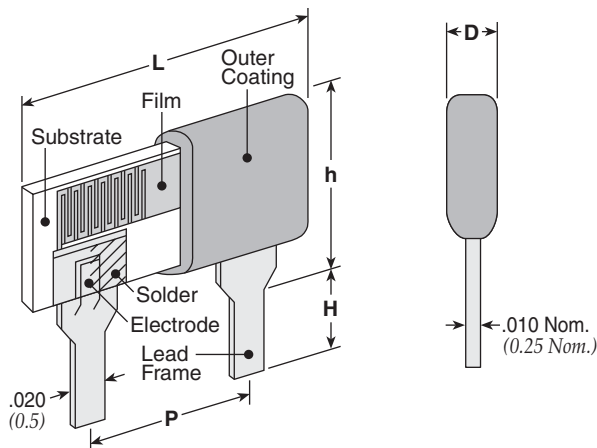


### features

- Ultra precision T.C.R. up to  $\pm 2.5$  ppm/ $^{\circ}\text{C}$ , tolerance to  $\pm 0.01\%$
- Wide resistance range from  $10\Omega$  to  $1\text{M}\Omega$
- Products with lead-free terminations meet EU RoHS and China RoHS requirements

### dimensions and construction



Type	Dimensions inches (mm)				
	L (max.)	D (max.)	P	H	h (max.)
MRS1/8	.220 (5.6)	.098 (2.5)	.100 $\pm$ .008 (2.54 $\pm$ 0.2)	.118 $\pm$ .02 (3.0 $\pm$ 0.5)	.244 (6.2)
MRS1/4	.295 (7.5)		.200 $\pm$ .008 (5.08 $\pm$ 0.2)		
MRS1/3			.150 $\pm$ .008 (3.81 $\pm$ 0.2)	.315 $\pm$ .079 (8.0 $\pm$ 2.0)	.354 (9.0)

### ordering information

Lead Free

<b>MRS</b> Product Code	<b>1/3</b> Size	<b>S</b> T.C.R. (ppm)	<b>D</b> Terminal Surface Material	<b>1002</b> Nominal Resistance	<b>T</b> Resistance Tolerance
	1/8: 0.125W 1/4: 0.25W 1/3: 0.3W	S: $\pm 2.5$ Y: $\pm 5$ T: $\pm 10$ E: $\pm 25$	D: SnAgCu	3 significant figures + 1 multiplier "R" indicates decimal on values <100 $\Omega$	T: $\pm 0.01\%$ Q: $\pm 0.02\%$ A: $\pm 0.05\%$ B: $\pm 0.1\%$ C: $\pm 0.25\%$ D: $\pm 0.5\%$

## applications and ratings

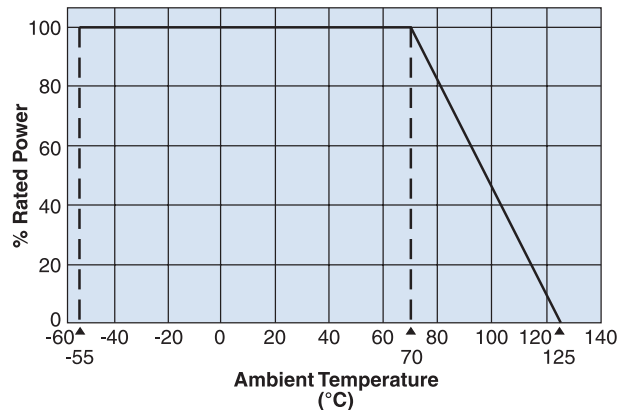
Type	Power Rating	T.C.R. (ppm/°C) Max.	Resistance Range (Ω)						Absolute Maximum Working Voltage	Absolute Maximum Overload Voltage	Rated Ambient Temperature	Operating Temperature Range
			T: ±0.01% E96	Q: ±0.02% E96	A: ±0.05%	B: ±0.1%	C: ±0.25%	D: ±0.5%				
MRS1/8	0.125W	Y: ±5	—	—	100-250k	100-250k	100-250k	100-250k	200V	400	+70°C	-55°C to +125°C
		T: ±10	—	—	100-250k	100-510k	30-510k	30-510k				
		E: ±25	—	—	100-250k	100-510k	10-510k	10-510k				
MRS1/4	0.25W	Y: ±5	—	—	100-510k	100-510k	100-510k	100-510k	250V	500	+70°C	-55°C to +125°C
		T: ±10	—	—	100-510k	100-1M	30-1M	30-1M				
		E: ±25	—	—	100-510k	100-1M	10-1M	10-1M				

Type	Power Rating	T.C.R. (ppm/°C) Max.	Resistance Range (Ω)						Absolute Maximum Working Voltage	Absolute Maximum Overload Voltage	Rated Ambient Temperature	Operating Temperature Range
			T: ±0.01% E96	Q: ±0.02% E96	A: ±0.05%	B: ±0.1%	C: ±0.25%	D: ±0.5%				
MRS1/3*	0.3W	S: ±2.5	100-100k	30.1-100k	30.1-100k	30.1-100k	—	—	200V	500	+70°C	-55°C to +125°C
		Y: ±5	100-100k	30.1-100k	10-100k	10-100k	—	—				
		T: ±10	100-100k	30.1-100k	10-100k	10-100k	—	—				

\* MRS1/3 is available only in E96 series.

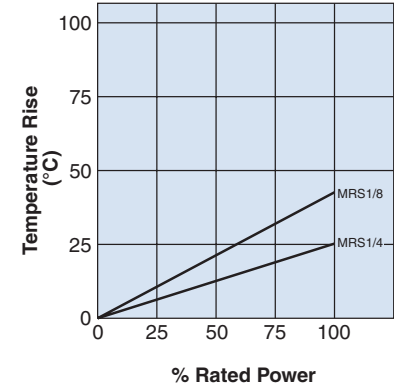
## environmental applications

### Derating Curve



For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with this derating curve.

### Surface Temperature Rise



## Performance Characteristics

Parameter	Requirement Δ R ±(% + 0.05%)	Test Method
Resistance	Within specified tolerance	25°C
T.C.R.	Within specified T.C.R.	+25°C/+65°C
Overload (Short time)	±0.05%	Rated voltage x 2.5 or max. overload voltage whichever is lower, for 5 seconds
Resistance to Soldering Heat	±0.1%: MRS1/8, 1/4 ±0.05%: MRS1/3	350°C ± 10°C, 3.5 seconds ± 0.5 second
Rapid Change of Temperature	±0.1%: MRS1/8, 1/4 ±0.05%: MRS1/3	MRS1/8, 1/4: -55 +0-5°C (30 minutes), +125 +3-0°C (30 minutes), 5 cycles MRS1/3: -55 +0-5°C (30 minutes), +125 +3-0°C (30 minutes), 50 cycles
Dielectric Withstanding Voltage	±0.5%: MRS1/8, 1/4 ±0.05%: MRS1/3	500V (a.c.) for 1 minute between terminals and coatings
Endurance at 70°C	±0.1%: MRS1/8, 1/4 ±0.05%: MRS1/3	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Moisture Resistance	±0.1%: MRS1/8, 1/4 ±0.05%: MRS1/3	40°C ± 2°C, 90 ~ 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Insulation Resistance	10,000MΩ and more	500V (d.c.) for 1 minute
Resistance to Solvent	No abnormality in appearance. Marking shall be easily legible.	Soaking in 2-propanol of +20°C~25°C for 180 seconds ± 10 seconds

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

10/04/22