

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 $\pm 0.05\%$
- TCR's to ± 25 ppm/ $^{\circ}\text{C}$
- Sizes: 0402 / 0603 / 0805 / 1206 / 2010 / 2512

SPECIFICATIONS

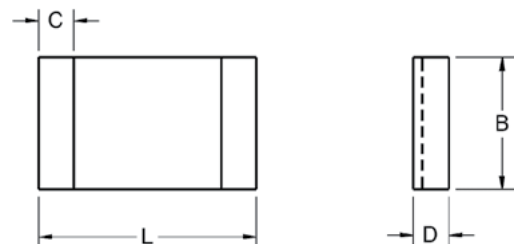
Type	Power Rating (W) at 70°C	(HP) High Power Rating (W) 70°C	Operating Temperature Range (°C)	MAX Operating Voltage ¹	MAX Overload Voltage ²	Resistance Range					TCR PPM/°C
						±0.05%	±0.1%	±0.25%	±0.5%	±1%	
CAR0402	0.0625	-	-55 to 155	25V	50V	49.9Ω - 12KΩ	10Ω - 255KΩ				±25
							10Ω - 255KΩ		1Ω - 255KΩ		±50
CAR0603	0.0625	0.1	-55 to 155	50V	100V	4.7Ω - 332KΩ	4.7Ω - 1MΩ	2Ω - 1MΩ		±25	
								1Ω - 1MΩ		±50	
CAR0805	0.100	0.125	-55 to 155	100V	200V	4.7Ω - 511KΩ	4.7Ω - 2MΩ	1Ω - 2MΩ		±25 ±50	
CAR1206	0.125	0.25	-55 to 155	150V	300V	4.7Ω - 1MΩ	4.7Ω - 2.49MΩ	1Ω - 2.49MΩ		±25 ±50	
CAR2010	0.25	0.33	-55 to 155	150V	300V	4.7Ω - 1MΩ	4.7Ω - 3MΩ	1Ω - 3MΩ		±25 ±50	
CAR2512	0.5	0.75	-55 to 155	150V	300V	4.7Ω - 1MΩ	4.7Ω - 3MΩ	1Ω - 3MΩ		±25 ±50	

¹ Operating Voltage = $\sqrt{P \cdot R}$ or MAX Listed, whichever is lower.

² Overload Voltage = $2.5 \cdot \sqrt{P \cdot R}$ 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	5.00 [0.20]	2.50 [0.10]	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]

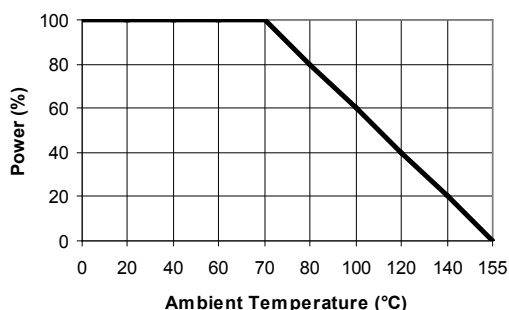


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Power Derating Curve



Environmental Characteristics

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

Ordering Information

Part Description: Part Type - 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)