Cement Resistors

Vertical Lead Type

Normal Style [SQM Series]
Non-Inductive Style [NSM Series]

INTRODUCTION

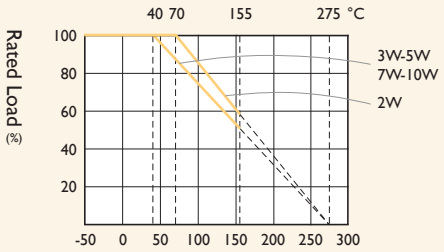
The materials used and the construction techniques ensure excellent flame resistance, arc resistance and moisture resistances as well as self-extinguishing capabilities. They will withstand the most rigorous loading test.

As resistors in radio and television receivers, the hazardous conditions of smoking and redheat can be completely prevented by the proper choice of power resistors.

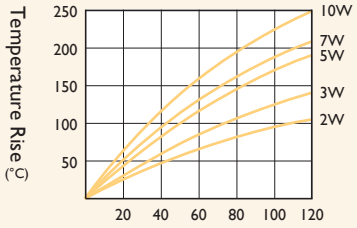
FEATURES

Power Rating	2W, 3W, 5W, 7W, 10W
Resistance Tolerance	±5%
T.C.R.	±300ppm/°C

DERATING CURVE

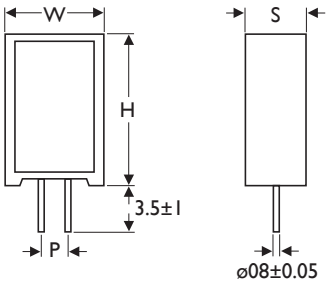


TEMPERATURE RISE



DIMENSIONS

Unit: mm



STYLE		DIMENSION			
Normal	**Non-Ind.**	**H**	**W**	**S**	**P**
SQM200	NSM200	20±1.5	11.0±1.0	7.0±1.0	5^{+2-1}
SQM300	NSM300	25±1.5	12.0±1.0	8.0±1.0	5^{+2-1}
SQM500	NSM500	25±1.5	13.0±1.0	9.0±1.0	5^{+2-1}
SQM700	NSM700	39±1.5	13.0±1.0	9.0±1.0	5^{+2-1}
SQM10A	NSM10A	51±1.5	13.0±1.0	9.0±1.0	5^{+2-1}
SQM10S	NSM10S	35±1.5	16.0±1.0	12.0±1.0	7^{+2-1}

ELECTRICAL CHARACTERISTICS

NORMAL STYLE

STYLE	SQM200	SQM300	SQM500	SQM700	SQM10A	SQM10S
Power Rating at 70°C	2W	3W	5W	7W	10W	
Maximum Working Voltage	250V	350V		500V		
Maximum Overload Voltage	500V	700V		1,000V		
Dielectric Withstanding Voltage	500V	700V		1,000V		
Resistance Range (Wirewound)	0.1 Ω - 36 Ω	0.1 Ω - 100 Ω				0.1 Ω - 47 Ω
Resistance Range (Metal Oxide Film)	39 Ω - 47K Ω	110 Ω - 100K Ω	110 Ω - 200K Ω			51 Ω - 100K Ω
Operating Temp. Range	-55°C to +155°C					
Temperature Coefficient	±300ppm/°C					

NON-INDUCTIVE STYLE

STYLE	NSM200	NSM300	NSM500	NSM700	NSM10A	NSM10S
Power Rating at 70°C	2W	3W	5W	7W	10W	
Maximum Working Voltage	250V	350V		500V		
Maximum Overload Voltage	500V	700V		1,000V		
Dielectric Withstanding Voltage	500V	700V		1,000V		
Resistance Range (Wirewound)	0.1 Ω - 10 Ω	0.1 Ω - 20 Ω		0.1 Ω - 30 Ω	0.1 Ω - 40 Ω	
Operating Temp. Range	-55°C to +155°C					
Temperature Coefficient	±300ppm/°C					

Note: Special value is available on request.

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	JIS-C-5202 5.5	2.5 times RCWV for 5 Sec.	±2.0%+0.05 Ω
Dielectric Withstanding Voltage	JIS-C-5202 5.7	in V-Block for 60 Sec.	By type
Temperature Coefficient	JIS-C-5202 5.2	-55°C to +155°C	By type
Insulation Resistance	JIS-C-5202 5.6	in V-Block	>1,000M Ω
Solderability	JIS-C-5202 6.5	260±5°C for 5±0.5 Sec.	95% Min. coverage
Resistance to Solvent	JIS-C-5202 6.9	IPA for 1 Min. with ultrasonic	No deterioration of coatings and markings
Terminal Strength	JIS-C-5202 6.1	Direct load for 10 Sec. in the direction of the terminal leads	≥2.5kg (24.5N)
Pulse Overload	JIS-C-5202 5.8	4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	±2.0%+0.05 Ω
Load Life in Humidity	JIS-C-5202 7.9	40±2°C, 90-95% RH at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	±5.0%+0.05 Ω
Load Life	JIS-C-5202 7.10	70°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	±5.0%+0.05 Ω
Temperature Cycling	JIS-C-5202 7.4	-55°C ⇨ Room Temp. ⇨ +155°C ⇨ Room Temp. (5 cycles)	±2.0%+0.05 Ω
Resistance to Soldering Heat	JIS-C-5202 6.4	350±10°C for 3±0.5 Sec.	±1.0%+0.05 Ω

Note: Rated Continuous Working Voltage (RCWV) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$