

Data Sheet

Customer:**Product:** MELF High Voltage Resistor-CSRH Series**Size:** 0207/0309**Issued Date:** 14-Jul-22**Edition:** REV.A4

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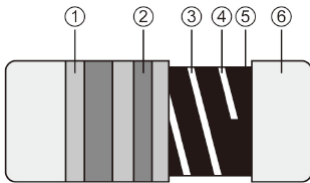
MELF High Voltage Resistor



■Features

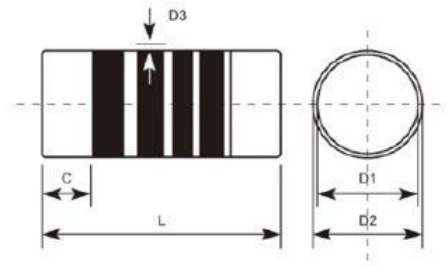
- For SMD enabled structure
- It is epoxy resin coating material
- High voltage applications for power capacitor, motor start-up protection, car & motorcycle engine ignition, etc. other surge energy request able to design for engineer design request

■Construction



①	Insulation Coating	④	Ceramic Rod
②	Marking	⑤	Resistor Layer
③	Trimming Line	⑥	Electrode Cap

■Dimension

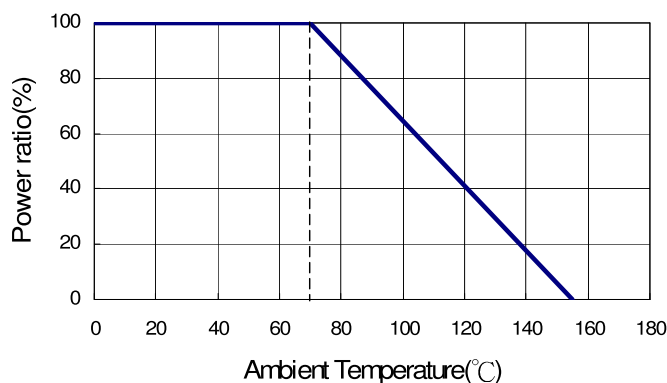


Type	L (mm)	D1 (mm)	D2 max (mm)	D3 max (mm)	C min (mm)
CSRH0207	5.90±0.20	2.20±0.10	2.40	0.15	0.5
CSRH0309	8.50±0.20	3.20±0.20	3.40	0.30	0.5

■Part Numbering

Product Type	Dimensions (L×D2)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance
CSRH	0207 0207: 5.9×2.4 0309: 8.5×3.4	F: ±1% J: ±5%	T: Taping Reel	E: ±100 F: ±200	U: 1/2W T: 1W	1003: 100KΩ 1004: 1MΩ

Derating Curve



Standard Electrical Specifications

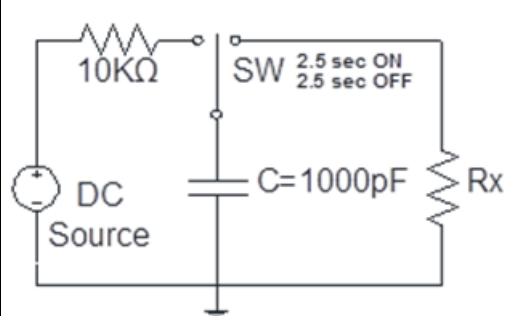
Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range		TCR (PPM/°C)
					±1%	±5%	
0207	1/2W	-55 ~ +155°C	500V	700V	100KΩ-22MΩ		±100 ±200
0309	1W	-55 ~ +155°C	700V	1000V	100KΩ-22MΩ		±100 ±200

Anti Surge Voltage

Type	Power Rating	Voltage
0207	1/2W	100KΩ-10MΩ : 3KV
0309	1W	100KΩ-10MΩ: 4KV

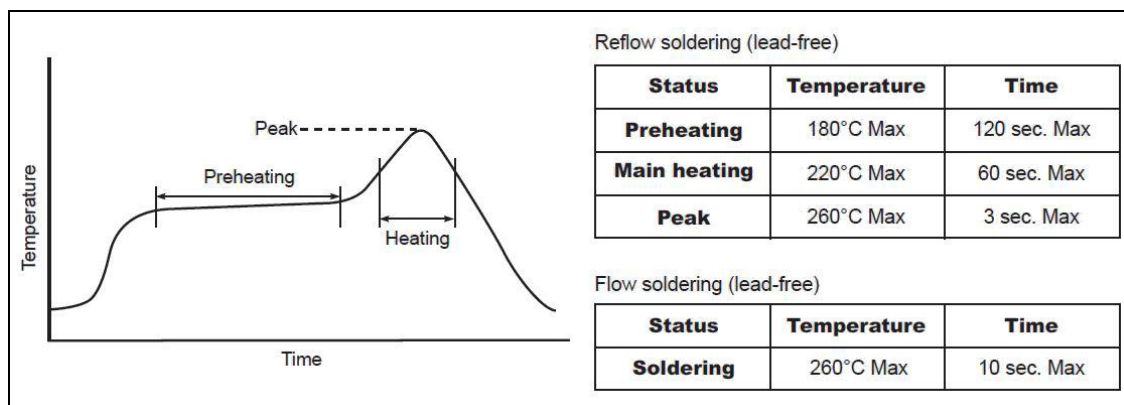
Environmental Characteristics

Item	Requirement	Test Method		
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	+25/-55/+25/+125°C		
Short Time Overload	±(1%+0.05Ω)	$V = \sqrt{(P \cdot R) \cdot 2.5}$ for 5 seconds		
		Size	0207	0309
		Power Rating	1/2W	1W
		Voltage Max	200V	250V
Resistance to Soldering Heat	±(1%+0.05Ω)	260±5°C for 10±1 seconds		
Solderability	95% min. coverage	245±5°C for 3±0.5 seconds		
Thermal Shock Test	±(2%+0.05Ω)	5cycle for -55°C 30minute 155°C 30minute		
Load Life Test	±(5%+0.05Ω)	70±2°C, DC 1.5 hrs "ON" and 0.5 hrs "OFF", applied continuously for 1000±48 hrs		
Humidity Test	±(5%+0.05Ω)	40±2°C, 90~95% R.H., 1.5 hrs "ON" and 0.5 hrs "OFF", 1000 hrs		
Resistance to Solvent	Epoxy insulation coating can not be peeled	3 circles, each circle takes 1 min		

Item	Requirement	Test Method
Anti Surge Characteristics	$\pm(5\%+0.05\Omega)$	Discharge Test: 1/2W=3KV 1W=4KV  1000pF capacitor Discharge Pulse 50 time. (1 pulse / 5 sec. max)

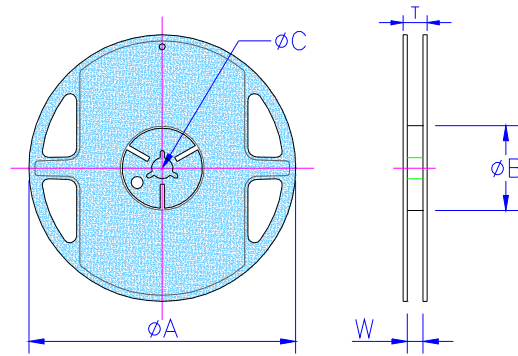
■ Storage Temperature: 5~40°C; Humidity 55~75%RH

■ Soldering Condition



MELF High Voltage Resistor

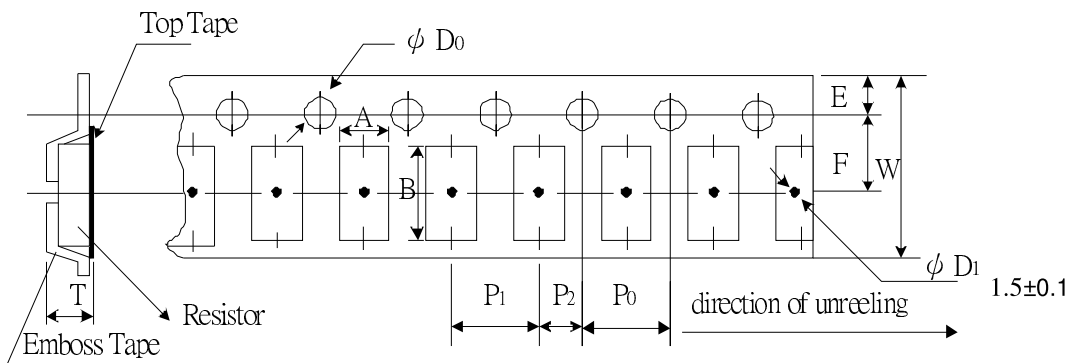
■ Packaging



Packaging Quantity & Reel Specifications

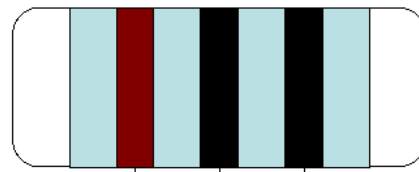
Type	Reel Diameter	ϕA (mm)	ϕB (mm)	ϕC (mm)	W (mm)	T (mm)	Emboss Plastic Tape (EA)
CSRH0207	7 inch	178.0 $\pm$ 1.0	60.0 $\pm$ 0.5	13.0 $\pm$ 0.5	13.2 $\pm$ 0.5	16.0 $\pm$ 0.20	2,000
CSRH0309	13 inch	330.0 $\pm$ 1.0	100.0 $\pm$ 1.0	13.0 $\pm$ 0.5	17.0 $\pm$ 0.5	21.5 $\pm$ 0.20	2,500

Emboss Plastic Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P_0 (mm)	P_1 (mm)	P_2 (mm)	ϕD_0 (mm)	T (mm)
CSRH0207	2.40 $\pm$ 0.10	6.05 $\pm$ 0.10	12.0 $\pm$ 0.10	1.75 $\pm$ 0.10	5.50 $\pm$ 0.05	4.00 $\pm$ 0.10	4.00 $\pm$ 0.10	2.00 $\pm$ 0.10	1.50 $\pm$ 0.10	2.80 $\pm$ 0.10
CSRH0309	3.50 $\pm$ 0.10	8.85 $\pm$ 0.10	16.0 $\pm$ 0.10	1.75 $\pm$ 0.10	7.50 $\pm$ 0.10	4.00 $\pm$ 0.10	8.00 $\pm$ 0.10	2.00 $\pm$ 0.10	1.50 $\pm$ 0.10	3.85 $\pm$ 0.10

■ Marking & Resistance Tolerance



1st digit 2nd digit Multiplier

±5%	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
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1st digit 2nd digit 3rd digit Multiplier

±1%	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
	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
Silver	-	10^{-2}
Gold	-	10^{-1}
Black	0	10^0
Brown	1	10^1
Red	2	10^2
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