Innovative Service Around the Globe YAGEO

DATA SHEET

CEMENT RESISTORS

High Power, Radial Terminal

SQZ Series

NSZ Series

±1%, ±5%

5W to 20W

RoHS compliant & Halogen Free

YAGEO

Product specification – March 6, 2024 V.2

APPLICATIONS

- Power applications
- Home appliance
- Industry

FEATURES

- High power rating
- Excellent pulse load capability
- Radial terminal
- Flameproof ceramic case
- RoHS compliant and halogen free

ORDERING INFORMATION

Part number of the cement resistor is identified by the series, power rating, tolerance, packing, temperature coefficient and resistance value.

PART NUMBER

SQZ	500	J	B	-	100R
(1)	(2)	(3)	(4)	(5)	(6)

(1) SERIES NAME

SQZ Series = General purpose

NSZ Series = Non inductive

(2) POWER RATING

500 = 5W

700 = 7W

10A = 10W

15A = 15W

20A = 20W

(3) TOLERANCE

F = ±1% (Wirewound),

J = ±5%

(4) PACKAGING

B = Bulk for wirewound or metal oxide or fiberglass element
W = Bulk for wirewound element
M = Bulk for metal oxide element
F = Bulk for fiberglass element

(5) TEMPERATURE COEFFICIENT OF RESISTANCE

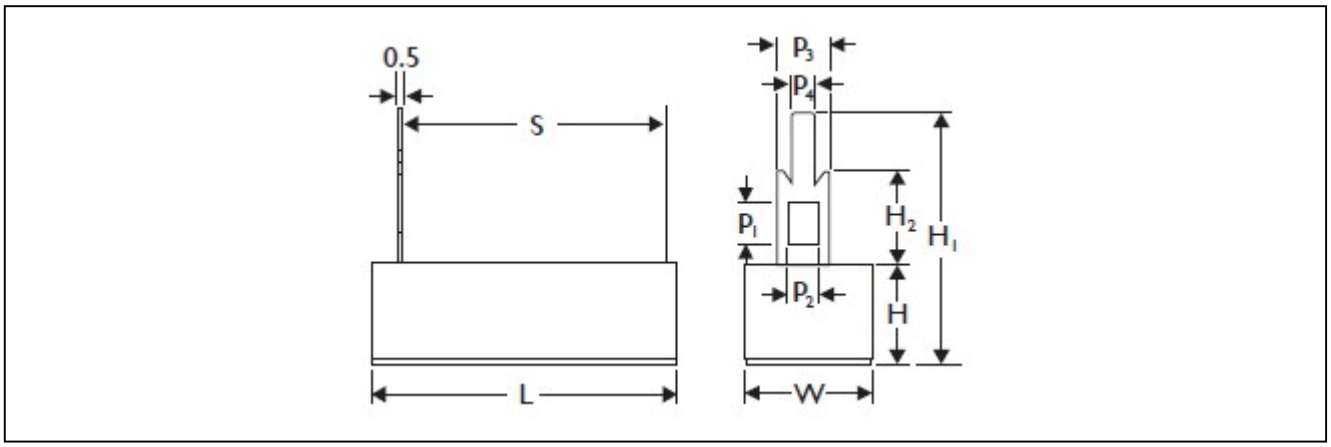
F=±100ppm/°C (Wirewound)

- = Based on spec.

(6) RESISTANCE VALUE

E24 & E96 Series
Example:
100R = 100Ω, 10K = 10,000Ω, 1M = 1,000,000Ω

DIMENSIONS

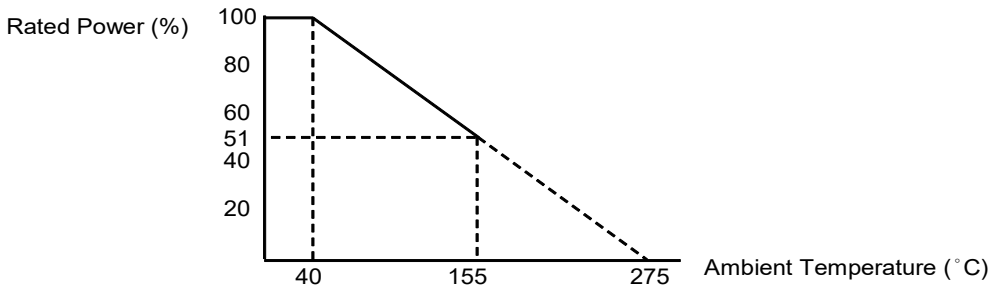


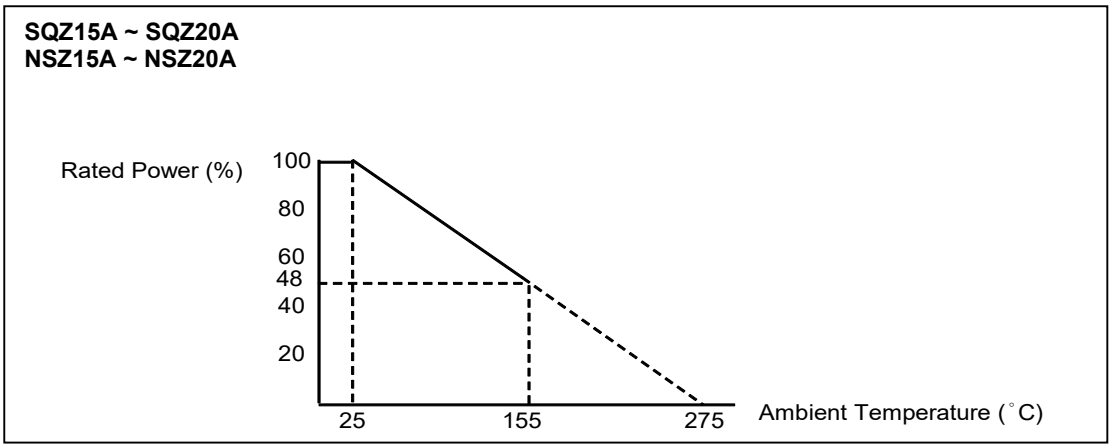
TYPE DIMENSIONS Unit: mm

Normal	Non-Inductive	L	H	W	S	H1	H2	P1	P2	P3	P4
SQZ500	NSZ500	28.0±1.5	10.0±1.0	10.0±1.0	15.0±1.5	25.0±1.5	10.0±1.0	4.0± 0.2	2.0±0.2	5.0±0.2	1.5±0.2
SQZ700	NSZ700	35.0±1.5	10.0±1.0	10.0±1.0	22.5±1.5	25.0±1.5	10.0±1.0	4.0± 0.2	2.0±0.2	5.0±0.2	1.5±0.2
SQZ10A	NSZ10A	48.0±1.5	9.5±1.0	10.0±1.0	32.0±1.5	25.0±1.5	10.5±1.0	4.0± 0.2	2.0±0.2	5.0±0.2	1.5±0.2
SQZ15A	NSZ15A	48.0±1.5	12.5±1.0	13.0±1.0	32.0±1.5	35.0±1.5	15.0±1.5	7.0± 0.2	4.0±0.2	10.0±0.5	3.0±0.2
SQZ20A	NSZ20A	63.0±1.5	12.5±1.0	12.5±1.0	42.5±1.5	35.0±1.5	15.0±1.5	7.0± 0.2	4.0±0.2	10.0± 0.5	3.0±0.2

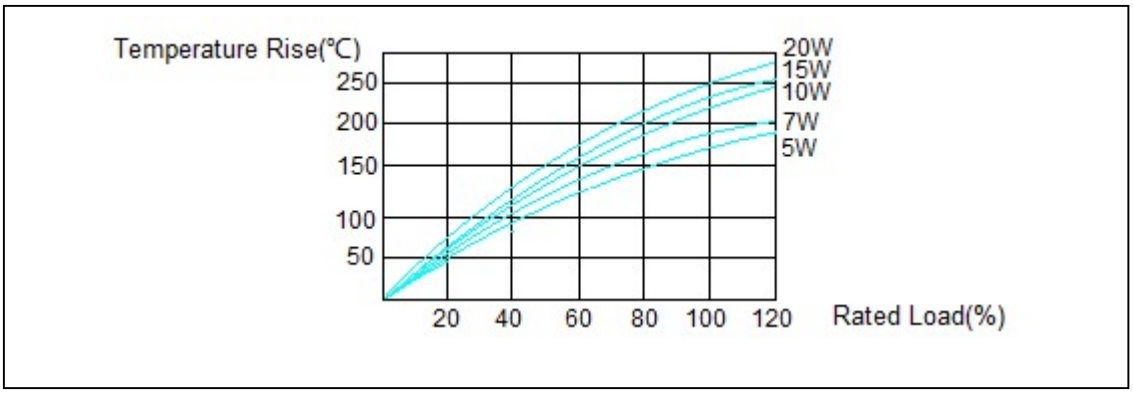
DERATING CURVE

SQZ500 ~ SQZ10A
NSZ500 ~ NSZ10A





TEMPERATURE CURVE



ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	SQZ500	SQZ700	SQZ10A	SQZ15A	SQZ20A
Power Rating at 25 °C				15W	20W
Power Rating at 40 °C	5W	7W	10W		
Maximum Working Voltage	350V	500V	500V	500V	500V
Maximum Overload Voltage	700V	1000V	1000V	1000V	1000V
Voltage Proof on Insulation	700V	1000V	1000V	1000V	1000V
Resistance Range(Wirewound)	0.36Ω ~ 200Ω	0.36Ω ~ 200Ω	0.56Ω ~ 430Ω	1Ω ~ 560Ω	1.5Ω ~ 750Ω
Resistance Range(Film)	220Ω ~ 1MΩ	300Ω ~ 1MΩ	470Ω ~ 1MΩ	750Ω ~ 1MΩ	820Ω ~ 1MΩ
Operating Temp. Range	- 55°C to +155°C				
Temperature Coefficient	Wirewound :±100ppm/°C , ±300ppm/°C, Film: ±300ppm/°C				

Note: For resistance value out of above range is by request.

CHARACTERISTICS	NSZ500	NSZ700	NSZ10A	NSZ15A	NSZ20A
Power Rating at 25 °C				15W	20W
Power Rating at 40 °C	5W	7W	10W		
Voltage Proof on Insulation	700V	1000V	1000V	1000V	1000V
Resistance Range(Wirewound)	0.1Ω ~ 10Ω	0.1Ω ~ 10Ω	0.1Ω ~ 20Ω	0.1Ω ~ 20Ω	0.1Ω ~ 30Ω
Maximum Working Voltage	√(P X R)				
Operating Temp. Range	- 55°C to +155°C				
Temperature Coefficient	±300ppm/°C				

Note: For resistance value out of above range is by request.

TEST AND REQUIRMENTS

TEST	TEST METHOD	PROCEDURE	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 -55°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
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.(1.5 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±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05Ω

Note:

RCWV (Rated Continuous Working Voltage):

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$V=\sqrt{(P \times R)}$
or max. working voltage whichever is less

Where

V=Continuous rated DC or
AC (rms) working voltage (V)

P=Rated power (W)

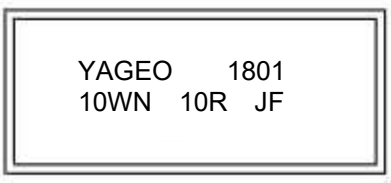
R=Resistance value (Ω)

BULK PACKING

Unit: Piece

Normal	Non-Inductive	PACKAGE	Quantity
SQZ500	NSZ500	Bulk	150
SQZ700	NSZ700	Bulk	150
SQZ10A	NSZ10A	Bulk	150
SQZ15A	NSZ15A	Bulk	50
SQZ20A	NSZ20A	Bulk	50

MARKING



Example:

YAGEO	= Brand
1801	= Date code
10W	= Power rating
N	= Non-inductive
10R	= Resistance
J	= Tolerance
F	= Fiberglass

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 2	Mar.06, 2024	-	- Add marking for NSZ series.
Version 1	Aug.31, 2023	-	- Revised LEGAL DISCLAIMER
Version 0	Aug.2, 2021	-	- First issue of this specification

LEGAL DISCLAIMER

YAGEO, its distributors and agents (collectively, “YAGEO”), hereby disclaims any and all liabilities for any errors, inaccuracies or incompleteness contained in any product related information, including but not limited to product specifications, datasheets, pictures and/or graphics. YAGEO may make changes, modifications and/or improvements to product related information at any time and without notice.

YAGEO makes no representation, warranty, and/or guarantee about the fitness of its products for any particular purpose or the continuing production of any of its products. To the maximum extent permitted by law, YAGEO disclaims (i) any and all liability arising out of the application or use of any YAGEO product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for a particular purpose, non -infringement and merchantability.

YAGEO products are designed for general purpose applications under normal operation and usage conditions. Please contact YAGEO for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property: Aerospace equipment (artificial satellite, rocket, etc.), Atomic energy-related equipment, Aviation equipment, Disaster prevention equipment, crime prevention equipment, Electric heating apparatus, burning equipment, Highly public information network equipment, data-processing equipment , Medical devices, Military equipment, Power generation control equipment, Safety equipment, Traffic signal equipment, Transportation equipment and Undersea equipment, or for any other application or use in which the failure of YAGEO products could result in personal injury or death, or serious property damage. Particularly **YAGEO Corporation and its affiliates do not recommend the use of commercial or automotive grade products for high reliability applications or manned space flight.**

Information provided here is intended to indicate product specifications only. YAGEO reserves all the rights for revising this content without further notification, as long as products are unchanged. Any product change will be announced by PCN.