Cement Resistors

Axial Lead Type

Normal Style [SQP Series] Non-Inductive Style [NSP Series]

549 650 × 33 549 650 × 33 549 650 × 33

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



Unit: mm

DIMENSIONS

INTRODUCTION

The materials used and the construction

as self-extinguishing capabilities. They will

withstand the most rigorous loading test.

techniques ensure excellent flame resistance,

arc resistance and moisture resistance as well

As resistors in radio and television receivers,

redheat can be completely prevented by the

hazardous conditions such as smoking and

proper choice of power resistors.



STYLE		DIMENSI	ON		
Normal	Non-Inductive	L	W	н	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	NSPIOA	48±1.5	9.5±1.0	9.0±1.0	0.8±0.05
SQP15A	NSPI5A	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	SQPIOA	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 on Insulation	500V	700V		1,000V				2,000V		
Resistance Range (Wirewound)	0.1Ω - 36Ω	0, Ι Ω - 68Ω	0.ΙΩ - Ι30Ω	0, Ι Ω - 330Ω	0.ΙΩ - 5Ι0Ω	0.ΙΩ - 680Ω	0.15Ω - 1KΩ			
Resistance Range (Metal Oxide Film)	39Ω - ΙMΩ	75Ω - ΙΜΩ	150Ω - ΙΜΩ	360Ω - ΙMΩ	560Ω - ΙΜΩ	750Ω - ΙΜΩ	Ι.2ΚΩ - ΙΜΩ			
Operating Temp. Range	-55°C to +15	5°C								
Temperature Coefficient	±300ppm/°C									

NON-INDUCTIVE STYLE

STYLE	NSP200	NSP300	NSP500	NSP700	NSPI0A	NSP15A	NSP20A	NSP25A	NSP30A	NSP40A
Power Rating at 25°C						15W	20W	25W	30W	40W
Power Rating at 40°C	_	3W	5W	7W	10W			- <u> </u>		
Power Rating at 70°C	2W					_				
Maximum Working Voltage	√P×R	-								
Voltage Proof on Insulation	500V	700V		1,000V				2,000V		
Resistance Range (Wirewound)	0.08Ω - Ι0Ω	0.ΙΩ - 30Ω	0, Ω - 40Ω	0.15Ω - 65Ω	0.25Ω - 100Ω	0.25Ω - Ι20Ω	0.36Ω - 160Ω			
Operating Temp. Range	-55°C to +15	5°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.	±2.0%+0.05Ω
Voltage Proof on Insulation	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.	
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	≥2.5kg (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 RCVVV	±5.0%+0.05Ω
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)	±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	$260\pm3^{\circ}$ C for 10 ± 1 Sec., immersed to a point 3 ± 0.5 mm from the body	±1.0%+0.05Ω

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

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EXPLANATIONS OF ORDERING CODE

MFR	-12	F	Т	F	52-	100R
Code I - 3	Code 4 - 6	Code 7	Code 8	Code 9	Code 10 - 12	Code 13 - 17
Series Name	Power Rating	Tolerance	Packing Style	Temperature Coef-	Forming Type	Resistance Value
See Index	-05 = ød0.5mm	P = ±0.02 %	T = Tape/Box	ficient of Resistance	26- = 26mm	ORI = 0.1
	-06 = ød0.6mm	A = ±0.05 %	R = Tape/Reel	- = Base on Spec.	52- = 52.4mm	100R = 100
	-07 = ød0.7mm	B = ±0.1 %	B = Bulk	A = ±5 ppm/°C	73- = 73mm	10K = 10,000
	-08 = ød0.8mm	$C = \pm 0.25\%$		B = ±10 ppm/°C	81- = 81mm	10M = 10,000,000
	-10 = ød1.0mm	D = ±0.5 %		C = ±15 ppm/°C	91- = 91mm	
	-14 = ød1.4mm	$F = \pm 1\%$		S = ± 20ppm/°C	F = FType	
	-12 = 1/6W	G = ±2 %		D = ±25 ppm/°C	FK = FK Type	
	-25 = 1/4W	J = ±5 %		E = ±50 ppm/°C	FKK = FKK Type	
	25S = 1/4W/S	K = ±10 %		F = ±100 ppm/°C	FFK = F-form Kink	
	-50 = 1/2W	- = Base on Spec.		G = ±200 ppm/°C	M = M-Type Forming	
	50S = 1/2VVS			H = ±250 ppm/°C	MB = M-form W/flat	
	100 = 1			I = ±300 ppm/°C	MT = MT Type Forming	
	IWS = IWS			J = ±350 ppm/°C	MR = MR Type	
	200 = 2W				AV = AVIsert	
	2WS = 2WS				PN = PANAsert	
	204 = 0.4W					
	207 = 0.6W					
	300 = 3₩					
	3WS = 3WS					
	3WM = 3WM					
	400 = 4VV					
	500 = 5VV					
	5WS = 5WS					
	5SS = 5W/SS					
	700 = 7W					
	7WS = 7WS					
	10A = 10W					
	20A = 20W					
	30A = 30W					
	40A = 40W					
	50A = 50W					
	105 = 10VVS					
	15A = 15W					
	25A = 25W					
	10B = 100₩					
	25B = 250₩					

EXCEPTION:

• Cement series:

<Code 8>: Special packing style code

B: Bulk with wirewound or metal oxide sub-assembly for resistance value W: Bulk with ceramic based wirewound sub-assembly for resistance value

M: Bulk with metal oxide sub-assembly for resistance value

F: Bulk with Fiberglass based wirewound sub-assembly for resistance value

<Code 10-12>: Without forming code

Example: SQP500JB-10R

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• JPW series:

<Code 13-17>: without resistance value code

Example: JPW-06-T-52-