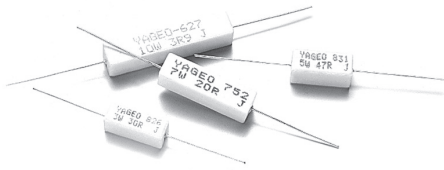


# Cement Resistors

# Axial Lead Type

Normal Style [ SQP Series ]

Non-Inductive Style [ NSP Series ]

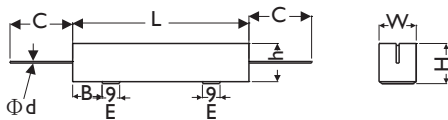
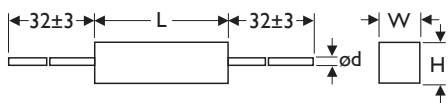


## INTRODUCTION

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.

## DIMENSIONS

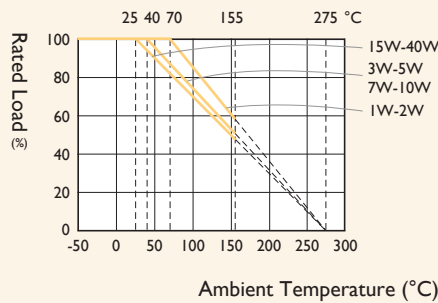


SQP40A, NSP40A

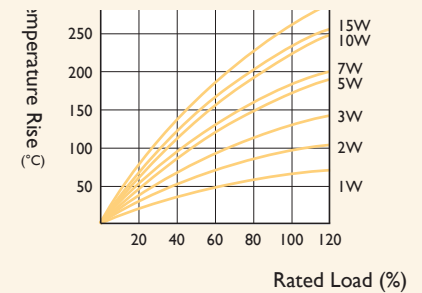
## FEATURES

Power Rating	1W, 2W, 3W, 5W, 7W, 10W, 15W, 20W, 25W, 30W, 40W
Resistance Tolerance	Wirewound:±1%, ±5%, Film:±5%
T.C.R.	Wirewound:±100ppm/°C, ±300ppm/°C, Film:±300ppm/°C

## DERATING CURVE



## TEMPERATURE RISE



Unit: mm

STYLE		DIMENSION			
Normal	Non-Inductive	L	W	H	ød
SQP100	NSP100	13±1.0	5.5±1.0	5.5±1.0	0.6±0.05
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
SQP5WS	-	25±1.5	6.0±1.0	6.0±1.0	0.65±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 <sup>+2.5</sup> <sub>-1.0</sub>	0.8±0.05

STYLE		DIMENSION							
Normal	Non-Ind.	L	W	H	h	B	C	E	ød
SQP40A	NSP40A	90±5.0	19.0±1.5	20.5±1.5	19.5±1.5	15.0±1.0	32±3	9.0±0.5	0.8±0.05

## ELECTRICAL CHARACTERISTICS

### NORMAL STYLE

STYLE	SQP100	SQP200	SQP300	SQP5WS	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	1W	2W										
Maximum Working Voltage	200V	250V	350V			500V				1,000V		
Maximum Overload Voltage	500V	500V	700V			1,000V				2,000V		
Voltage Proof on Insulation	500V	500V	700V			1,000V				2,000V		
Resistance Range (Wirewound)	0.1Ω - 27Ω	0.03Ω - 36Ω	0.015Ω - 68Ω	0.015Ω - 130Ω		0.05Ω - 330Ω	0.08Ω - 510Ω	0.1Ω - 680Ω	0.15Ω - 1KΩ			
Resistance Range (Film)	30Ω - 47KΩ	39Ω - 1MΩ	75Ω - 1MΩ	150Ω - 1MΩ		360Ω - 100kΩ	560Ω - 100KΩ	-	-			
Operating Temp. Range	-55°C to +155°C											
Temperature Coefficient	Wirewound:±100ppm/°C, ±300ppm/°C, Film:±300ppm/°C											

### NON-INDUCTIVE STYLE

STYLE	NSP100	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	1W	2W									
Maximum Working Voltage	$\sqrt{P \times R}$	$\sqrt{P \times R}$									
Voltage Proof on Insulation	500V	500V	700V		1,000V				2,000V		
Resistance Range (Wirewound)	0.08Ω - 10Ω	0.08Ω - 10Ω	0.1Ω - 30Ω	0.1Ω - 40Ω	0.15Ω - 65Ω	0.25Ω - 100Ω	0.25Ω - 120Ω	0.36Ω - 160Ω			
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	IEC 60115-1 4.13	2.5 times RCWV for 5 sec. (Not more than maximum Overload Voltage)	±2.0%+0.05Ω
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec., test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -40°C to +155°C	By type
Insulation Resistance	IEC 60115-1 4.6	in V-block for 60 Sec.	>1,000MΩ
Solderability	IEC 60115-1 4.17	245±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	≥2.5kg (24.5N)
Periodic-pulse Overload	IEC 60115-1 4.39	4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off)	±2.0%+0.05Ω
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV	±5.0%+0.05Ω
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV (or Umax., Whichever less) for 1,000 Hr. (1.5Hr.on, 0.5Hr. Off)	±5.0%+0.05Ω
Temperature Cycling	IEC 60115-1 4.19	-55°C ⇄ Room Temp. ⇄ +155°C ⇄ Room Temp. (5 cycles)	±2.0%+0.05Ω
Resistance to Soldering Heat	IEC 60115-1 4.18	260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05Ω

Note: Rated Continuous Working Voltage (RCWV) =  $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$  or Max. working voltage listed above, whichever less.

Revision: 2020

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