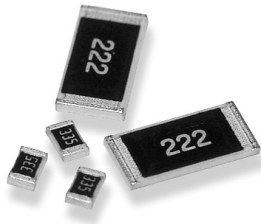


## Thick Film Chip Resistors

### Type CRG Series

#### Type CRG Series



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

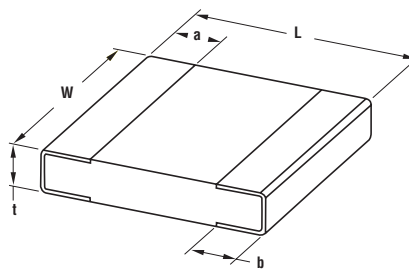
#### Characteristics - Electrical

	0402			0603				0805			
Rated Power @ 70 °C (W)	0.063			0.1				0.125			
Resistance Range (Ohms) Min	100	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 E96	E24	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	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	400					
Zerohm (A) Current Max	1	1	2	2	2	2
Resistance Max	<20 mohm					

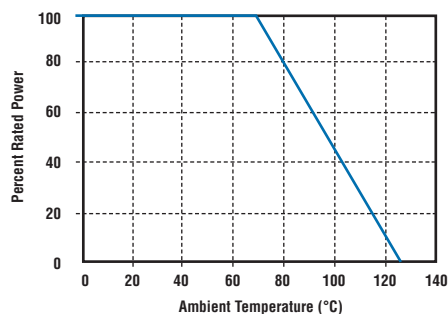
#### Dimensions



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
<b>Common Part</b>	<b>Size</b>	<b>Tolerance</b>	<b>Resistance Value</b>
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

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