

ASC Series

Anti-Sulfur Thick Film Chip Resistor



- Resistances from 1 Ohm to 10M Ohms
- Power Rating 0.05 to 1 Watt
- Resistance Tolerances to $\pm 0.5\%$
- TCR's to ± 200 ppm/ $^{\circ}\text{C}$
- Sizes: 0201/0402/0603/0805/1206/2010 /2512
- Anti-Sulfur Construction
- AEC-Q200 Certified



SPECIFICATIONS - STANDARD

Package Size	Power Rating (W) at 70°C	Operating Temperature Range	MAX Operating Voltage ¹	MAX Overload Voltage ²	Resistance Range			TCR PPM/°C
					±0.5%	±1%	±5%	
0201	0.05	-55 to +125	25V	50V	-	1Ω - 10MΩ		±200
0402	0.0625	-55 to +155	50V	100V	1Ω - 9.76Ω 10Ω - 1MΩ 1.02MΩ - 10MΩ			±200 ±100 ±200
0603	0.100		50V	100V	1Ω - 9.76Ω 10Ω - 1MΩ 1.02MΩ - 10MΩ			±200 ±100 ±200
0805	0.125		150V	300V	1Ω - 9.76Ω 10Ω - 1MΩ 1.02MΩ - 10MΩ			±200 ±100 ±200
1206	0.250		200V	400V	1Ω - 9.76Ω 10Ω - 1MΩ 1.02MΩ - 10MΩ			±200 ±100 ±200
1210	0.333		200V	400V	1Ω - 9.76Ω 10Ω - 1MΩ 1.02MΩ - 10MΩ			±200 ±100 ±200
2010	0.750		200V	400V	1Ω - 9.76Ω 10Ω - 1MΩ 1.02MΩ - 10MΩ			±200 ±100 ±200
2512	1		250V	500V	1Ω - 9.76Ω 10Ω - 1MΩ 1.02MΩ - 10MΩ			±200 ±100 ±200

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

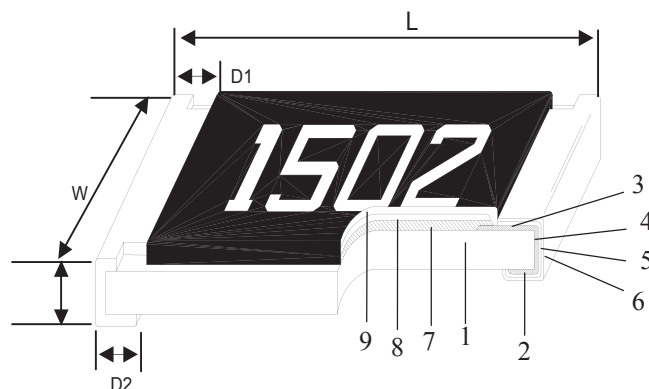
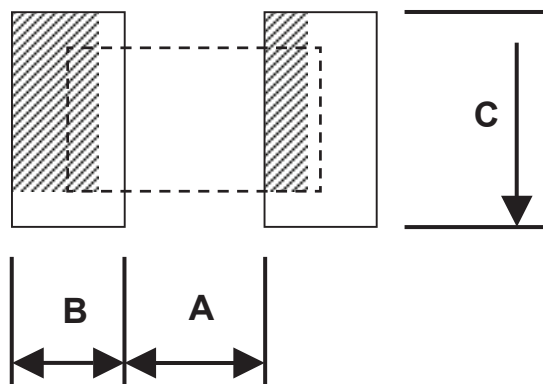
² Overload Voltage = $2.5 \cdot \sqrt{P \cdot R}$ or MAX Listed, whichever is lower.

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Recommended Land Pattern



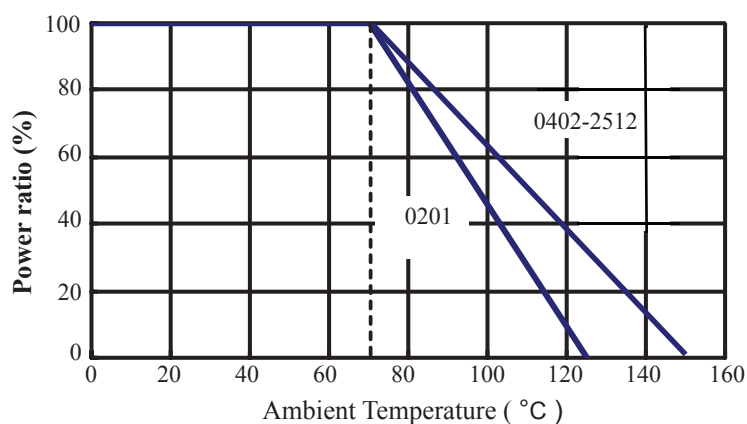
1	Alumina Substrate	4	Edge Electrode	7	Resistor Layer
2	Bottom Electrode	5	Barrier Layer	8	Primary Overcoat
3	Top Electrode	6	External Electrode	9	Secondary Overcoat

Size	L (mm)	W (mm)	T (mm)	D1 (mm)	D2 (mm)	Weight* (g)
0201	0.60 ± 0.03	0.30 ± 0.03	0.23 ± 0.03	0.15 ± 0.05	0.15 ± 0.05	0.150
0402	1.00 ± 0.05	0.50 ± 0.05	0.35 ± 0.05	0.20 ± 0.10	0.20 ± 0.10	0.620
0603	1.60 ± 0.10	0.80 ± 0.10	0.45 ± 0.10	0.30 ± 0.20	0.30 ± 0.20	2.042
0805	2.00 ± 0.10	1.25 ± 0.10	0.50 ± 0.10	0.35 ± 0.20	0.40 ± 0.20	4.368
1206	3.10 ± 0.10	1.55 ± 0.10	0.55 ± 0.10	0.50 ± 0.25	0.50 ± 0.20	8.947
1210	3.10 ± 0.10	2.60 ± 0.15	0.55 ± 0.10	0.50 ± 0.25	0.50 ± 0.20	15.959
2010	5.00 ± 0.10	2.50 ± 0.15	0.55 ± 0.10	0.60 ± 0.25	0.50 ± 0.20	24.241
2512	6.35 ± 0.10	3.10 ± 0.15	0.55 ± 0.10	0.60 ± 0.25	0.50 ± 0.20	39.448

* Weight based on 1,000 pcs

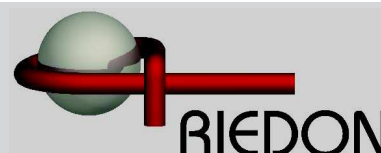
Recommended Land Pattern (mm)			
Type	A	B	C
0201	0.30	0.25	0.30
0402	0.50	0.45	0.60
0603	0.90	0.60	0.90
0805	1.20	0.70	1.30
1206	2.00	0.90	1.60
1210	2.00	0.90	2.80
2010	3.80	0.90	2.80
2512	3.80	1.60	3.50

Derating Curve



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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
				1%	5%	
0402 HP	0.100	50V	100V	1Ω - 9.76Ω 10Ω - 1MΩ		±200 ±100
0603 HP	0.125	50V	100V			
0805 HP	0.25	150V	300V			
1206 HP	0.333	200V	400V			
1210 HP	0.500	200V	400V			
2010 HP	1	200V	400V			

Note: High Power option not AEC-Q200 Qualified

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.

Environmental Characteristics

Test	Requirement		Conditions
	±1% and Below	±5%	
TCR	As Spec.		-55°C to +125, +25°C is reference temperature
Short Time Overload	±(1%+0.05Ω)	±(2%+0.05Ω)	RCWV*2.5 or Max. overload voltage for 5 seconds, 2 seconds for high power series
Insulation Resistance	>10 GΩ		Max. Overload for 1 minute
Endurance	±(2%+0.10Ω)	±(3%+0.10Ω)	70 ± 2°C, RCWV for 1000 hrs w/ 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±(2%+0.10Ω)	±(3%+0.10Ω)	40±2°C, 90 to 95% R.H. RCWV for 1000 hrs w/ 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	±(1%+0.05Ω)	±(1.5%+0.10Ω)	at +125/+155°C for 1000 hrs
Bending Strength	±(1%+0.05Ω)	±(1%+0.05Ω)	Bending once for 5 seconds 2010,2512 sizes: 2 mm other sizes: 3 mm
Solderability Terminal Finish = Nickel Tin	95% min. coverage		245±5°C for 3 seconds
Resistance to Soldering Heat	±(0.5%+0.05Ω)	±(1%+0.05Ω)	260±5°C for 10 seconds
Voltage Proof	No breakdown or flashover		1.42 times Max. Operating Voltage for 1 minute
Leaching	Individual leaching area ≤ 5% Total leaching area ≤ 10%		260±5°C for 30 seconds
Rapid Change of Temperature	±(0.5%+0.05Ω)	±(1%+0.05Ω)	-55°C to +125/+155°C, 5 cycles
Sulfur Test	±(0.5%+0.05Ω)	±(0.5%+0.05Ω)	H2S, 50 ± 2°C, 91 to 93% R.H., no power rating for 1000 hrs

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

Ordering Information

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

Example: ASC0402 50 Ohms 0.05% 100ppm HP

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