

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 $\pm 0.01\%$
- TCR's to ± 5 ppm/ $^{\circ}\text{C}$
- Sizes: 0402 / 0603 / 0805 / 1206 / 2010 / 2512

SPECIFICATIONS

Type	CAR0402	CAR0603	CAR0805	CAR1206	CAR2010	CAR2512
Power Rating (W) at 70°C	0.0625	0.0625	0.1	0.125	0.25	0.5
High Power Rating (W) at 70°C (Add HP to part number)	-	0.1	0.125	0.25	0.33	0.75
Standard Resistance Range (Ω) Low TCR Resistance Range (Ω)	50 to 205k 50 to 70k	1 to 1M 5 - 332k	1 to 2M 5 to 511k	1 to 2.5M 5 to 1M	1 to 3M 5 to 1M	
Operating Temperature	-55 - +155°C					
MAX Operating Voltage ¹	25V	50V	100V	150V		
MAX Overload Voltage ²	50V	100V	200V	300V		
Tolerances (depending on ohmic value)	0.01% / 0.05% / 0.1% / 0.25% / 0.5% / 1%					
Temperature Coefficient (depending on ohmic value)	± 5 to ± 50					
Dimensions (LxWxT) mm [inches]	1.00 x 0.50 x 0.3 [0.04 x 0.02 x 0.012]	1.55 x 0.80 x 0.45 [0.06 x 0.03 x 0.018]	2.00 x 1.25 x 0.55 [0.08 x 0.05 x 0.022]	3.05 x 1.55 x 0.55 [0.12 x 0.06 x 0.022]	5.00 x 2.50 x 0.55 [0.20 x 0.10 x 0.022]	6.30 x 3.10 x 0.55 [0.25 x 0.12 x 0.022]
Packaging (pcs) Tape and Reel	10,000	5,000			4,000	

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.

Ordering Information

Part Description: Part Type - Resistance - Tolerance - TCR - HP option - Packaging

Example: CAR 0402 50Ohms 0.05% 25ppm

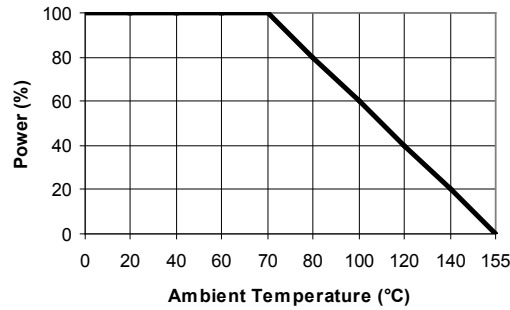
(Note: if no TCR is specified: The highest value will be supplied)

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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	$\Delta R \pm 0.05\%$	$\Delta R \pm 0.2\%$	RCWV*2.5 or Max. overload voltage for 5 seconds
	$\Delta R \pm 0.2\%$ for high power rating		
Insulation Resistance	>1000 M Ω		Apply 100VDC for 1 minute
Load Life	$\Delta R \pm 0.05\%$	$\Delta R \pm 0.2\%$	70 \pm 2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
	>7k Ω $\Delta R \pm 0.5\%$		
	$\Delta R \pm 0.5\%$ for high power rating		
Damp Heat with Load	$\Delta R \pm 0.05\%$	$\Delta R \pm 0.3\%$	40 \pm 2°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°C for 3 seconds
Resistance to Soldering Heat	$\Delta R \pm 0.05\%$	$\Delta R \pm 0.2\%$	260 \pm 5°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		