

Metal Oxide Leaded Film Resistor



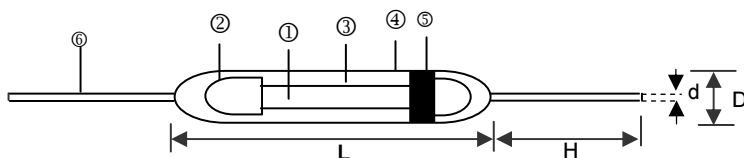
■Features

- Excellent Long-Time stability
- High surge / overload capability
- Wide resistance range : 0.1Ω~22MΩ
- Controlled temperature coefficient
- Resistance standard tolerance: $\pm 5\%$ (consult factory for $\pm 2\%$, 1%)
- Electrical and mechanical stability and high reliability

■Applications

- Telecommunication
- Medical Equipment

■Construction



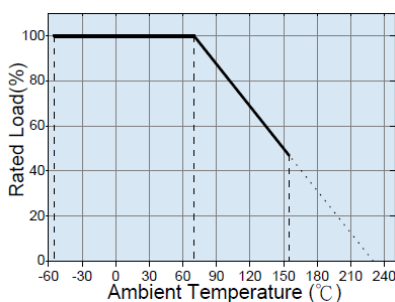
①	Ceramic Rod	④	Non-flame Paint With Sol Vent-proof
②	Tinned Iron Caps	⑤	Color Code
③	Metal Oxide Film	⑥	Lead Wire

■Dimensions

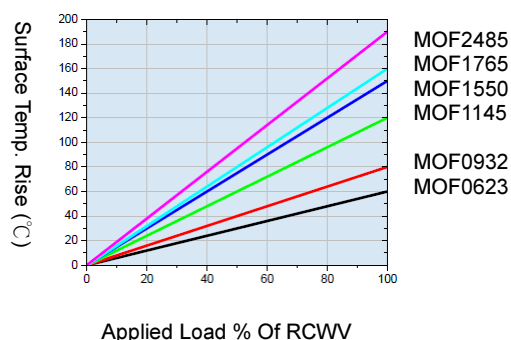
Unit: mm

Type	L	D	H	d	Weight (g) (1000pcs)
MOF0623	6.3 \pm 0.5	2.3 \pm 0.3	28 \pm 2.0	0.55 \pm 0.03	156
MOF0932	9.0 \pm 0.5	3.2 \pm 0.5	26 \pm 2.0	0.65 \pm 0.03	355
MOF1145	11.5 \pm 1.0	4.5 \pm 0.5	35 \pm 2.0	0.78 \pm 0.03	760
MOF1550	15.5 \pm 1.0	5.0 \pm 0.5	32 \pm 2.0	0.78 \pm 0.03	1040
MOF1765	17.5 \pm 1.0	6.0 \pm 0.5	35 \pm 2.0	0.78 \pm 0.03	1800
MOF2485	24.5 \pm 1.0	8.0 \pm 0.5	35 \pm 2.0	0.78 \pm 0.03	4000

■Derating Curve



■Hot-Spot Temperature



Part Numbering

MOF	0623	F	A	F	U	1001	MA
Product Type	Dimensions (LxD)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Special
	0623: 6.3x2.3 0932: 9.0x3.2 1145: 11.5x4.5 1550: 15.5x5.0 1765: 17.5x6.0 2485: 24.5x8.0	F: ±1% G: ±2% J: ±5%	A: Ammo B: Bulk T: Taping Reel	F: ±200	E: 7W D: 5W R: 3W S: 2W T: 1W U: 1/2W V: 1/4W	R500: 0.5Ω 0010: 1Ω 1000: 100Ω 2201: 2200Ω 1001: 1KΩ 1004: 1MΩ	: Standard MA: MA-type MB: MB-type MC: MC-type FA: FA-type FB: FB-type FC: FC-type FD: FD-type

Standard Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Resistance Range			TCR (PPM/°C)
						±1%	±2%	±5%	
0623	1/4W	-55 ~ +235°C	200V	350V	350V	0.1Ω - 10MΩ		0.1Ω-22MΩ	±200
0932	1/2W		250V	400V	350V	0.1Ω - 10MΩ		0.1Ω-22MΩ	
1145	1W		500V	600V	500V	0.1Ω - 10MΩ		0.1Ω-22MΩ	
1550	2W		550V	600V	500V	0.1Ω - 10MΩ		0.1Ω-22MΩ	
1765	3W		800V	1000V	750V	0.1Ω - 470KΩ	0.1Ω - 560KΩ	0.1Ω - 1MΩ	
2485	5W		1000V	1000V	750V	0.1Ω - 470KΩ	0.1Ω - 560KΩ	0.1Ω - 1MΩ	

High Power Rating Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage	Resistance Range			TCR (PPM/°C)
						±1%	±2%	±5%	
0623	1/2W	-55 ~ +235°C	250V	400V	350V	0.1Ω - 10MΩ		0.1Ω-22MΩ	±200
0932	1W		300V	500V	400V	0.1Ω - 10MΩ		0.1Ω-22MΩ	
1145	2W		500V	600V	500V	0.1Ω - 10MΩ		0.1Ω-22MΩ	
1550	3W		750V	800V	600V	0.1Ω - 10MΩ		0.1Ω-22MΩ	
1765	5W		1000V	1000V	750V	0.1Ω - 470KΩ	0.1Ω - 560KΩ	0.1Ω - 1MΩ	
2485	7W		1000V	1000V	750V	0.1Ω - 470KΩ	0.1Ω - 560KΩ	0.1Ω - 1MΩ	

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

■ Resistor body color: Standard Power Rating: Grey

High Power Rating : Grey or Pink are available

■ Environmental Characteristics

Item	Requirement	Test Method
Short Time Overload	$\pm(0.5\%+0.05\Omega)$	JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage whichever is lower for 5 seconds
Insulation Resistance	$> 10000M\Omega$	JIS-C-5201-1 5.6 Apply 100V _{DC} for 1 minute
Endurance	$\pm(1.5\%+0.05\Omega)$	JIS-C-5201-1 7.10 70 \pm 2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	$\pm(1.5\%+0.05\Omega)$	JIS-C-5201-1 7.9 40 \pm 2°C, 90~95% R.H. RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Solderability	95% min. Coverage	JIS-C-5201-1 6.5 260 \pm 5°C for 3 \pm 0.5 seconds
Dielectric Withstanding Voltage	By Type	JIS-C-5201-1 5.7 Apply Max. Overload Voltage for 1 minute
Temperature Coefficient	By Type	Resistance value at room temperature and room temperature+125°C
Pulse Overload	$\pm(1\%+0.05\Omega)$	JIS-C-5201-1 5.8 4 times RCWV for 10000 cycles with 1second "ON" and 25 seconds "OFF"
Resistance To Solvent	No deterioration of coatings and markings	JIS-C-5201-1 6.9 Trichroethane for 1 min. with ultrasonic
Terminal Strength	Tensile: $\geq 2.5kg$	Direct Load for 10 seconds In the direction off the terminal leads

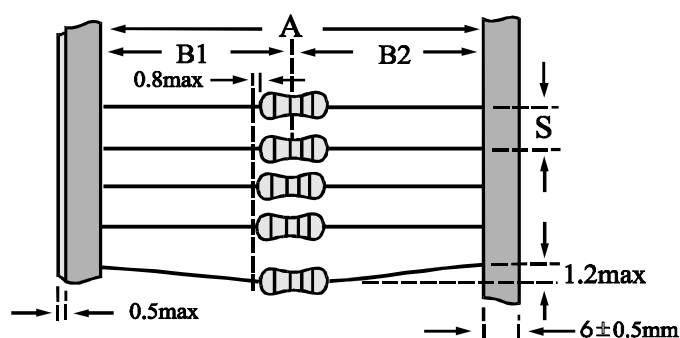
RCWV(Rated continuous working voltage)= $\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower

■ **Storage Temperature: 15~28°C; Humidity < 80%RH**

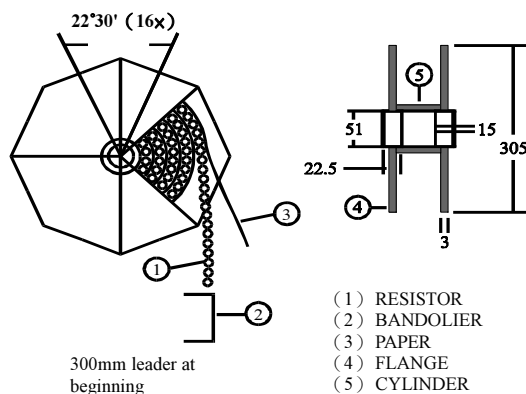
■Taping/Packing Specifications

1. Standard Type (Reel & Ammo)

Packing Methods



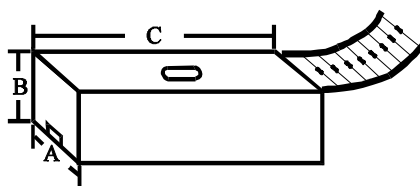
Reel Packing



Unit: mm

Packaging Type	Packing Methods			Reel Packing	
	A	B1-B2	S	Across Flange (A)	Qty
0623	52+1/-0	1.2	5	72	5,000
	26+1/-0	1.0			
0932	52+1/-0	1.2	5	72	2,500
1145	52+1/-0	1.5	5	95	2,000
	73+1/-0				
1550	52+1/-0	1.5	10	95	1,000
	73+1/-0				
1765	73+1/-0	1.5	10	95	1,000
2485	88+1/-0	1.5	10	110	500

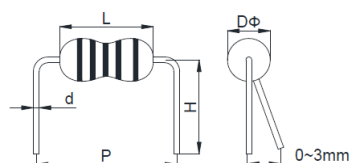
Ammo Packing



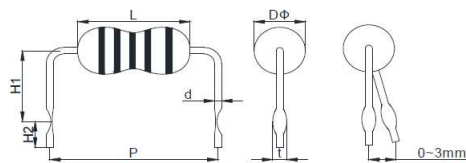
Unit: mm

Packaging Type	Packing Methods			Ammo Packing			
	A	B1-B2	S	A	B	C	Qty
0623	52+1/-0	1.2	5	80	105	264	5,000
	26+1/-0	1.0					
0932	52+1/-0	1.2	5	80	46	264	1,000
1145	52+1/-0	1.5	5	103	82	265	1,000
	73+1/-0						
1550	52+1/-0	1.5	10	103	96	265	1,000
	73+1/-0						
1765	73+1/-0	1.5	10	105	75	270	500
2485	88+1/-0	1.5	10	115	75	270	250

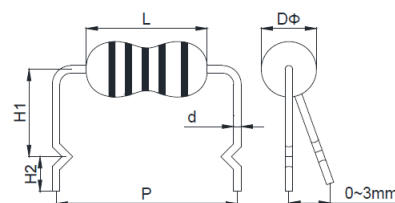
2. Special Type (Bulk)



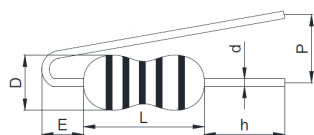
MA Type



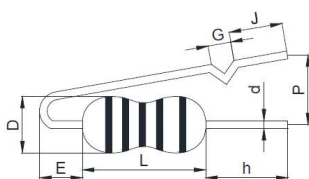
MB Type



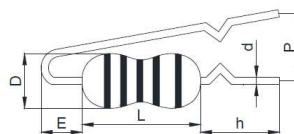
MC Type



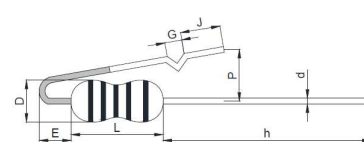
FA Type



FB Type



FC Type

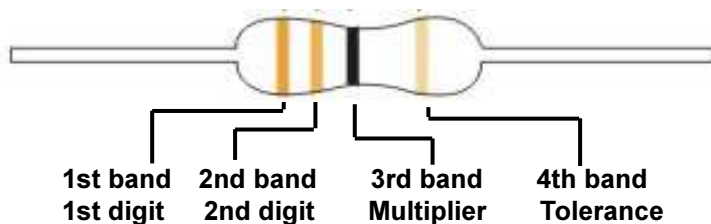


FD Type

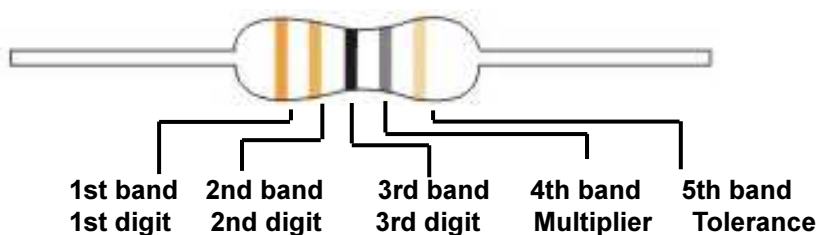
Unit: mm

Codes	Type	P	H /H1/h	H2/G	J	t	D	L	d	E
0623	MA	10±1	10.0±1	-	-	-	2.3±0.3	6.3±0.5	0.55±0.03	-
	MC	10±1	5.0±1	6.0±2	-	-	2.3±0.3	6.3±0.5	0.55±0.03	-
	FA	5~15	5.0±2	-	-	-	2.3±0.3	6.3±0.5	0.55±0.03	3±1
	FB	5~15	4.0±2	3.0±0.5	3±1	-	2.3±0.3	6.3±0.5	0.55±0.03	3±1
	FD	5~15	27.0±2	3.0±0.5	3±1	-	2.3±0.3	6.3±0.5	0.55±0.03	3±1
0932	MA	12.5±1	10.0±1	-	-	-	3.2±0.5	9.0±0.5	0.65±0.03	-
	MC	12.5±1	5.0±1	4.0±2	-	-	3.2±0.5	9.0±0.5	0.65±0.03	-
	FA	5~15	5.0±2	-	-	-	3.2±0.5	9.0±0.5	0.65±0.03	3±1
	FB	5~15	4.0±2	3.0±0.5	3±1	-	3.2±0.5	9.0±0.5	0.65±0.03	3±1
	FC	5~15	10.0±3	-	-	-	3.2±0.5	9.0±0.5	0.65±0.03	-
1145	MA	15±1	12.5±1	-	-	-	4.5±0.5	11.5±1.0	0.78±0.03	-
	MC	15±1	8.0±1	6.0±1.0	-	-	4.5±0.5	11.5±1.0	0.78±0.03	-
	FA	5~15	5.0±2	-	-	-	4.5±0.5	11.5±1.0	0.78±0.03	3±1
	FB	5~15	4.0±2	3.0±0.5	3±1	-	4.5±0.5	11.5±1.0	0.78±0.03	3±1
	FC	5~15	10.0±3	-	-	-	4.5±0.5	11.5±1.0	0.78±0.03	-
1550	MA	20±1	15.0±1	-	-	-	5.0±0.5	15.5±1.0	0.78±0.03	-
	MC	20±1	12.0±1	5.0±1.0	-	-	5.0±0.5	15.5±1.0	0.78±0.03	-
	FA	5~15	5.0±2	-	-	-	5.0±0.5	15.5±1.0	0.78±0.03	3±1
	FB	5~15	4.0±2	3.0±0.5	3±1	-	5.0±0.5	15.5±1.0	0.78±0.03	3±1
	FC	5~15	10.0±3	-	-	-	5.0±0.5	15.5±1.0	0.78±0.03	-
1765	MA	25±1	15.0±1	-	-	-	6.0±0.5	17.5±1.0	0.78±0.03	-
	MB	25±1	8.0±1	5.5±1	-	1.4±0.2	6.0±0.5	17.5±1.0	0.78±0.03	-
	MC	24±1	5.0±1	6.0±2	-	-	6.0±0.5	17.5±1.0	0.78±0.03	-
	FC	5~15	7.0±3	-	-	-	6.0±0.5	17.5±1.0	0.78±0.03	-
2485	MA	30±1	18.0±1	-	-	-	8.0±0.5	24.5±1.0	0.78±0.03	-
	MB	30±1	12.0±1	5.0±1	-	1.4±0.2	8.0±0.5	24.5±1.0	0.78±0.03	-

■ Marking & Resistance Tolerance



±5.00%	E-24	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
±2.00%																									



±1.00%	E-96	1.00	1.02	1.05	1.07	1.10	1.13	1.15	1.18	1.21	1.24	1.27	1.30	1.33	1.37	1.40	1.43	1.47	1.50	1.54	1.58	1.62	1.65	1.69	1.74
		1.78	1.82	1.87	1.91	1.96	2.00	2.05	2.10	2.15	2.21	2.26	2.32	2.37	2.43	2.49	2.55	2.61	2.67	2.74	2.80	2.87	2.94	3.01	3.09
		3.16	3.24	3.32	3.40	3.48	3.57	3.65	3.74	3.83	3.92	4.02	4.12	4.22	4.32	4.42	4.53	4.64	4.75	4.87	4.99	5.11	5.23	5.36	5.49
		5.62	5.76	5.90	6.04	6.19	6.34	6.49	6.65	6.81	6.98	7.15	7.32	7.50	7.68	7.87	8.06	8.25	8.45	8.66	8.87	9.09	9.31	9.53	9.76

Color	Digit	Multiplier	Tolerance	
Without	-	-	-	-
Silver	-	10 ⁻²	-	-
Gold	-	10 ⁻¹	±5%	J
Black	0	10 ⁰	-	-
Brown	1	10 ¹	±1%	F
Red	2	10 ²	±2%	G
Orange	3	10 ³	-	-
Yellow	4	10 ⁴	-	-
Green	5	10 ⁵	-	-
Blue	6	10 ⁶	-	-
Violet	7	10 ⁷	-	-
Grey	8	10 ⁸	-	-
White	9	10 ⁹	-	-