: -55°C to +155°C
- 50ppm, 100ppm, 200ppm
- Precision Tolerance of 0.1%, 0.5%, & 1%

■ POWER RATING & DIMENSIONS (mm)

Code	Rated Wattage	Max. Working Voltage	Max. Overload Voltage	Dimensions				Resistance Range (Ω)	Standard Taping
				L ± .5	D ± .5	H	d ± .05		
MR12	0.125	150V	300V	3.3	1.8	26	0.40	0.1 ~ 10M (TOL: 1%)	T52
MR25M		200V		3.3	1.8	26	0.45		
MR25	0.25	250V	500V	6.3	2.3	26	0.52		
MR50M		300V		6.3	2.3	26	0.52		
MR50	0.50	350V	500V	9.0	3.2	26	0.52		
MR100M		400V		9.0	3.2	26	0.65		
MR100	1	500V	700V	11.5	4.5	35	0.65		T73
MR200M				11.5	4.5	35	0.65		
MR200	2	500V	1000V	15.5	5.0	35	0.72		
MR300M				3	15.5	5.0	35		

1. Resistance Range for standard resistance, below or over this resistance range on request.
2. Resistance Range is based on ±1% tolerance. Other tolerance is available on request.
3. Standard Resistance is in accordance with the EIA Standard E96.

■ PART NUMBER EXAMPLE



■ TOLERANCE

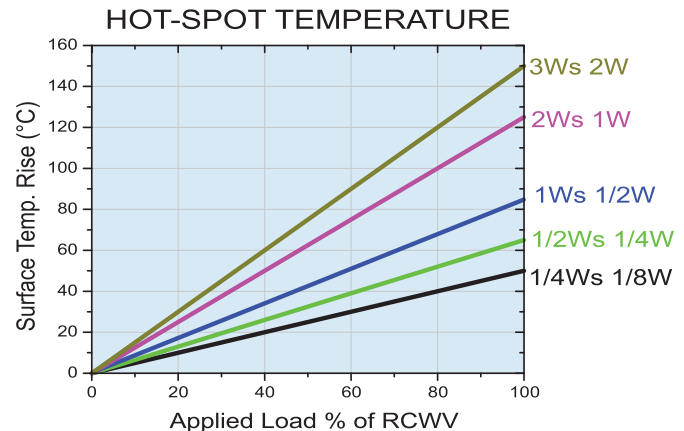
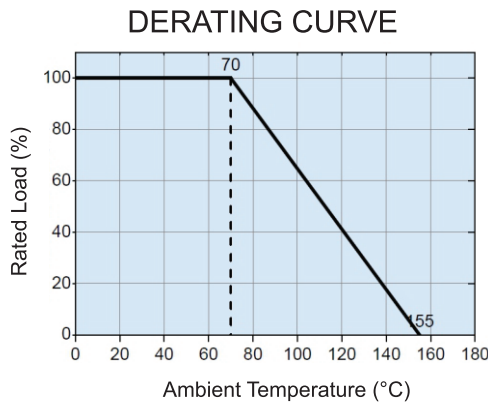
±%	0.1	0.5	1
Code	B	D	F

■ RESISTANCE

Ohms	0.5	1.5	1.5K	15K	1.5Meg	150Meg
Code	0R5	1R5	1K5	15K	1M5	150M

ELECTRICAL CHARACTERISTICS (T_a=25°C Unless otherwise specified)

ITEMS	MR12 (0.125W)	MR25/M (0.25W)	MR50/M (0.50W)	MR100/M (1W)	MR200/M (2W)	MR300M (3W)
Operating Temperature	-55°C to +155°C (derated at 70°C / see chart)					
Temperature Coefficient (ppm / °C)	50ppm, 100ppm, 200ppm					
Tolerance	1%					
Short Time Overload	$\Delta R \leq \pm(0.25\% + 0.05\Omega)$					
Load Life	$\Delta R \leq \pm(1.5\% + 0.05\Omega)$					
Dielectric Withstanding Voltage	$\Delta R \leq \pm(0.5\% + 0.05\Omega)$					
Pulse Overload	$\Delta R \leq \pm(0.75\% + 0.05\Omega)$					
Insulation Resistance	JIS-C5202 5.6 In V-Block >10,000M Ω					
Load Life in Humidity	$\Delta R \leq \pm(1.5\% + 0.05\Omega)$					
Solder Ability	JIS-C5202 6.5 95% minimum coverage					
Soldering Heat Resistance	$\Delta R \leq \pm(0.5\% + 0.05\Omega)$					
Terminal Strength	Direct load for 10 sec. in the direction off the terminal leads Tensile : $\geq 2.5\text{Kg}$					

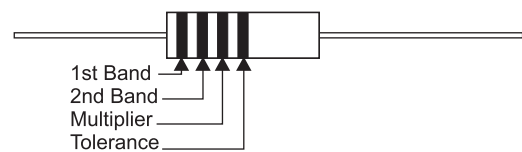


$$\text{Rated continuous Working Voltage (RCWV)} = \sqrt{\text{POWER.RATING} \cdot \text{RESISTANCE.VALUE}}$$

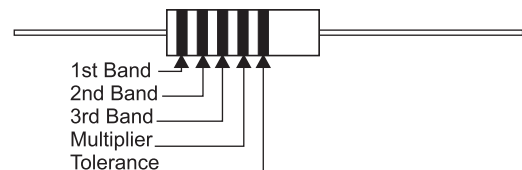
COLOR CODE CHART

Color	1st Band	2nd Band	3rd Band (B ~ F Tol)	Multiplier	Tolerance	Tolerance Code
Black	0	0	0	10 ⁰		
Brown	1	1	1	10 ¹	±1%	F
Red	2	2	2	10 ²	±2%	G
Orange	3	3	3	10 ³		
Yellow	4	4	4	10 ⁴		
Green	5	5	5	10 ⁵	±0.5%	D
Blue	6	6	6	10 ⁶	±0.25%	C
Violet	7	7	7	10 ⁷	±0.10%	B
Gray	8	8	8	10 ⁸	±0.05%	A
White	9	9	9	10 ⁹		
Gold				10 ⁻¹	±5%	J
Silver				10 ⁻²	±10%	K

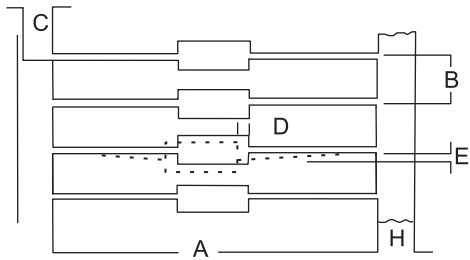
For ±5% Tolerance



For ±1% Tolerance

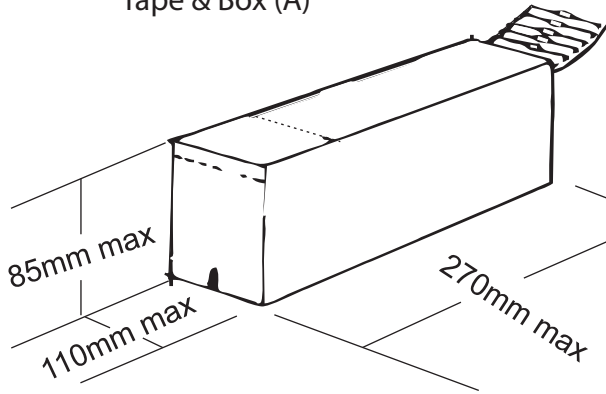


■ TAPE, REEL & AMMO SPECIFICATIONS

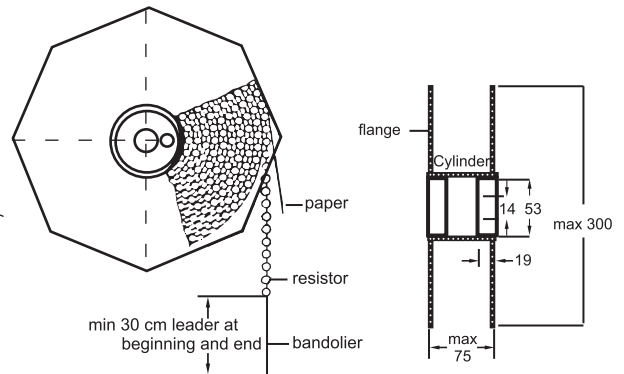


Body Diameter	Size Code	A	B	C	D	E	H
< 5mm	T-52	52 ± 1	5 ± 0.5	4.0 min.	0.8 max.	1.2 max.	6 ± 1
> 5mm	T-52	52 ± 1	10 ± 0.5	4.0 min.	0.8 max.	1.2 max.	6 ± 1
	T-73	73 ± 1					

Tape & Box (A)



Tape & Reel (R)



■ PACKAGING

Packaging Code	R	A	B	C
Description	Tape & Reel	Tape & Box	Loose (Bulk)	Cut & Form
Special Taping Suffix	T52, T73			

Tape & Box (Ammo Pack) packaging is preferred packaging.

■ RESISTANCE DECADE TABLE

Resistance Tolerance	Resistance Values																							
M (20%)	1.0	1.5	2.2	3.3	4.7	6.8																		
K (10%)	1.0	1.2	1.5	1.8	2.2	2.7	3.3	3.9	4.7	5.6	6.8	8.2												
G (2%), J (5%)	1.0	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.2	2.4	2.7	3.0	3.3	3.6	3.9	4.3	4.7	5.1	5.6	6.2	6.8	7.5	8.2	9.1
F (1%)	1.00	1.10	1.21	1.33	1.47	1.62	1.78	1.96	2.15	2.37	2.61	2.87	3.16	3.48	3.83	4.22	4.64	5.11	5.62	6.19	6.81	7.50	8.25	9.09
D (0.5%)	1.00	1.10	1.21	1.33	1.47	1.62	1.78	1.96	2.15	2.37	2.61	2.87	3.16	3.48	3.83	4.22	4.64	5.11	5.62	6.19	6.81	7.50	8.25	9.09
C (0.25%)	1.01	1.11	1.23	1.35	1.49	1.64	1.80	1.98	2.18	2.40	2.64	2.91	3.20	3.52	3.88	4.27	4.70	5.17	5.69	6.26	6.90	7.59	8.35	9.20
B (0.1%)	1.02	1.13	1.24	1.37	1.50	1.65	1.82	2.00	2.21	2.43	2.67	2.94	3.24	3.57	3.92	4.32	4.75	5.23	5.76	6.34	6.98	7.68	8.45	9.31
A (0.05%)	1.04	1.14	1.26	1.38	1.52	1.67	1.84	2.03	2.23	2.46	2.71	2.98	3.28	3.61	3.97	4.37	4.81	5.30	5.83	6.42	7.06	7.77	8.56	9.42
	1.05	1.15	1.27	1.40	1.54	1.69	1.87	2.05	2.26	2.49	2.74	3.01	3.32	3.65	4.02	4.42	4.87	5.36	5.90	6.49	7.15	7.87	8.66	9.53
	1.07	1.18	1.30	1.43	1.58	1.74	1.91	2.10	2.32	2.55	2.80	3.09	3.40	3.74	4.12	4.53	4.99	5.49	6.04	6.65	7.32	8.06	8.87	9.76
	1.00	1.10	1.21	1.33	1.47	1.62	1.78	1.96	2.15	2.37	2.61	2.87	3.16	3.48	3.83	4.22	4.64	5.11	5.62	6.19	6.81	7.50	8.25	9.09
	1.01	1.11	1.23	1.35	1.49	1.64	1.80	1.98	2.18	2.40	2.64	2.91	3.20	3.52	3.88	4.27	4.70	5.17	5.69	6.26	6.90	7.59	8.35	9.20
	1.02	1.13	1.24	1.37	1.50	1.65	1.82	2.00	2.21	2.43	2.67	2.94	3.24	3.57	3.92	4.32	4.75	5.23	5.76	6.34	6.98	7.68	8.45	9.31
	1.04	1.14	1.26	1.38	1.52	1.67	1.84	2.03	2.23	2.46	2.71	2.98	3.28	3.61	3.97	4.37	4.81	5.30	5.83	6.42	7.06	7.77	8.56	9.42
	1.05	1.15	1.27	1.40	1.54	1.69	1.87	2.05	2.26	2.49	2.74	3.01	3.32	3.65	4.02	4.42	4.87	5.36	5.90	6.49	7.15	7.87	8.66	9.53
	1.06	1.17	1.29	1.42	1.56	1.72	1.89	2.08	2.29	2.52	2.77	3.05	3.36	3.70	4.07	4.48	4.93	5.42	5.97	6.57	7.23	7.96	8.76	9.65
	1.07	1.18	1.30	1.43	1.58	1.74	1.91	2.10	2.32	2.55	2.80	3.09	3.40	3.74	4.12	4.53	4.99	5.49	6.04	6.65	7.32	8.06	8.87	9.76
	1.09	1.20	1.32	1.45	1.60	1.76	1.93	2.13	2.34	2.58	2.84	3.12	3.44	3.79	4.17	4.59	5.05	5.56	6.12	6.73	7.41	8.16	8.98	9.88