CAR Series

Thin Film Precision Chip Resistor

- **Resistances from 1 Ohm to 3M Ohms**
- **Power Rating 0.06 to 0.75 Watt**
- **Resistance Tolerances to ± 0.01%**
- **TCR's to ±5 ppm/°C**
- **Sizes: 0402 /0603 / 0805 / 1206 / 2010 / 2512**
- **Operating Temperature: -55°C to 155°C**

RoHS compliant

SPECIFICATIONS - STANDARD

Package Size	Power Rating (W) at 70°C	MAX Operating Voltage[1]	MAX Overload Voltage[2]	Resistance Range						TCR PPM/°C
				±0.01%	±0.05%	±0.1%	±0.25%	±0.5%	±1%	
0402	0.0625	25V	50V	49.9Ω - 4.99KΩ						±5
				49.9Ω - 12KΩ						±10
				49.9Ω - 12KΩ		49.9Ω - 69.8KΩ				±15
				-	49.9Ω - 12KΩ	10Ω - 255KΩ				±25
						10Ω - 255KΩ		1Ω - 255KΩ		±50
0603	0.0625	50V	100V	24.9Ω - 15KΩ						±5
				24.9Ω - 100KΩ	4.7Ω - 332KΩ					±10
										±15
				-	4.7Ω - 332KΩ	4.7Ω - 1MΩ	2Ω - 1MΩ			±25
							1Ω - 1MΩ			±50
0805	0.100	100V	200V	24.9Ω - 30KΩ						±5
				24.9Ω - 200KΩ	4.7Ω - 511KΩ					±10
										±15
				-	4.7Ω - 511KΩ	4.7Ω - 2MΩ	1Ω - 2MΩ			±25
										±50
1206	0.125	150V	300V	24.9Ω - 49.9KΩ						±5
				24.9Ω - 499KΩ	4.7Ω - 1MΩ					±10
										±15
				-	4.7Ω - 1MΩ	4.7Ω - 2.49MΩ	1Ω - 2.49MΩ			±25
										±50
2010	0.250	150V	300V	24.9Ω - 100KΩ						±5
				24.9Ω - 499KΩ	4.7Ω - 1MΩ					±10
										±15
				-	4.7Ω - 1MΩ	4.7Ω - 3MΩ	1Ω - 3MΩ			±25
										±50
2512	0.500	150V	300V	24.9Ω - 100KΩ						±5
				24.9Ω - 499KΩ	4.7Ω - 1MΩ					±10
										±15
				-	4.7Ω - 1MΩ	4.7Ω - 3MΩ	1Ω - 3MΩ			±25
										±50

[1] Operating Voltage = $\sqrt{(P * R)}$ or MAX Listed, whichever is lower.

[2] Overload Voltage = 2.5 * $\sqrt{(P * R)}$ or MAX Listed, whichever is lower.

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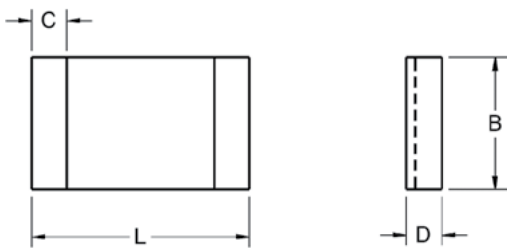
SPECIFICATIONS - HIGH POWER RATING

Package Size	Power Rating (W) at 70°C	MAX Operating Voltage[1]	MAX Overload Voltage[2]	Resistance Range						TCR PPM/°C
				±0.01%	±0.05%	±0.1%	±0.25%	±0.5%	±1%	
0603 HP	0.100	75V	150V	24.9Ω - 15KΩ						±5
				24.9Ω - 100KΩ	4.7Ω - 332KΩ					±10
										±15
						4.7Ω - 1MΩ				±25
										±50
0805 HP	0.125	150V	300V	24.9Ω - 30KΩ						±5
				24.9Ω - 200KΩ	4.7Ω - 511KΩ	4.7Ω - 511KΩ				±10
						4.7Ω - 1MΩ				±15
						4.7Ω - 1MΩ	1Ω - 1MΩ			±25
										±50
1206 HP	0.250	200V	400V	24.9Ω - 49.9KΩ						±5
				24.9Ω - 499KΩ	4.7Ω - 1MΩ					±10
										±15
										±25
										±50
2010 HP	0.333	200V	400V	24.9Ω - 49.9KΩ						±5
				24.9Ω - 499KΩ	4.7Ω - 1MΩ					±10
										±15
										±25
										±50
2512 HP	0.750	200V	400V	24.9Ω - 2KΩ	4.7Ω - 2KΩ		1Ω - 2KΩ			±10
										±15
										±25
										±50

[1] Operating Voltage = $\sqrt{(P * R)}$ or MAX Listed, whichever is lower.

[2] Overload Voltage = 2.5 * $\sqrt{(P * R)}$ or MAX Listed, whichever is lower.

Dimensions				
Type	L mm [inches]	B mm [inches]	D mm [inches]	C mm [inches]
CAR0402	1.00 [0.04]	0.50 [0.02]	0.3 [0.012]	0.2 [0.007]
CAR0603	1.55 [0.06]	0.80 [0.03]	0.45 [0.018]	0.3 [0.012]
CAR0805	2.00 [0.08]	1.25 [0.05]	0.55 [0.022]	0.3 [0.012]
CAR1206	3.05 [0.12]	1.55 [0.06]	0.55 [0.022]	0.42 [0.016]
CAR2010	4.90 [0.19]	2.40 [0.09]	0.55 [0.022]	0.6 [0.023]
CAR2512	6.30 [0.25]	3.10 [0.12]	0.55 [0.022]	0.6 [0.023]



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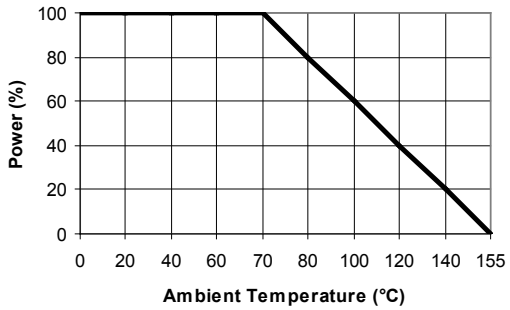
CAR Series

Thin Film Precision Chip Resistor

Power Derating Curve



Environmental Characteristics

Test	Requirement		Conditions
	Tol. < 0.05%	Tol. >0.05%	
TCR	As Spec.		+25/-55/+25/+125/+25°C
Short Time Overload	ΔR±0.05%	ΔR±0.2%	RCWV*2.5 or Max. overload voltage for 5 seconds
	ΔR±0.2% for high power rating		
Insulation Resistance	>1000 MΩ		Apply 100VDC for 1 minute
Load Life	ΔR±0.05%	ΔR±0.2%	70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
	>7kΩ ΔR±0.5%		
	ΔR±0.5% for high power rating		
Damp Heat with Load	ΔR±0.05%	ΔR±0.3%	40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
	ΔR±0.5% for high power rating		
Bending Strength	ΔR±0.05%	ΔR±0.2%	Bending amplitude 3 mm for 10 seconds
Solderability	95% min. coverage		245±5°C for 3 seconds
Resistance to Soldering Heat	ΔR±0.05%	ΔR±0.2%	260±5°C for 10 seconds
Thermal Shock	ΔR±0.05%	ΔR±0.25%	-55°C~150°C, 100 cycles
Low Temperature Operation	ΔR±0.05%	ΔR±0.2%	1 hour, -65°C, followed by 45 minutes of RCWV
	ΔR±0.5% for high power rating		

Ordering Information

Part Description: Part Type - Package Size- Resistance - Tolerance - TCR - HP option

Example: CAR0402 50 Ohms 0.05% 25ppm HP

(Note: if no TCR is specified: The highest value will be supplied)

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