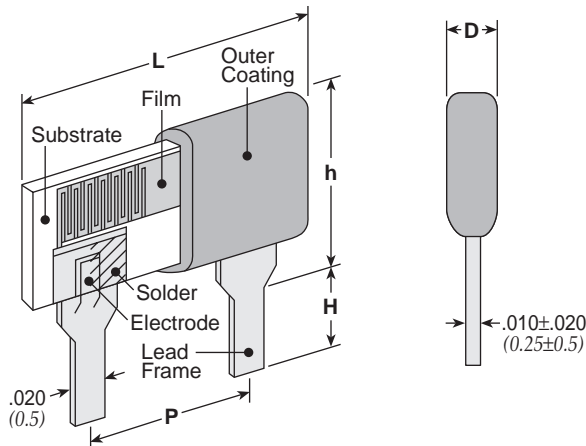


features

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

Leadless resistors

dimensions and construction



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

ordering information

Lead Free

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

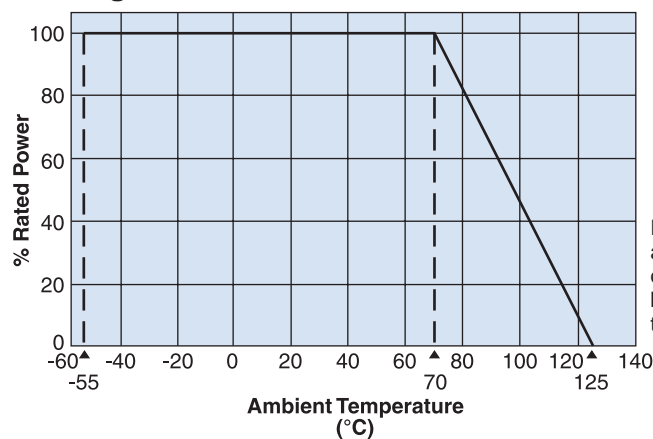
applications and ratings

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% E24/E96 & 25, 50 *10 ⁿ	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		
		T: ±10	—	—	100-510k	100-1M	30-1M	30-1M				
		E: ±25	—	—	100-510k	100-1M	10-1M	10-1M				
MRS1/3	0.3W	S: ±2.5	100-100k	30.1-100k	30.1-100k	30.1-100k	—	—	200V	500		
		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.

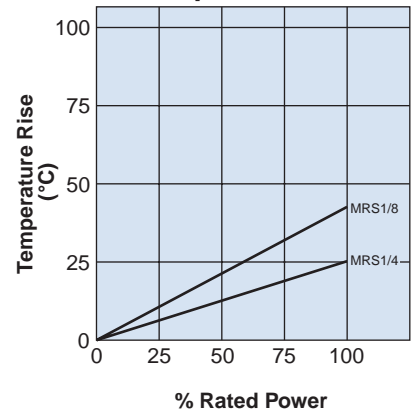
environmental applications

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 ±(% + 0.05Ω)	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