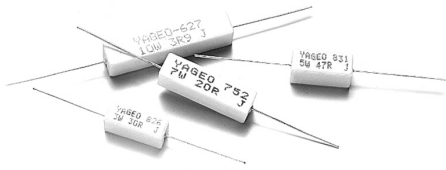


Cement Resistors

Axial Lead Type

Normal Style [SQP Series]

Non-Inductive Style [NSP Series]



INTRODUCTION

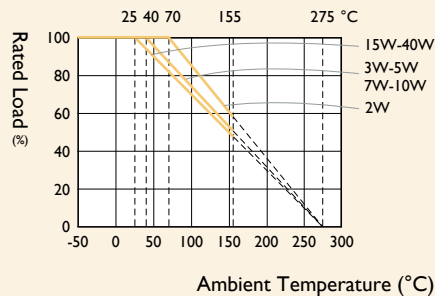
The materials used and the construction techniques ensure excellent flame resistance, arc resistance and moisture resistance as well as self-extinguishing capabilities. They will withstand the most rigorous loading test.

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

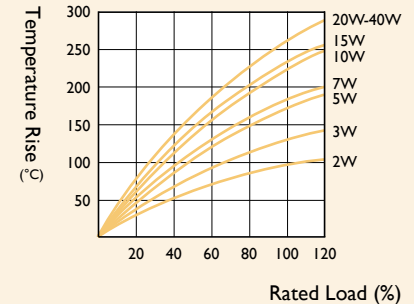
FEATURES

Power Rating	2W, 3W, 5W, 7W, 10W, 15W, 20W, 25W, 30W, 40W
Resistance Tolerance	±5%
T.C.R.	±300ppm/°C

DERATING CURVE

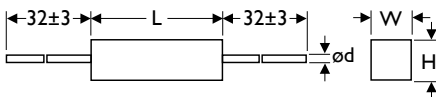


TEMPERATURE RISE



DIMENSIONS

Unit: mm



STYLE		DIMENSION			
Normal	Non-Inductive	L	W	H	ød
SQP200	NSP200	18±1.0	7.0±1.0	7.0±1.0	0.65±0.05
SQP300	NSP300	22±1.5	8.0±1.0	8.0±1.0	0.8±0.05
SQP500	NSP500	22±1.5	9.5±1.0	9.0±1.0	0.8±0.05
SQP700	NSP700	35±1.5	9.5±1.0	9.0±1.0	0.8±0.05
SQP10A	NSP10A	48±1.5	9.5±1.0	9.0±1.0	0.8±0.05
SQP15A	NSP15A	48±1.5	12.5±1.0	12.5±1.0	0.8±0.05
SQP20A	NSP20A	60±5.0	12.5±1.0	12.5±1.0	0.8±0.05
SQP25A	NSP25A	60±5.0	14.0±1.5	13.0±1.5	0.8±0.05
SQP30A	NSP30A	77±5.0	18.0±1.5	17.0±1.5	0.8±0.05
SQP40A	NSP40A	90±5.0	19.0±1.5	18.0±1.5	0.8±0.05

ELECTRICAL CHARACTERISTICS

NORMAL STYLE

STYLE	SQP200	SQP300	SQP500	SQP700	SQP10A	SQP15A	SQP20A	SQP25A	SQP30A	SQP40A
Power Rating at 25°C						15W	20W	25W	30W	40W
Power Rating at 40°C		3W	5W	7W	10W					
Power Rating at 70°C	2W									
Maximum Working Voltage	250V	350V		500V				1,000V		
Maximum Overload Voltage	500V	700V		1,000V				2,000V		
Voltage Proof	500V	700V		1,000V				2,000V		
Resistance Range (Wirewound)	0.03 Ω - 36 Ω	0.015 Ω - 68 Ω	0.015 Ω - 130 Ω	0.05 Ω - 330 Ω	0.08 Ω - 510 Ω	0.1 Ω - 680 Ω	0.15 Ω - 1K Ω			
Resistance Range (Metal Oxide Film)	39 Ω - 1M Ω	75 Ω - 1M Ω	150 Ω - 1M Ω	360 Ω - 1M Ω	560 Ω - 1M Ω	750 Ω - 1M Ω	1.2K Ω - 1M Ω			
Operating Temp. Range	-55°C to +155°C									
Temperature Coefficient	± 300 ppm/°C									

NON-INDUCTIVE STYLE

STYLE	NSP200	NSP300	NSP500	NSP700	NSP10A	NSP15A	NSP20A	NSP25A	NSP30A	NSP40A
Power Rating at 25°C						15W	20W	25W	30W	40W
Power Rating at 40°C		3W	5W	7W	10W					
Power Rating at 70°C	2W									
Maximum Working Voltage	250V	350V		500V				1,000V		
Maximum Overload Voltage	500V	700V		1,000V				2,000V		
Voltage Proof	500V	700V		1,000V				2,000V		
Resistance Range (Wirewound)	0.08 Ω - 10 Ω	0.033 Ω - 30 Ω	0.03 Ω - 40 Ω	0.15 Ω - 65 Ω	0.25 Ω - 100 Ω	0.25 Ω - 120 Ω	0.36 Ω - 160 Ω			
Operating Temp. Range	-55°C to +155°C									
Temperature Coefficient	± 300 ppm/°C									

Note: Special value is available on request

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Short Time Overload	IEC 60115-1 4.13	2.5 times RCWV for 5 Sec.	$\pm 2.0\% + 0.05 \Omega$
Voltage Proof	IEC 60115-1 4.7	in V-block for 60 Sec., test voltage by type	By type
Temperature Coefficient	IEC 60115-1 4.8	-55°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>1,000M Ω
Solderability	IEC 60115-1 4.17	235 ± 5 °C for 3 ± 0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for 5 ± 0.5 Min. with ultrasonic	No deterioration of coatings and markings
Robustness of Terminations	IEC 60115-1 4.16	Direct load for 10 Sec. in the direction of the terminal leads	≥ 2.5 kg (24.5N)
Periodic-pulse Overload	IEC 60115-1 4.39	4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	$\pm 2.0\% + 0.05 \Omega$
Damp Heat Steady State	IEC 60115-1 4.24	40 ± 2 °C, 90-95% RH for 56 days, loaded with 0.1 times RCWV	$\pm 5.0\% + 0.05 \Omega$
Endurance at 70°C	IEC 60115-1 4.25	70 ± 2 °C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off)	$\pm 5.0\% + 0.05 \Omega$
Temperature Cycling	IEC 60115-1 4.19	-55°C $\Rightarrow$ Room Temp. $\Rightarrow$ +155°C $\Rightarrow$ Room Temp. (5 cycles)	$\pm 2.0\% + 0.05 \Omega$
Resistance to Soldering Heat	IEC 60115-1 4.18	260 ± 3 °C for 10 ± 1 Sec., immersed to a point 3 ± 0.5 mm from the body	$\pm 1.0\% + 0.05 \Omega$

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