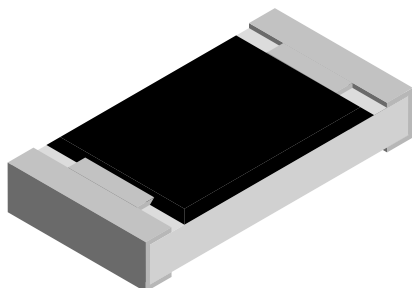




# Thick Film Resistor/Capacitor Chip, Surface Mount



## FEATURES

- Single component reduces board space and component counts
- X7R dielectric characteristic
- Wrap around termination
- Thick film resistor/capacitor element
- Inner electrode protection
- Flow and reflow solderable
- Automatic placement capability, standard size
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE INCH	SIZE METRIC	RESISTOR CHARACTERISTICS				CAPACITOR CHARACTERISTICS				
			POWER RATING $P_{70^{\circ}\text{C}}$ W	TEMP. COEFF. $\pm$ ppm/ $^{\circ}\text{C}$	RESISTANCE TOLERANCE $\pm$ %	RESISTANCE RANGE $\Omega$	DIELECTRIC	TEMPERATURE COEFFICIENT %	CAP. TOL. $\pm$ %	CAP. VOLTAGE $V_{\text{DC}}$	CAP. RANGE
CRCC1206	1206	3216	0.125	200	5	10 to 1M	X7R	$\pm 15$	20	50	10 pF to 270 pF

### Notes

#### RESISTOR

- Operating temperature range:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Technology: Thick film
- Packaging: See appropriate catalog or web page.
- Power rating depends on the maximum temperature at the solder point, the component placement density and the substrate material.

#### CAPACITOR

- Operating temperature range: X7R  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$
- Maximum dissipation factor: 2.5 %

## TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR	X7R CAPACITOR
Rated dissipation at $70^{\circ}\text{C}$	W	0.125	-
Capacitor voltage rating	V	-	50
Dielectric withstanding voltage (5 s, 50 mA charge)	$V_{\text{DC}}$	-	125
Category temperature range	$^{\circ}\text{C}$	$-55 / +125$	$-55 / +125$
Insulation resistance	$\Omega$	$> 10^{10}$	$> 10^{10}$
Weight/1000 pieces	g	0.65	2

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CRCC1206472J220MTF (preferred part numbering format)

C R C C 1 2 0 6 4 7 2 J 2 2 0 M T F

GLOBAL MODEL	RESISTANCE VALUE	RES. TOLERANCE	CAPACITANCE VALUE (pF)	CAP. TOLERANCE	PACKAGING
CRCC1206	2 digit significant figure, followed by a multiplier 100 = 10 $\Omega$ 683 = 68 k $\Omega$ 105 = 1.0 M $\Omega$	F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$	2 digit significant figure, followed by a multiplier 100 = 10 pF 560 = 56 pF 271 = 270 pF	K = $\pm 10\%$ M = $\pm 20\%$	EA = Lead (Pb)-free, T/R (4000 pieces) TF = Tin/Lead, T/R (4000 pieces)

Historical Part Number Example: CRCC1206472J220MR02 (will continue to be accepted)

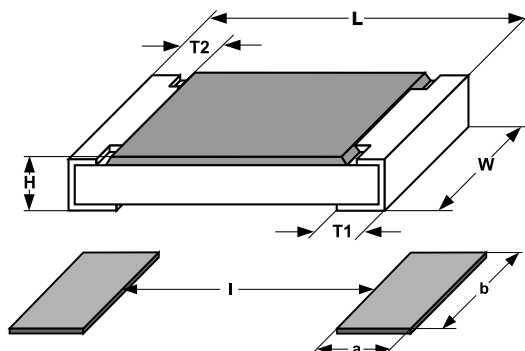
CRCC1206	472	J	220	M	R02
MODEL	RESISTANCE VALUE	RES. TOLERANCE	CAPACITANCE VALUE	CAP. TOLERANCE	PACKAGING

### Note

- For additional information on packaging, refer to the Surface Mount Network Packaging document ([www.vishay.com/doc?31540](http://www.vishay.com/doc?31540)).



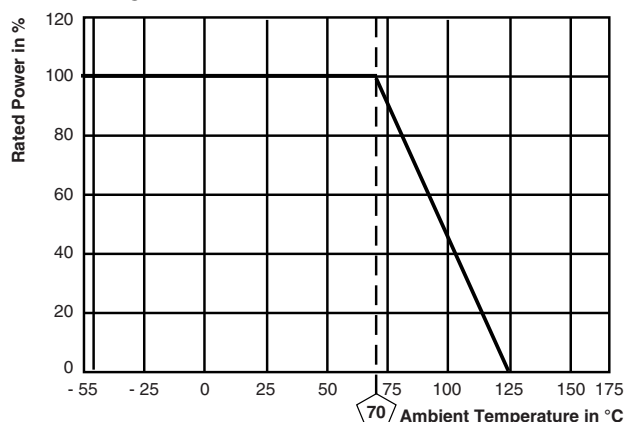
**DIMENSIONS**



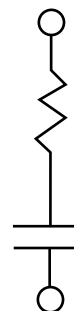
SIZE		DIMENSIONS in millimeters				
INCH	METRIC	L	W	H	T1	T2
1206	3216	3.2 ± 0.15	1.6 ± 0.15	0.55 ± 0.15	0.5 ± 0.25	0.5 ± 0.25

SIZE		SOLDER PAD DIMENSIONS in millimeters					
		REFLOW SOLDERING			WAVE SOLDERING		
INCH	METRIC	a	b	l	a	b	l
1206	3216	0.9	1.7	2.0	1.1	1.7	2.2

**DERATING**



**SCHEMATIC**



PERFORMANCE			
TEST	CONDITIONS OF TEST	TEST RESULTS (TYPICAL TEST LOTS)	
		R	C
Endurance test at 70 °C MIL-Std-202 method 108	1000 h at 70 °C, 1.5 h "ON", 0.5 h "OFF"	± (5 % + 2 Ω)	± 20 %
Dielectric withstanding voltage MIL-Std-202 method 301	125 V <sub>DC</sub> , 5 s, 50 mA charge	No physical damage	
Thermal shock MIL-Std-202 method 107	100 cycles, -55 °C to +125 °C	± (5 % + 2 Ω)	± 20 %
Moisture MIL-Std-202 method 106	Omit steps 7A and B	± (5 % + 2 Ω)	± 20 %
Resistance to soldering heat EIA 575	10 s at 260 °C solder bath temperature	± (5 % + 2 Ω)	± 20 %
High temperature exposure EIA 575	125 °C for 100 h	± (5 % + 2 Ω)	± 20 %
Low temperature operation EIA 575	1 h at -55 °C then 45 min at 50 V	± (5 % + 2 Ω)	± 20 %
Solderability and leaching EIA 575 3.12	Condition C	95 % coverage	

APPLICABLE SPECIFICATIONS
<ul style="list-style-type: none"> <li>• IPC standards</li> <li>• EIA 575</li> </ul>



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