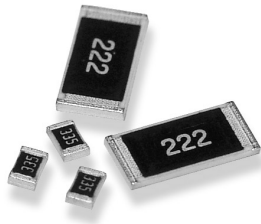


Thick Film Chip Resistors

Type CRG Series

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Precious metal terminations are screen printed onto a ceramic base and fired. The resistive element is screen printed and fired and the passivation layer added. Each resistor is trimmed to tolerance by laser. The pre-scribed tile is broken into strips, the end plating is fired on and the strips broken into individual components. Final termination is made by electroplating.

Key Features

- Thick film resistors with a high power to size ratio, ideally suited to industrial and general purpose use. A range from 1 ohm to 10M and tolerances of 1% and 5%. Also including zero ohm links.
- Suitable for most applications, including high frequency operation, owing to the short lead structure and low capacitance.
- Six Package Sizes

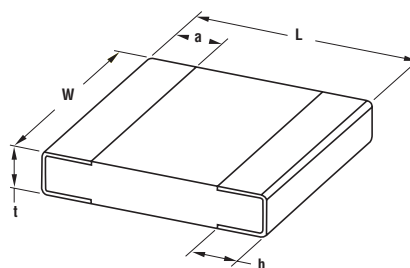
Characteristics - Electrical

	0402			0603				0805			
Rated Power @ 70 °C (W)	0.063			0.1				0.125			
Resistance Range (Ohms) Min	10	1	11	10	101	1	11	10	101	1	11
Max	1M0	10	3M3	100	1M0	10	10M	100	1M0	10	10M
Tolerance (%)	1	5	5	1	1	5	5	1	1	5	5
Code letter	F	J	J	F	F	J	J	F	F	J	J
Selection Series	E24	E24	E24	E24	E24 E96	E24	E24	E24	E24	E24 E96	E24
Temperature Coefficient (ppm/°C)	±100	±400	±200	±200	±100	±400	±200	±200	±100	±400	±200

	1206				2010				2512			
Rated Power @ 70 °C (W)	0.25				0.5				1			
Resistance Range (Ohms) Min	10	101	1	11	10	101	1	11	10	101	1	11
Max	100	1M0	10	10M	100	1M0	10	10M	100	1M0	10	10M
Tolerance (%)	1	1	5	5	1	1	5	5	1	1	5	5
Code letter	F	F	J	J	F	F	J	J	F	F	J	J
Selection Series	E24	E24 E96	E24	E24	E24	E24 E96	E24	E24	E24	E24 E96	E24	
Temperature Coefficient (ppm/°C)	±200	±100	±400	±200	±200	±100	±400	±200	±200	±100	±400	±200

	0402	0603	0805	1206	2010	2512
Working Voltage (V)	50	50	150	200	200	200
Maximum Overload Voltage (V)	50	100	300	400	400	400
Operating Temperature Range (°C)	-55 to +125					
Climatic Category (°C)	55/125/56					
Insulation Resistance Dry Min (Mohms)	1000					
Stability (%)	3					
Surface Temp. Rise (°C/W) Max	480	300	280	190	100	65
Zerohm (A) Current Max	1	1	2	2	2	2
Resistance Max	<20 mohm					

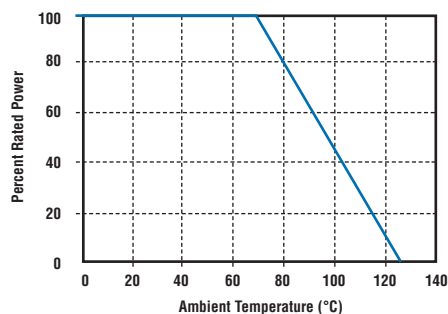
Dimensions



Style	L	W	t	a	b
0402	1.0 ±0.1	0.5 ±0.05	0.35 ±0.05	0.2 ±0.1	0.25 ±0.1
0603	1.6 ±0.1	0.8 ±0.15	0.45 ±0.1	0.3 ±0.2	0.3 ±0.1
0805	2.0 ±0.15	1.25 ±0.15	0.55 ±0.1	0.4 ±0.2	0.4 ±0.2
1206	3.1 ±0.15	1.55 ±0.15	0.55 ±0.1	0.45 ±0.2	0.45 ±0.2
2010	5.0 ±0.1	2.5 ±0.15	0.55 ±0.1	0.6 ±0.25	0.5 ±0.2
2512	6.35 ±0.1	3.2 ±0.15	0.55 ±0.1	0.6 ±0.25	0.5 ±0.2

Type CRG Series

Derating Curve



Mounting

The resistors are suitable for processing on automatic insertion equipment.

Marking

CRG0805, CRG1206, CRG2010, CRG2512

E24 series resistors are marked with a three digit code.
E96 series resistors are marked with a four digit code.
Zerohm components are marked '0'.

CRG0603

E24 5% series are marked with a three digit code.
E24 1% series are marked with a three digit code.
E96 series are marked with the international alphanumeric three character code (available on request).
EXCEPT 10, 11, 13, 15, 20 & 75 decades which are marked as the E24 series.

CRG0402 series unmarked.

Performance Characteristics

The evaluation of the performance characteristics is carried out with reference to IECQ specifications QC 400 000 and QC 400 100.

TEST REF	Long Term Tests $\pm(3\% + 0.1 \text{ ohm})$
4.23	Climatic sequence
4.24	Damp heat, steady state
4.25.1	Endurance at 70 °C
4.25.3	Endurance at 125 °C
TEST REF	Short Term Tests $\pm(1\% + 0.05 \text{ ohm})$
4.13	Overload
4.32	Adhesion
4.33	Bond strength of end face plating
4.19	Rapid change of temperature
4.18	Resistance to soldering heat

Storage

Unopened reels should be stored within a temperature range of +5 °C to +25 °C, separated from any dust, chemicals and solvent based materials. Non-adherence to this procedure could effect the solderability of this product.

How to Order

CRG	0603	J	1K0
Common Part	Size	Tolerance	Resistance Value
CRG - Thick Film Chip Resistor	0402 0603 0805 1206 2512	F - $\pm 1\%$ J - $\pm 5\%$	1 ohm (1 ohm) 1R0 1K ohm (1000 ohms) 1K 100K ohm (100000 ohms) 100K 1M ohm (1000000 ohms) 1M