

# APC Precision Chip Resistor



- Precision Thin Film Technology
- Wide Resistance Range 1R - 3M
- Precision tolerance down to  $\pm 0.01\%$
- TCR as low as  $\pm 2\text{ppm}/^\circ\text{C}$
- Tape & Reel packaging



- Standard Electrical Specifications
- Tolerance (Code):  $\pm 0.05\%$  (A),  $\pm 0.1\%$  (B),  $\pm 0.25\%$  (C),  $\pm 0.5\%$  (D),  $\pm 1\%$  (F)
- TCR (Code):  $\pm 25\text{ppm}$  (E),  $\pm 50\text{ppm}$  (F)

Type	Power Rating at 70°C	Operating Temp Range	Max Operating Voltage	Max Overload Voltage	Tolerance / Resistance Range					TCR (PPM°C)
					$\pm 0.05\%$	$\pm 0.1\%$	$\pm 0.25\%$	$\pm 0.5\%$	$\pm 1\%$	
APC0201	1/32W	-55 to +155°C	15V	30V	N/A					$\pm 25$ $\pm 50$
APC0402	1/16W	-55 to +155°C	25V	50V	49.9Ω to 12KΩ	10Ω to 255KΩ	4.7Ω to 511KΩ			$\pm 25$ $\pm 50$
APC0603	1/16W	-55 to +155°C	50V	100V	4.7Ω to 332KΩ	4.7Ω to 1MΩ	1Ω to 1MΩ			$\pm 25$ $\pm 50$
APC0805	1/10W	-55 to +155°C	100V	200V	4.7Ω to 1MΩ	4.7Ω to 2MΩ	1Ω to 2MΩ			$\pm 25$ $\pm 50$
APC1206	1/8W	-55 to +155°C	150V	300V	4.7Ω to 1MΩ	4.7Ω to 2.49MΩ	1Ω to 2.49MΩ			$\pm 25$
APC1210	1/4W									$\pm 50$
APC2010	1/4W	-55 to +155°C	150V	300V	4.7Ω to 1MΩ	4.7Ω to 3MΩ	1Ω to 3MΩ			$\pm 25$
APC2512	1/2W									$\pm 50$

- Special Electrical Specifications
- Tolerance (Code):  $\pm 0.01\%$  (T),  $\pm 0.05\%$  (A),  $\pm 0.1\%$  (B),  $\pm 0.25\%$  (C),  $\pm 0.5\%$  (D),  $\pm 1\%$  (F)
- TCR (Code):  $\pm 2\text{ppm}$  (X),  $\pm 3\text{ppm}$  (Y),  $\pm 5\text{ppm}$  (Z),  $\pm 10\text{ppm}$  (B),  $\pm 15\text{ppm}$  (A)

Type	Power Rating at 70°C	Operating Temp Range	Max Operating Voltage	Max Overload Voltage	Resistance Range						TCR (PPM°C)
					$\pm 0.01\%$	$\pm 0.05\%$	$\pm 0.1\%$	$\pm 0.25\%$	$\pm 0.5\%$	$\pm 1\%$	
APC0402	1/16W	-55 to +155°C	25V	50V	49.9Ω to 4.99KΩ			N/A			$\pm 2, \pm 3$
					49.9Ω to 4.99KΩ						$\pm 5$
					49.9Ω to 12KΩ			49.9Ω to 60KΩ			$\pm 10$
					49.9Ω to 69.8KΩ						$\pm 15$
APC0603	1/16W	-55 to +155°C	50V	100V	24.9Ω to 15KΩ			N/A			$\pm 2, \pm 3$
					24.9Ω to 15KΩ						$\pm 5$
					24.9Ω to 100KΩ	4.7Ω to 332KΩ	4.7Ω to 511KΩ			$\pm 10, \pm 15$	
APC0805	1/10W	-55 to +155°C	100V	200V	24.9Ω to 30KΩ			N/A			$\pm 2, \pm 3$
					24.9Ω to 30KΩ						$\pm 5$
					24.9Ω to 200KΩ	4.7Ω to 1MΩ			$\pm 10, \pm 15$		
APC1206	1/8W	-55 to +155°C	150V	300V	24.9Ω to 49.9KΩ			N/A			$\pm 2, \pm 3$
					24.9Ω to 49.9KΩ						$\pm 5$
					24.9Ω to 499KΩ	4.7Ω to 1MΩ			$\pm 10, \pm 15$		
APC1210	1/4W	-55 to +155°C	150V	300V	24.9Ω to 49.9KΩ			N/A			$\pm 2, \pm 3$
					24.9Ω to 49.9KΩ						$\pm 5$
					24.9Ω to 499KΩ	4.7Ω to 1MΩ			$\pm 10, \pm 15$		
APC2010	1/4W	-55 to +155°C	150V	300V	24.9Ω to 100KΩ			N/A			$\pm 2, \pm 3$
					24.9Ω to 100KΩ						$\pm 5$
					24.9Ω to 499KΩ	4.7Ω to 1MΩ			$\pm 10, \pm 15$		
APC2512	1/2W	-55 to +155°C	150V	300V	24.9Ω to 100KΩ			N/A			$\pm 2, \pm 3$
					24.9Ω to 100KΩ						$\pm 5$
					24.9Ω to 499KΩ	4.7Ω to 1MΩ			$\pm 10, \pm 15$		

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The information contained herein does not form part of a contract and is subject to change without notice. ARCOL operate a policy of continual product development, therefore, specifications may change.

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## Characteristics

Item	Tol. ≤ 0.05%	Tol. > 0.05%	Method
Short Time Overload	$\Delta R \pm 0.05\%$	$\Delta R \pm 0.02\%$	RCWV*2.5 or Max. Overload Voltage - whichever is lower for 5 secs.
Insulation Resistance	> 1000 M $\Omega$		Apply 100V dc for 1 minute
Endurance	$\Delta R \pm 0.05\%$	$\Delta R \pm 0.02\%$	70 $\pm 2^{\circ}\text{C}$ RCWV for 1000 hours with 1.5 hrs ON and 0.5 hrs OFF
Thermal Shock	$\Delta R \pm 0.05\%$	$\Delta R \pm 0.025\%$	-55 to +155 $^{\circ}\text{C}$ , 100 Cycles
Low Temp Operation	$\Delta R \pm 0.05\%$	$\Delta R \pm 0.2\%$	1 hour, -65 $^{\circ}\text{C}$ followed by 45 mins of RCWV

\*RCWV (Rated Continuous Working Voltage) =  $\sqrt{P \cdot R}$  or Max. Operating Voltage - whichever is lower

## Dimensions (mm)

Type	L	W	T	D1	D2
APC0201	0.58 $\pm 0.05$	0.29 $\pm 0.05$	0.23 $\pm 0.05$	0.12 $\pm 0.05$	0.15 $\pm 0.05$
APC0402	1.00 $\pm 0.05$	0.50 $\pm 0.05$	0.30 $\pm 0.05$	0.20 $\pm 0.05$	0.20 $\pm 0.05$
APC0603	1.55 $\pm 0.10$	0.80 $\pm 0.10$	0.45 $\pm 0.10$	0.30 $\pm 0.20$	0.30 $\pm 0.20$
APC0805	2.00 $\pm 0.15$	1.25 $\pm 0.15$	0.55 $\pm 0.10$	0.30 $\pm 0.20$	0.40 $\pm 0.20$
APC1206	3.05 $\pm 0.15$	1.55 $\pm 0.15$	0.55 $\pm 0.10$	0.42 $\pm 0.20$	0.35 $\pm 0.25$
APC1210	3.10 $\pm 0.15$	2.40 $\pm 0.15$	0.55 $\pm 0.10$	0.40 $\pm 0.20$	0.55 $\pm 0.25$
APC2010	4.90 $\pm 0.15$	2.40 $\pm 0.15$	0.55 $\pm 0.10$	0.60 $\pm 0.30$	0.50 $\pm 0.25$
APC2512	6.30 $\pm 0.15$	3.10 $\pm 0.15$	0.55 $\pm 0.10$	0.60 $\pm 0.30$	0.50 $\pm 0.25$

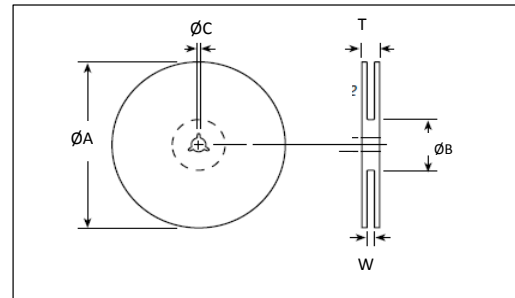


## Reel Dimensions (mm)

Size	$\phi A$	$\phi B$	$\phi C$	W	T	Qty Per Reel
0201*	178 $\pm 1.0$	60 $\pm 1.0$	13.5 $\pm 0.7$	9.5 $\pm 1.0$	11.5 $\pm 1.0$	10,000
0402*	178 $\pm 1.0$	60 $\pm 1.0$	13.5 $\pm 0.7$	9.5 $\pm 1.0$	11.5 $\pm 1.0$	10,000
0603*	178 $\pm 1.0$	60 $\pm 1.0$	13.5 $\pm 0.7$	9.5 $\pm 1.0$	11.5 $\pm 1.0$	5,000
0805*	178 $\pm 1.0$	60 $\pm 1.0$	13.5 $\pm 0.7$	9.5 $\pm 1.0$	11.5 $\pm 1.0$	5,000
1206*	178 $\pm 1.0$	60 $\pm 1.0$	13.5 $\pm 0.7$	9.5 $\pm 1.0$	11.5 $\pm 1.0$	5,000
1210*	178 $\pm 1.0$	60 $\pm 1.0$	13.5 $\pm 0.7$	9.5 $\pm 1.0$	11.5 $\pm 1.0$	5,000
2010**	178 $\pm 1.0$	60 $\pm 1.0$	13.5 $\pm 0.7$	13.5 $\pm 1.0$	15.5 $\pm 1.0$	4,000
2512**	178 $\pm 1.0$	60 $\pm 1.0$	13.5 $\pm 0.7$	13.5 $\pm 1.0$	15.5 $\pm 1.0$	4,000

\* Paper Tape

\*\* Plastic Embossed Tape



## Ordering Procedure

Standard Resistor: Series, Size, Tol Code, Resistance Value, TCR Code

Eg: APC0603A100RB  
 $\pm 10\text{ppm}$   
 100 $\Omega$   
 $\pm 0.05\%$   
 1/16 watt  
 (0603 size)

Tol:  $\pm 0.01\%$  (T),  $\pm 0.05\%$  (A),  $\pm 0.1\%$  (B),  $\pm 0.25\%$  (C),  $\pm 0.5\%$  (D),  $\pm 1\%$  (F)

TCR:  $\pm 2\text{ppm}$  (X),  $\pm 3\text{ppm}$  (Y),  $\pm 5\text{ppm}$  (Z),  $\pm 10\text{ppm}$  (B),  $\pm 15\text{ppm}$  (A),  $\pm 25\text{ppm}$  (E),  $\pm 50\text{ppm}$  (F)

## Derating Curve



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