



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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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 ± 1 ppm/ $^{\circ}\text{C}$
- Sizes: 0402 / 0603 / 0805 / 1206 / 2010 / 2512
- Operating Temperature: -55°C to 155°C

SPECIFICATIONS - STANDARD / HIGH POWER (HP)											
Package Size	Power Rating (W) at 70°C	MAX Operating Voltage ¹	MAX Overload Voltage ²	Resistance Range (E24/E96)*					TCR PPM/ $^{\circ}\text{C}$		
				$\pm 0.01\%$	$\pm 0.05\%$	$\pm 0.1\%$	$\pm 0.25\%$	$\pm 0.5\%$		$\pm 1\%$	
0402	0.0625	25V	50V	49.9 Ω - 4.99K Ω			-		$\pm 1, \pm 2, \pm 3$		
				49.9 Ω - 20K Ω					± 5		
				49.9 Ω - 20K Ω		49.9 Ω - 100K Ω			± 10		
						49.9 Ω - 69.8K Ω			± 15		
				-	49.9 Ω - 12K Ω	10 Ω - 511K Ω	4.7 Ω - 511K Ω		$\pm 25, \pm 50$		
0603	0.0625	50V	100V	24.9 Ω - 15K Ω			-		$\pm 1, \pm 2, \pm 3$		
				24.9 Ω - 60K Ω					± 5		
				24.9 Ω - 100K Ω	4.7 Ω - 332K Ω		4.7 Ω - 511K Ω			$\pm 10, \pm 15$	
				-	4.7 Ω - 1M Ω		1 Ω - 1M Ω		$\pm 25, \pm 50$		
0603 HP	0.100	75V	150V	24.9 Ω - 15K Ω			-		$\pm 1, \pm 2, \pm 3$		
				24.9 Ω - 15K Ω					± 5		
				24.9 Ω - 100K Ω	4.7 Ω - 332K Ω		4.7 Ω - 332K Ω			$\pm 10, \pm 15$	
						4.7 Ω - 1M Ω			$\pm 25, \pm 50$		
0805	0.100	100V	200V	24.9 Ω - 30K Ω			-		$\pm 1, \pm 2, \pm 3$		
				24.9 Ω - 150K Ω					± 5		
				24.9 Ω - 200K Ω	4.7 Ω - 1M Ω			$\pm 10, \pm 15$			
				-	4.7 Ω - 1M Ω	4.7 Ω - 2M Ω	1 Ω - 2M Ω		$\pm 25, \pm 50$		
0805 HP	0.125	150V	300V	24.9 Ω - 30K Ω			-		$\pm 1, \pm 2, \pm 3$		
				24.9 Ω - 30K Ω					± 5		
				24.9 Ω - 200K Ω		4.7 Ω - 511K Ω		4.7 Ω - 511K Ω			± 10
						4.7 Ω - 1M Ω			± 15		
						4.7 Ω - 1M Ω	1 Ω - 1M Ω		$\pm 25, \pm 50$		
1206	0.125	150V	300V	24.9 Ω - 49.9K Ω			-		$\pm 1, \pm 2, \pm 3$		
				24.9 Ω - 300K Ω					± 5		
				24.9 Ω - 499K Ω	4.7 Ω - 1.5M Ω			$\pm 10, \pm 15$			
				-	4.7 Ω - 1M Ω	4.7 Ω - 2.49M Ω	1 Ω - 2.49M Ω		$\pm 25, \pm 50$		
1206 HP	0.250	200V	400V	24.9 Ω - 49.9K Ω			-		$\pm 1, \pm 2, \pm 3$		
				24.9 Ω - 49.9K Ω					± 5		
				24.9 Ω - 499K Ω	4.7 Ω - 1M Ω			$\pm 10, \pm 15, \pm 25, \pm 50$			

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. | * E24/E96 Consult Factory for available values

CAR Series

Thin Film Precision Chip Resistor



SPECIFICATIONS - STANDARD / HIGH POWER (HP) continued										
Package Size	Power Rating (W) at 70°C	MAX Operating Voltage ¹	MAX Overload Voltage ²	Resistance Range (E24/E96)*					TCR PPM/°C	
				±0.01%	±0.05%	±0.1%	±0.25%	±0.5%		±1%
2010	0.250	150V	300V	24.9Ω - 100KΩ			-		±1, ±2, ±3	
				24.9Ω - 300KΩ					±5	
				24.9Ω - 499KΩ	4.7Ω - 1MΩ			±10, ±15		
				-	4.7Ω - 1MΩ	4.7Ω - 3MΩ	1Ω - 3MΩ		±25, ±50	
2010 HP	0.333	200V	400V	24.9Ω - 49.9KΩ			-		±1, ±2, ±3	
				24.9Ω - 49.9KΩ					±5	
				24.9Ω - 499KΩ	4.7Ω - 1MΩ			±10, ±15, ±25, ±50		
2512	0.500	150V	300V	24.9Ω - 100KΩ			-		±1, ±2, ±3	
				24.9Ω - 300KΩ					±5	
				24.9Ω - 499KΩ	4.7Ω - 1MΩ			±10, ±15		
				-	4.7Ω - 1MΩ	4.7Ω - 3MΩ	1Ω - 3MΩ		±25, ±50	
2512 HP	0.750	200V	400V	24.9Ω - 2KΩ	4.7Ω - 2KΩ		1Ω - 2KΩ		±10, ±15, ±25, ±50	

¹ Operating Voltage = $\sqrt{P \cdot R}$ or MAX Listed, whichever is lower. | ² Overload Voltage = $2.5 \cdot \sqrt{P \cdot R}$ or MAX Listed, whichever is lower. | * E24/E96 Consult Factory for available values

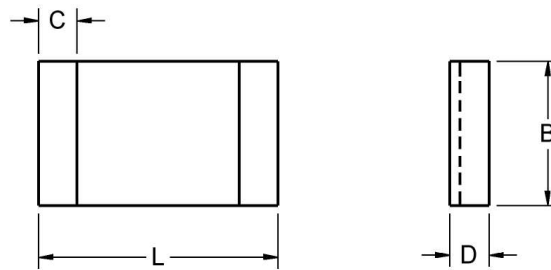
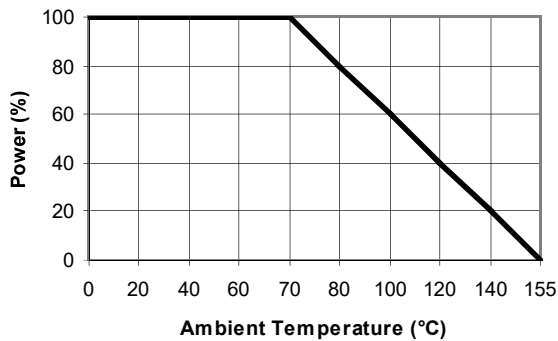
Environmental Characteristics			
Test	Requirement		Conditions
	Tol. <0.05%	Tol. >0.05%	
TCR	As Spec.		+25/-55/+25/+125/+25°C
Short Time Overload	ΔR±0.05%	ΔR±0.2%	RCWV*2.5 or Max. overload voltage for 5 seconds
	ΔR±0.2% for high power rating		
Insulation Resistance	>1000 MΩ		Apply 100VDC for 1 minute
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 Terminal Finish = Nickel Tin	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		
Terminal Finish	Tin/Nickel		

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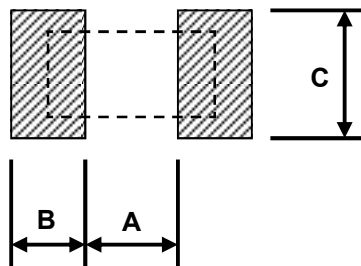


Power Derating Curve



Dimensions (mm)					
Type	L	B	D	C	Mass (grams/1k)
CAR0402	1.00 ± 0.05	0.50 ± 0.05	0.30 ± 0.05	0.20 ± 0.10	0.54
CAR0603	1.55 ± 0.10	0.80 ± 0.10	0.45 ± 0.10	0.30 ± 0.20	1.83
CAR0805	2.00 ± 0.15	1.25 ± 0.15	0.55 ± 0.10	0.30 ± 0.20	4.71
CAR1206	3.05 ± 0.15	1.55 ± 0.15	0.55 ± 0.10	0.42 ± 0.20	9.02
CAR2010	4.90 ± 0.15	2.40 ± 0.15	0.55 ± 0.10	0.60 ± 0.30	23.61
CAR2512	6.30 ± 0.15	3.10 ± 0.15	0.55 ± 0.10	0.6 ± 0.30	38.06

Recommended Land Pattern (mm)



Type	A	B	C
CAR0402	0.50	0.50	0.60 ± 0.2
CAR0603	0.80	0.80	0.90 ± 0.2
CAR0805	1.00	1.00	1.35 ± 0.2
CAR1206	2.00	1.15	1.70 ± 0.2
CAR2010	3.60	1.40	2.50 ± 0.2
CAR2512	4.90	1.60	3.10 ± 0.2

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)