

DATA SHEET

CEMENT RESISTORS

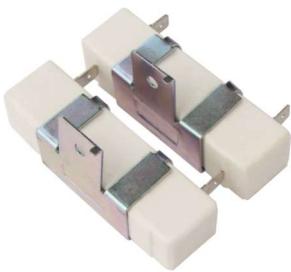
Power, AMP Contacts
SQG Series
 $\pm 1\%$, $\pm 2\%$, $\pm 5\%$
10W to 50W
RoHS compliant & Halogen Free



YAGEO

Product specification – September 28, 2023 V.4





APPLICATIONS

- BMS (Hybrid, EV)
- Brake resistor
- Capacitor discharge
- Power supplies
- Converters
- Welding equipment

FEATURES

- Mounting Bracket for chassis mounting
- AMP connection for quick connection
- Excellent surge withstanding capability
- Reduced size
- Good heat dissipation
- AEC-Q200 qualified
- RoHS compliant & halogen-free

ORDERING INFORMATION

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

PART NUMBER

SQG (1)	50Z (2)	J (3)	B (4)	- (5)	EAU (6)	51R (7)	NE (8)
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(1) SERIES NAME

SQG Series

(2) POWER RATING

10Z = 10W	30Z = 30W
15Z = 15W	40Z = 40W
20Z = 20W	50Z = 50W
25Z = 25W	

(3) TOLERANCE

F = $\pm 1\%$	J = $\pm 5\%$
G = $\pm 2\%$	

(4) PACKAGING

B = Bulk

(5) TEMPERATURE COEFFICIENT OF RESISTANCE

- = Based on spec.

(6) TYPE

Optional code, represents specific requirement.

EAU = w/o cradle, $0.8 \pm 0.1\text{mm}$ thickness of electrode pole
 EAV = w/ cradle, $0.8 \pm 0.1\text{mm}$ thickness of electrode pole
 EAW = w/o cradle, $0.65 \pm 0.1\text{mm}$ thickness of electrode pole
 EAX = w/ cradle, $0.65 \pm 0.1\text{mm}$ thickness of electrode pole

(7) RESISTANCE VALUE

E24 & E96 Series

Example:

100R = 100Ω , 10K = $10,000\Omega$

(8) SUFFIX

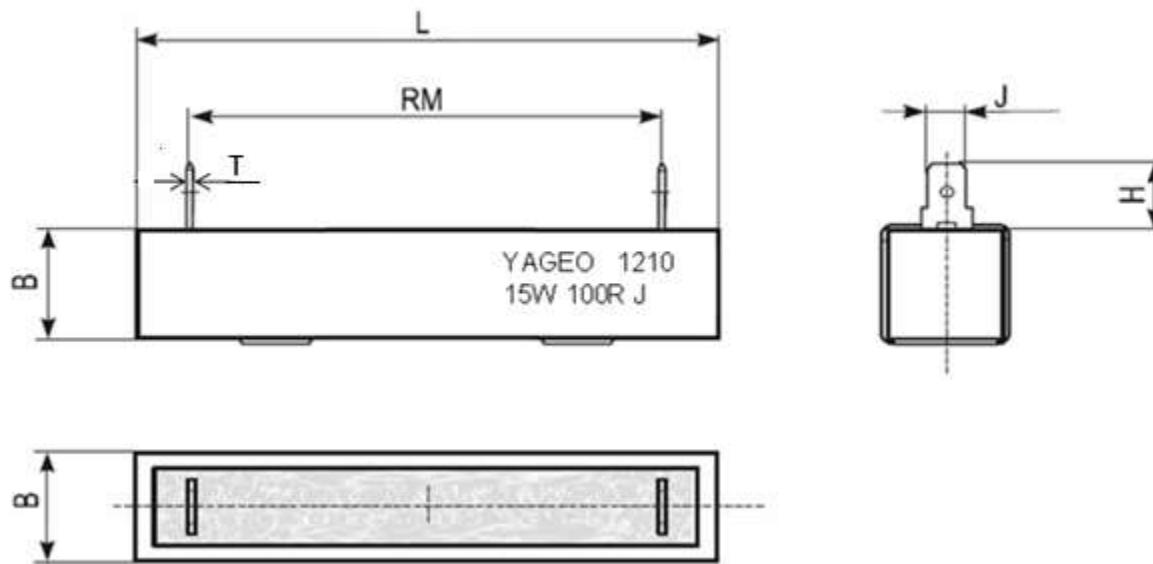
Optional code, represents specific characteristics requirement.

Example : NH, NG, ND, NS, NM, CR, NL, NJ and etc.

Null=Standard Type

DIMENSIONS

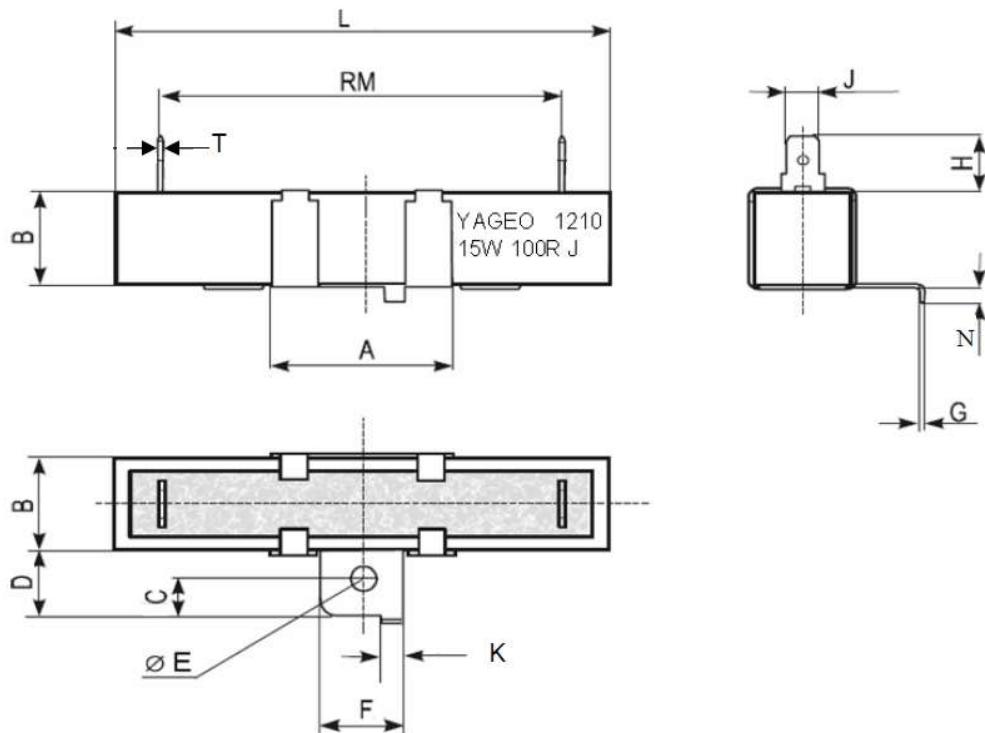
EAU & EAW Types:



Unit: mm

Normal	L	RM	B	H	J	T
SQG10Z	48±1.5	35.5±1.5	9.5±1	9±3	4.8±0.5	
SQG15Z	48±1.5	34.0±1.5	13±1	9±3	4.8±0.5	
SQG20Z	63±1.5	48.0±1.5	13±1	9±3	4.8±0.5	
SQG25Z	75±1.5	36.2±1.0	19±1	12±3	6.4±0.5	0.65±0.1(EAW Type) 0.80±0.1(EAU Type)
SQG30Z	75±1.5	56.0±1.5	19±1	12±3	6.4±0.5	
SQG40Z	90±1.5	70.0+1.5/-3	19±1	12±3	6.4±0.5	
SQG50Z	90±1.5	70.0+1.5/-3	19±1.5	12±3	6.4±0.5	

EAV & EAX Types:

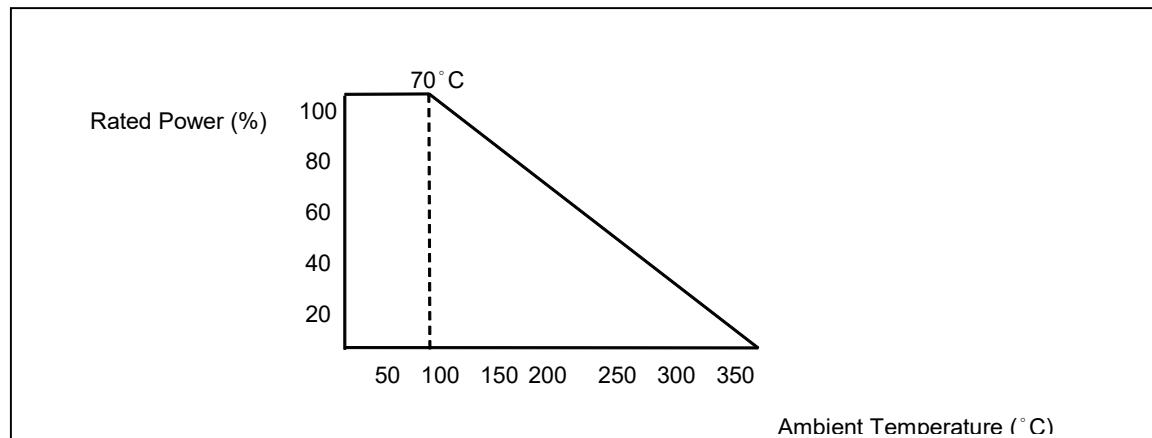
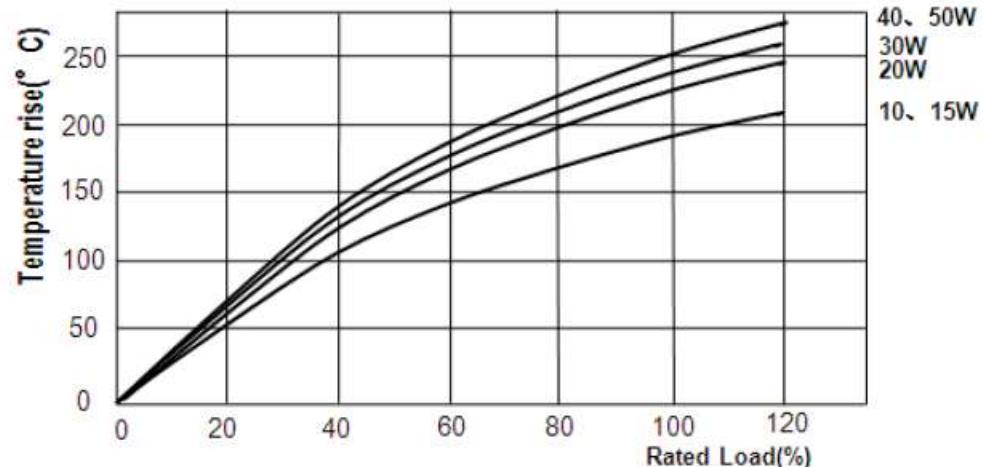


Unit: mm

Normal	L	RM	B	H	J	T
SQG10Z	48±1.5	35.5±1.5	9.5±1	9±3	4.8±0.5	
SQG15Z	48±1.5	34.0±1.5	13±1	9±3	4.8±0.5	
SQG20Z	63±1.5	48.0±1.5	13±1	9±3	4.8±0.5	
SQG25Z	75±1.5	36.2±1.0	19±1	12±3	6.4±0.5	0.65±0.1(EAX Type) 0.80±0.1(EAV Type)
SQG30Z	75±1.5	56.0±1.5	19±1	12±3	6.4±0.5	
SQG40Z	90±1.5	70.0±1.5/-3	19±1	12±3	6.4±0.5	
SQG50Z	90±1.5	70.0±1.5/-3	19±1.5	12±3	6.4±0.5	

Unit: mm

Normal	G	A	C	D	E	F	K	N
SQG10Z	0.6±0.3	24±1	6±1	13±2.2	4±0.2	11.5 ±1	3±0.3	2.6±0.6
SQG15Z	0.7±0.4	24±1	6±1	13±2.0	4±0.2	12±0.5	2.8±0.5	2.7±0.4
SQG20Z	0.7±0.4	24±1	6±1	13±2.0	4±0.2	12 ±0.5	2.8±0.5	2.7±0.4
SQG25Z	0.8±0.3	40±1	8±1	18±2.0	4.2±0.2	17.5 ±1	2.8±0.5	3.5±1.2
SQG30Z	0.8±0.3	40±1	8±1	18±2.0	4.2±0.2	17.5 ±1	2.8±0.5	3.5±1.2
SQG40Z	0.8±0.3	40±1	8±1	18±2.0	4.2±0.2	17.5 ±1	2.8±0.5	3.5±1.2
SQG50Z	0.8±0.3	40±1	8±1	18±2.0	4.2±0.2	17.5 ±1	2.8±0.5	3.5±1.2

DERATING CURVETEMPERATURE RISE CURVEELECTRICAL CHARACTERISTICS

CHARACTERISTICS	SQG10Z	SQG15Z	SQG20Z	SQG25Z	SQG30Z	SQG40Z	SQG50Z
Power Rating at 70 °C	10W	15W	20W	25W	30W	40W	50W
Resistance Range	0.39Ω~1.5KΩ	0.51Ω~5.6KΩ	0.51Ω~10KΩ	0.51Ω~5.6KΩ	0.62Ω~10KΩ	0.62Ω~10KΩ	0.62Ω~10KΩ
Voltage Proof on Insulation	1000V	2000V	2000V	2000V	2000V	2000V	2000V
Maximum Working Voltage	$\sqrt{(P \times R)}$						
Operating Temp. Range	- 55°C to +350°C						
Temperature Coefficient	±250ppm/°C						

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

TEST AND REQUIREMENTS

TEST	TEST METHOD	PROCEDURE	APPRAISE
Short Time Overload	IEC 60115-1 4.13	3.5 times RCWV for 5 sec.(Not more than maximum overload voltage)	$\pm 5.0\% + 0.05\Omega$
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.	$> 1000M\Omega$
Solderability	IEC 60115-1 4.17	$245 \pm 5^\circ\text{C}$ for 3 ± 0.5 Sec.	90% Min. coverage
Robustness of Terminations	IEC 60115-1 4.16	Direct load for 10 Sec. in the direction of the terminal leads	$\geq 2.5\text{Kg}(24.5\text{N})$
Periodic-pulse Overload	IEC 60115-1 4.39	4 times RCWV (Not more than maximum overload voltage) 10,000 cycles (1 Sec. on, 25 Sec.off)	$\pm 5.0\% + 0.05\Omega$
Damp Heat Steady State	IEC 60115-1 4.24	$40 \pm 2^\circ\text{C}$, 90-95% RH, at RCWV 1.5 Hr.on, 0.5 Hr. off for 1000H	$\pm 5.0\% + 0.05\Omega$
Endurance at 70°C	IEC 60115-1 4.25	$70 \pm 2^\circ\text{C}$ at RCWV (or $U_{max.}$, whichever less) 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	$-55^\circ\text{C} \rightarrow$ Room Temp. $\rightarrow +155^\circ\text{C}$ \rightarrow Room Temp. (5 cycles)	$\pm 2.0\% + 0.05\Omega$
Resistance to Soldering Heat	IEC 60115-1 4.18	$260 \pm 3^\circ\text{C}$ for 10 ± 1 Sec., immersed to a point $3 \pm 0.5\text{mm}$ from the body	$\pm 1.0\% + 0.05\Omega$

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

EAV & EAX Types

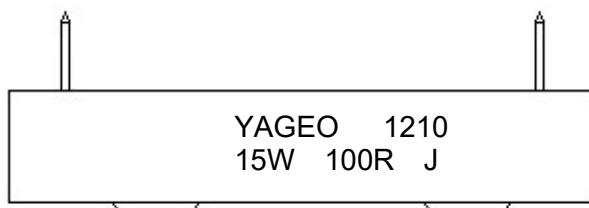
Unit: Piece

Normal	PACKAGE	Quantity
SQG10Z	Bulk	70
SQG15Z	Bulk	70
SQG20Z	Bulk	60
SQG25Z	Bulk	14
SQG30Z	Bulk	14
SQG40Z	Bulk	14
SQG50Z	Bulk	14

EAU & EAW Types

Unit: Piece

Normal	PACKAGE	Quantity
SQG25Z	Bulk	50
SQG30Z	Bulk	50
SQG40Z	Bulk	50
SQG50Z	Bulk	50

MARKING**Example:**

YAGEO	= Brand
1210	= Date code
15W	= Power rating
100R	= Resistance
J	= Tolerance

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 4	Sep.28, 2023	-	- Update the number of packages for EAU & EAW Types
Version 3	Sep.6, 2023	-	- Updated legal disclaimer and footer versions numbers
Version 2	Jul.27, 2023	-	- Updated L dimension tolerances for SQG40Z&50Z series
Version 1	Nov.23, 2021	-	- Add temperature rise curve
Version 0	Aug.4, 2021	-	- First issue of this specification

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