

# DATA SHEET

## CEMENT RESISTORS

Power, AMP Contacts

SQG Series

$\pm 1\%$ ,  $\pm 2\%$ ,  $\pm 5\%$

10W to 50W

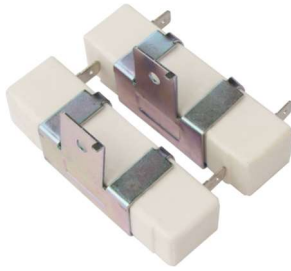
RoHS compliant & Halogen Free



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

**(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 = ±1%	J = ±5%
G = ±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±0.1mm thickness of electrode pole  
 EAV = w/ cradle, 0.8±0.1mm thickness of electrode pole  
 EAW = w/o cradle, 0.65±0.1mm thickness of electrode pole  
 EAX = w/ cradle, 0.65±0.1mm thickness of electrode pole

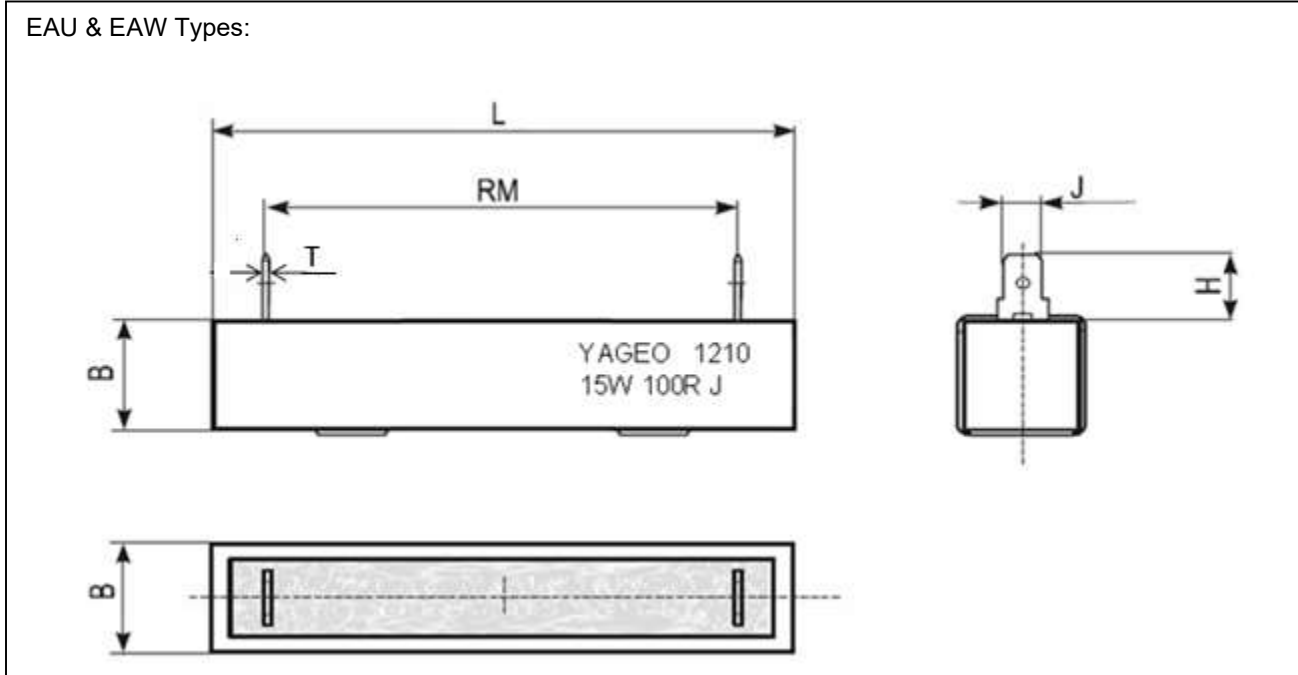
**(7) RESISTANCE VALUE**

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

**(8) SUFFIX**

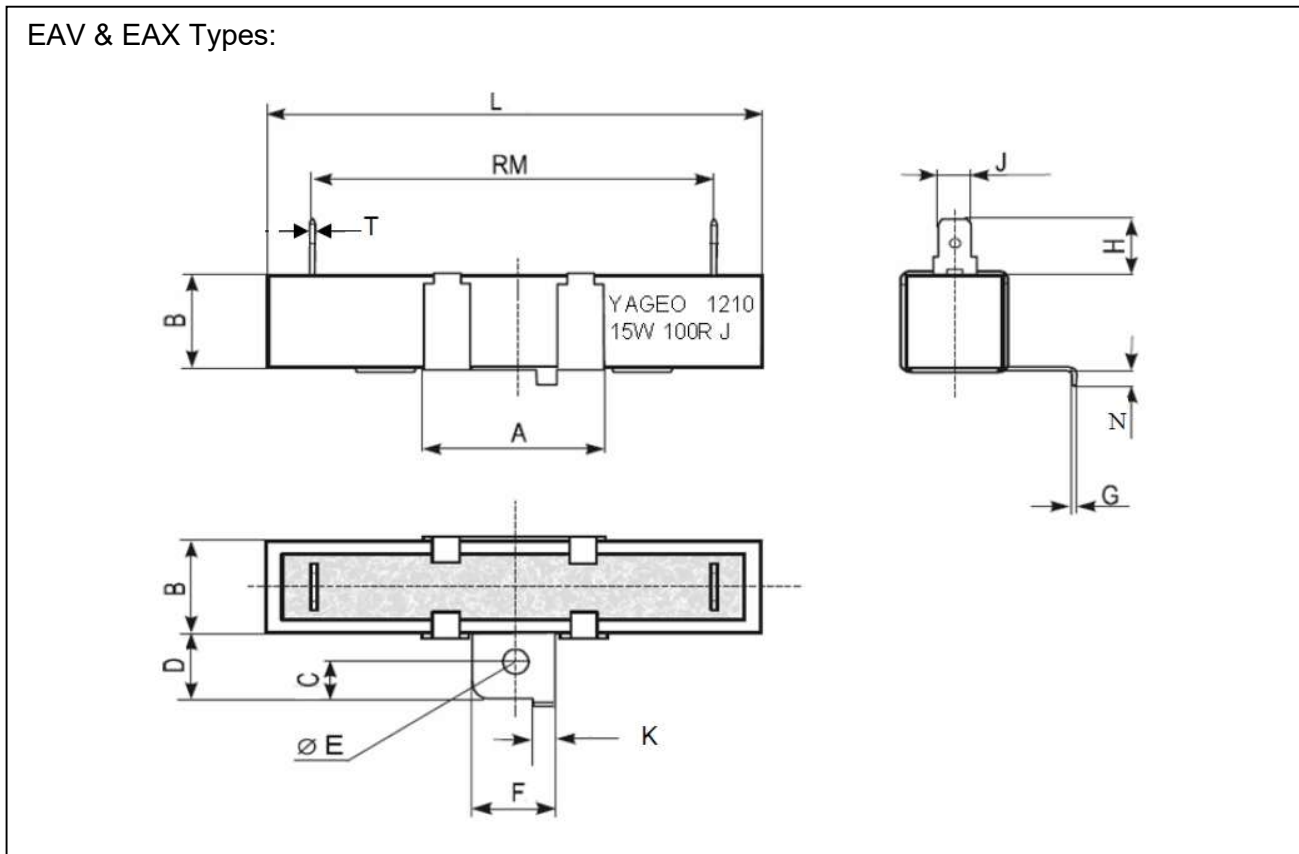
Optional code, represents specific characteristics requirement.  
 Example : NH, NG, ND, NS, NM, CR, NL, NJ and etc.  
 Null=Standard Type

**DIMENSIONS**



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	



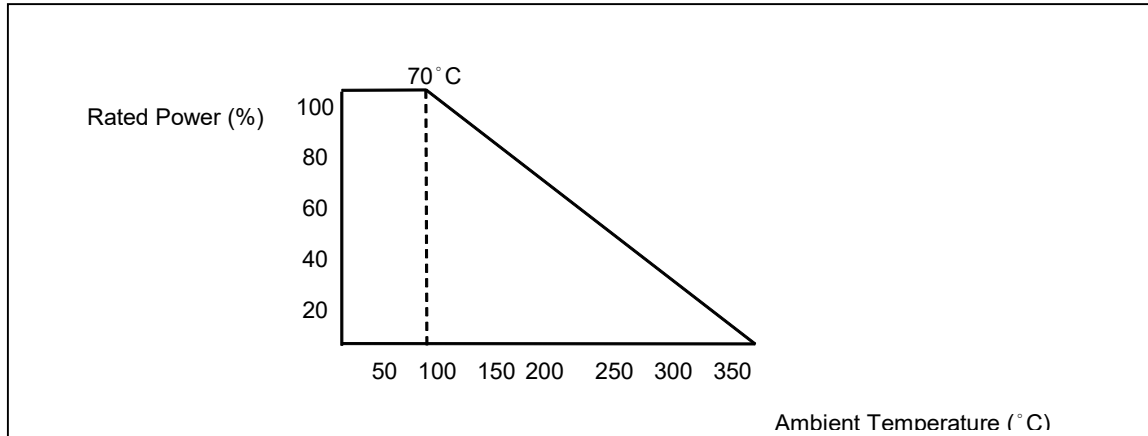
Unit: mm

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	

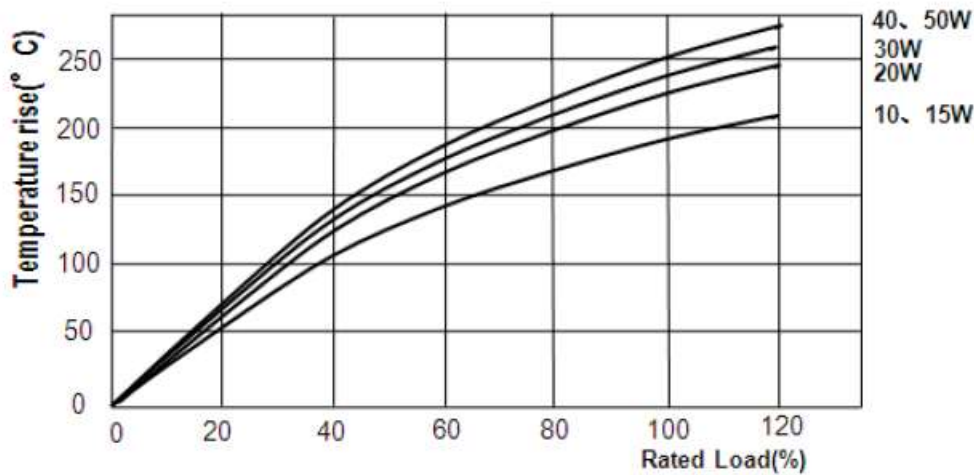
Unit: mm

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 CURVE**



**TEMPERATURE RISE CURVE**



**ELECTRICAL 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)	±5.0%+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.	>1000MΩ
Solderability	IEC 60115-1 4.17	245±5°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	≥2.5Kg(24.5N)
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)	±5.0%+0.05Ω
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C,90-95% RH, at RCWV 1.5 Hr.on,0.5 Hr. off for 1000H	±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**

EAV & EAX Types

Unit: Piece

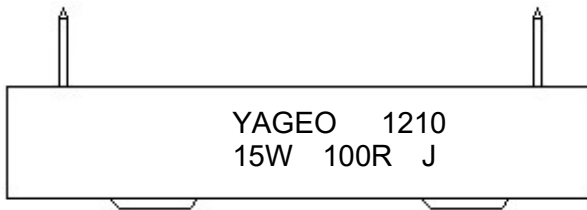
Normal	PACKAGE	Quantity
SQG10Z	Bulk	70
SQG15Z	Bulk	70
SQG20Z	Bulk	60
SQG25Z	Bulk	14
SQG30Z	Bulk	14
SQG40Z	Bulk	14
SQG50Z	Bulk	14

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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