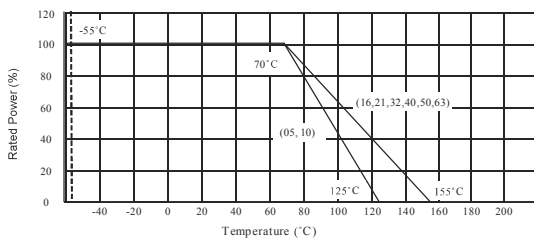
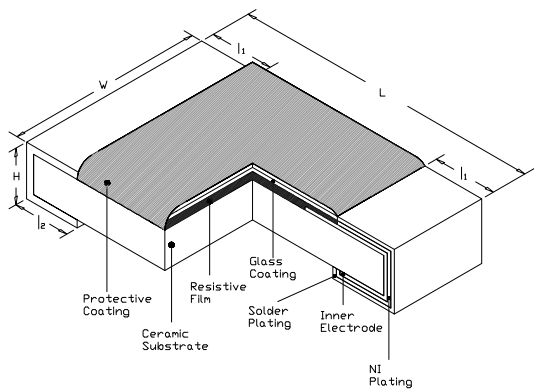


Features

- Highly reliable multi-layer electrode construction.
- Compatible with wave and reflow soldering process.
- Pb Free with Reflow soldering backward compatibility

Dimensions and Construction



Type	Dimensions				
	Inches (Millimeters)				
	L	W	H	l ₁	l ₂
CR05 0201 (0603)	0.024±0.001 (0.60±0.03)	0.012±0.001 (0.30±0.03)	0.009±0.001 (0.23±0.003)	0.005±0.002 (0.13±0.05)	0.006±0.002 (0.15±0.05)
CR10 0402 (1005)	0.040±0.004 (1.00±0.10)	0.020±0.002 (0.50±0.05)	0.014±0.002 (0.35±0.05)	0.008±0.004 (0.20±0.10)	0.010±0.004 (0.25±0.10)
CR16 0603 (1608)	0.063±0.004 (1.60±0.10)	0.031±0.004 (0.80±0.10)	0.018±0.004 (0.45±0.10)	0.012±0.008 (0.30±0.20)	0.012±0.008 (0.30±0.20)
CR21 0805 (2012)	0.079±0.006 (2.00±0.15)	0.049±0.004 (1.25±0.10)	0.020±0.004 (0.50±0.10)	0.016±0.008 (0.40±0.20)	0.016±0.008 (0.40±0.20)
CR32 1206 (3216)	0.122±0.004 (3.10±0.10)	0.063±0.006 (1.60±0.15)	0.022±0.002 (0.55±0.05)	0.020±0.010 (0.50±0.25)	0.020±0.010 (0.50±0.25)
CR40 1210 (3225)	0.122±0.004 (3.10±0.10)	0.098±0.006 (2.50±0.15)	0.022±0.002 (0.55±0.05)	0.020±0.010 (0.50±0.25)	0.016±0.008 (0.40±0.20)
CR50 2010 (5025)	0.200±0.006 (5.00±0.15)	0.098±0.006 (2.50±0.15)	0.022±0.002 (0.55±0.05)	0.024±0.010 (0.60±0.25)	0.016±0.008 (0.40±0.20)
CR63 2512 (6432)	0.250±0.006 (6.30±0.15)	0.126±0.006 (3.20±0.15)	0.022±0.002 (0.55±0.05)	0.024±0.010 (0.60±0.25)	0.016±0.008 (0.40±0.20)

Ordering Code / Information

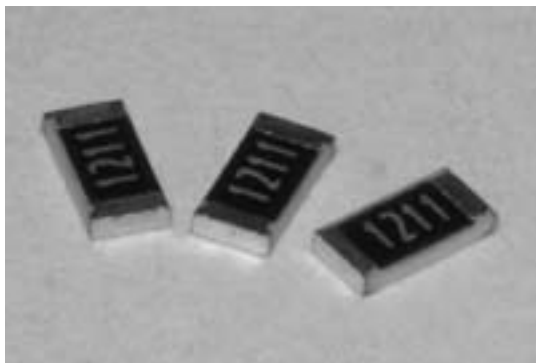
CR	10	-	XXXX	-	F	K	-	E
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Type	Size (Inch / mm)	Nominal Resistance		Resistance Tolerance	Packaging	T.C.R (ppm/°C)	
General Purpose Thick Film Chip Resistors	05 (0201/0603) 10 (0402/1005) 16 (0603/1608) 21 (0805/2012) 32 (1206/3216) 40 (1210/3225) 50 (2010/5025) 63 (2512/6432)	Resistors	3-Digit	E24 Series 2.2Ω=2R2 100Ω=101	F = ± 1% G = ± 2% J = ± 5% Z = Zero ohm	E = 4,000 pcs Lead Free L = 5,000 pcs Lead Free K = 10,000 pcs Lead Free Y = 20,000 pcs Lead Free	E = ±50 (Leave Blank for Standard)
			4-Digit	E96 Series 10.2Ω=10R2 10KΩ=1002			
		Jumper	000 - 5% 0000 - 1%				

Application and Ratings

Product Type	Power Rating @ 70°C	T.C.R (ppm/°C) Max	Resistance Range E-96, E-24 F(±1%)	Resistance Range E-24 G(±2%), J(±5%)	Jumper Rated Current	Jumper Resistance Value	Max Working Voltage	Max Overload Voltage	Operating Temperature Range
CR05 0201 (0603)	1/20W	-100 to +600	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$	0.5A		15V	50V	-55°C to +125°C
		±250	$10\Omega \leq R \leq 1M\Omega$	$10\Omega \leq R \leq 1M\Omega$					
CR10 0402 (1005)	1/16W	±50	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$	1A		50V	100V	
		±100	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±200	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$					
CR16 0603 (1608)	1/10W	±50	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±100	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±200	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$					
			$1M\Omega \leq R \leq 10M\Omega$	$1M\Omega \leq R \leq 10M\Omega$					
CR21 0805 (2012)	1/8W	±50	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$			150V	300V	
		±100	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±200	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$					
CR32 1206 (3216)	1/4W	±50	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$	2A	< 0.05Ω for 5% < 0.02Ω for 1%			
		±100	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±200	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$					
			$1M\Omega \leq R \leq 10M\Omega$	$1M\Omega \leq R \leq 10M\Omega$					
CR40 1210 (3225)	1/3W	±50	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$			200V	400V	
		±100	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±200	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$					
CR50 2010 (5025)	3/4W	±50	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±100	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±200	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$					
			$1M\Omega \leq R \leq 10M\Omega$	$1M\Omega \leq R \leq 10M\Omega$					
CR63 2512 (6432)	1W	±50	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$	3A				
		±100	$10\Omega \leq R < 1M\Omega$	$10\Omega \leq R < 1M\Omega$					
		±200	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$					
			$1M\Omega \leq R \leq 10M\Omega$	$1M\Omega \leq R \leq 10M\Omega$					

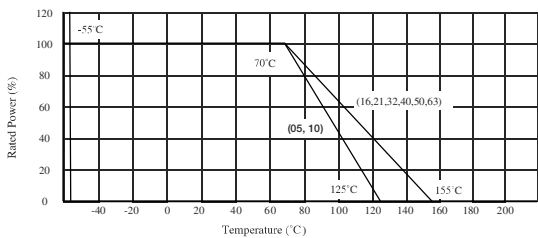
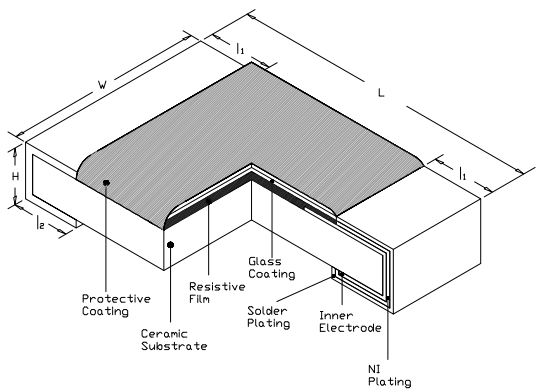
Test	Specification		Test Method
Resistance Value	Within Resistors specification		To be measure at 25°C
Resistance Temperature Coefficient	Within Specification of TCR		25°C/ +125°C
Short Time Overload	±0.5%	For 1% tolerance	Apply 2.5 times of rated voltage or maximum overload voltage for 5 secs which is lower
	±1.0%	For 2% & 5% tolerance	
Resistance to Soldering Heat	±(0.5% + 0.05Ω)	For 1% tolerance	260°C ± 5°C, 10 seconds ± 1 second
	±(1.0% + 0.05Ω)	For 2% & 5% tolerance	
Moisture Resistance	±(1.0% + 0.1Ω)	For 1% , 2% & 5% tolerance resistor	40°C ± 2°C, 90% - 95% RH, 1000 hours
Load Life	±(1.0% + 0.05Ω)	For 1% tolerance	70°C ± 2°C , 1000 hours, 1.5 hours On, 0.5 hours Off cycle
	±(2.0% + 0.1Ω)	For 2% & 5% tolerance	
High Temperature Exposure	±(0.5% + 0.05Ω)	For 1% tolerance	125°C , 1000 hours. Unpowered. Measurement at 24 ± 2 hours after test conclusion.
	±(1.0% + 0.05Ω)	For 2% & 5% tolerance	



Features

- Highly reliable multi-layer electrode construction.
- Compatible with wave and reflow soldering process.
- Pb Free with Reflow soldering backward compatibility
- Precision 0.5%

Dimensions and Construction



Type	Dimensions				
	Inches (Millimeters)				
	L	W	H	l ₁	l ₂
CR05 (0201/0603)	0.024±0.001 (0.06±0.03)	0.012±0.001 (0.30±0.03)	0.009±0.001 (0.23±0.003)	0.005±0.002 (0.12±0.05)	0.006±0.002 (0.15±0.05)
CR10 0402 (1005)	0.040±0.004 (1.00±0.10)	0.020±0.002 (0.50±0.05)	0.014±0.002 (0.35±0.05)	0.008±0.004 (0.20±0.10)	0.010±0.004 (0.25±0.10)
CR16 0603 (1608)	0.063±0.004 (1.60±0.10)	0.031±0.004 (0.80±0.10)	0.018±0.004 (0.45±0.10)	0.012±0.008 (0.30±0.20)	0.012±0.008 (0.30±0.20)
CR21 0805 (2012)	0.079±0.006 (2.00±0.15)	0.049±0.004 (1.25±0.10)	0.020±0.004 (0.50±0.10)	0.016±0.008 (0.40±0.20)	0.016±0.008 (0.40±0.20)
CR32 1206 (3216)	0.122±0.004 (3.10±0.10)	0.063±0.006 (1.60±0.15)	0.022±0.002 (0.55±0.05)	0.020±0.010 (0.50±0.25)	0.020±0.010 (0.50±0.25)
CR40 1210 (3225)	0.122±0.004 (3.10±0.10)	0.098±0.006 (2.50±0.15)	0.022±0.002 (0.55±0.05)	0.020±0.010 (0.50±0.25)	0.016±0.008 (0.40±0.20)
CR50 2010 (5025)	0.200±0.006 (5.00±0.15)	0.098±0.006 (2.50±0.15)	0.022±0.002 (0.55±0.05)	0.024±0.010 (0.60±0.25)	0.016±0.008 (0.40±0.20)
CR63 2512 (6432)	0.250±0.006 (6.30±0.15)	0.126±0.006 (3.20±0.15)	0.022±0.002 (0.55±0.05)	0.024±0.010 (0.60±0.25)	0.016±0.008 (0.40±0.20)

Ordering Code / Information

CR	10	-	XXXX	-	D	K	-	E
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Type	Size (Inch / mm)	Nominal Resistance			Resistance Tolerance	Packaging	T.C.R (ppm/°C)
Precision Thick Film Chip Resistors	05 (0201/0603) 10 (0402/1005) 16 (0603/1608) 21 (0805/2012) 32 (1206/3216) 40 (1210/3225) 50 (2010/5025) 63 (2512/6432)	Resistors	4-Digit	E96 Series 10.2Ω=10R2 10KΩ=1002	D = ± 0.5%	E = 4,000 pcs Lead Free L = 5,000 pcs Lead Free K = 10,000 pcs Lead Free Y = 20,000 pcs Lead Free	E = ±50 (Leave Blank for Standard)

Application and Ratings

Product Type	Power Rating @ 70°C	T.C.R (ppm/°C) Max	Resistance Range E-96 D(±0.5%)	Max Working Voltage	Max Overload Voltage	Operating Temperature Range
CR05 0201 (0603)	1/20W	-200 - +400	1Ω ≤ R < 10Ω	50V	100V	-55°C to +125°C
		±200	10Ω ≤ R ≤ 10MΩ			
CR10 0402 (1005)	1/16W	±100	10Ω ≤ R < 1MΩ	50V	100V	-55°C to +125°C
		±200	1Ω ≤ R < 10Ω			
			1MΩ ≤ R ≤ 10MΩ			
CR16 0603 (1608)	1/10W	±50	10Ω - 1MΩ	50V	100V	-55°C to +155°C
		±100	10Ω ≤ R < 1MΩ			
		±200	1Ω ≤ R < 10Ω			
			1MΩ ≤ R ≤ 10MΩ			
CR21 0805 (2012)	1/8W	±50	10Ω - 1MΩ	150V	300V	
		±100	10Ω ≤ R < 1MΩ			
		±200	1Ω ≤ R < 10Ω			
			1MΩ ≤ R ≤ 10MΩ			
CR32 1206 (3216)	1/4W	±50	10Ω - 1MΩ	200V	400V	
		±100	10Ω ≤ R < 1MΩ			
		±200	1Ω ≤ R < 10Ω			
			1MΩ ≤ R ≤ 10MΩ			
CR40 1210 (3225)	1/3W	±50	10Ω - 1MΩ			
		±100	10Ω ≤ R < 1MΩ			
		±200	1Ω ≤ R < 10Ω			
			1MΩ ≤ R ≤ 10MΩ			
CR50 2010 (5025)	3/4W	±50	10Ω - 1MΩ			
		±100	10Ω ≤ R < 1MΩ			
		±200	1Ω ≤ R < 10Ω			
			1MΩ ≤ R ≤ 10MΩ			
CR63 2512 (6432)	1W	±50	10Ω - 1MΩ			
		±100	10Ω ≤ R < 1MΩ			
		±200	1Ω ≤ R < 10Ω			
			1MΩ ≤ R ≤ 10MΩ			

Test	Specification	Test Method
Resistance Value	Within Resistors specification	To be measure at 25°C
Resistance Temperature Coefficient	Within Specification of TCR	25°C/ +125°C
Short Time Overload	± 0.5%	Apply 2.5 times of rated voltage or maximum overload voltage for 5 secs which is lower
Resistance to Soldering Heat	±(0.5%+0.05Ω)	260°C ± 5°C, 10 seconds ± 1 second
Moisture Resistance	±(1%+0.1Ω)	40°C ± 2°C, 90% - 95% RH, 1000 hours
Load Life	±(1.0%+0.05Ω)	70°C ± 2°C , 1000 hours, 1.5 hours On, 0.5 hours Off cycle
High Temperature Exposure	±(0.5%+0.05Ω)	125°C , 1000 hours. Unpowered. Measurement at 24 ± 2 hours after test conclusion.