Automotive Grade Anti-Sulfurated Chip Resistor - CAS Series



Construction



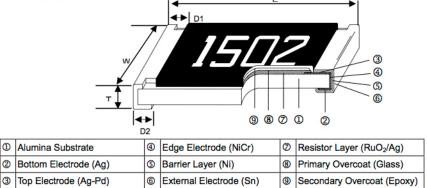
Features

- Special construction to prevent sulfuration in a sulfur containing environment
- -AEC-Q200 Compliance

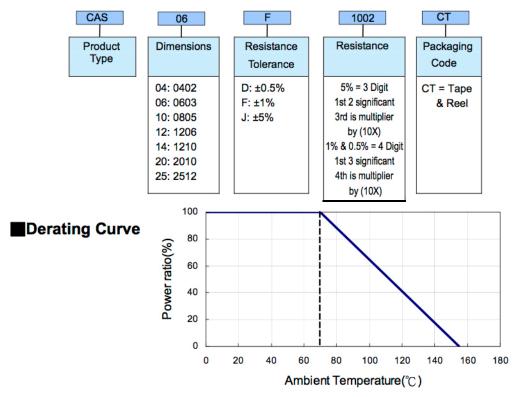
Applications

- -Automotive
- -High-end Computer
- -Industrial Equipment
- -Automatic Equipment Controller
- -Medical Equipment
- -High-end Multimedia Electronics
- -Outdoor Electronic Applications

Part Numbering



Di	Dimensions Unit: mm									
Туре	Size (Inch)	L	w	т	D1	D2	Weight (g) (1000pcs)			
CAS04	0402	1.00±0.05	0.50±0.05	0.35±0.05	0.20±0.10	0.20±0.10	0.620			
CAS06	0603	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	2.042			
CAS10	0805	2.00±0.10	1.25±0.10	0.50±0.10	0.35±0.20	0.40±0.20	4.368			
CAS12	1206	3.10±0.10	1.55±0.10	0.55±0.10	0.50±0.25	0.50±0.20	8.947			
CAS14	1210	3.10±0.10	2.60±0.15	0.55±0.10	0.50±0.25	0.50±0.20	15.959			
CAS20	2010	5.00±0.10	2.50±0.15	0.55±0.10	0.60±0.25	0.50±0.20	24.241			
CAS25	2512	6.35±0.10	3.10±0.15	0.55±0.10	0.60±0.25	0.50±0.20	39.448			



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Electrical Specifications

ltem	Power Rating	Operating Temp.	Max. Operating	Max. Overload	Resistance Range	TCR
Туре	at 70°C	Range	Voltage	Voltage	±0.5% ±1% ±5%	(PPM/°C)
CAS04(0402)	1/16W		50V	100V	1Ω - 9.76Ω 10Ω - 1ΜΩ 1.02ΜΩ - 10ΜΩ	±200 ±100 ±200
	Jumper: 1A]			0Ω(<50mΩ)	-
CAS06(0603)	1/10W		50V	100V	1Ω - 9.76Ω 10Ω - 1ΜΩ 1.02ΜΩ - 10ΜΩ	±200 ±100 ±200
	Jumper: 1A				0Ω(<50mΩ)	-
CAS10(0805)	1/8W		150V	300V	1Ω - 9.76Ω 10Ω - 1ΜΩ 1.02ΜΩ - 10ΜΩ	±200 ±100 ±200
	Jumper: 2A				0Ω(<50mΩ)	-
CAS12(1206)	1/4W -55 ~ +155°C		200V	400V	1Ω - 9.76Ω 10Ω - 1ΜΩ 1.02ΜΩ - 10ΜΩ	±200 ±100 ±200
	Jumper: 2A]			0Ω(<50mΩ)	-
CAS14(1210)	1/3W		200V	400V	1Ω - 9.76Ω 10Ω - 1ΜΩ 1.02ΜΩ - 10ΜΩ	±200 ±100 ±200
	Jumper: 2.5A]			0Ω(<50mΩ)	-
CAS20(2010)	3/4W		200V 400V		1Ω - 9.76Ω 10Ω - 1ΜΩ 1.02ΜΩ - 10ΜΩ	±200 ±100 ±200
	Jumper: 3.5A]			0Ω(<50mΩ)	-
CAS25(2512)	1W		250V	500V	1Ω - 9.76Ω 10Ω - 1ΜΩ 1.02ΜΩ - 10ΜΩ	±200 ±100 ±200
	Jumper: 4A				0Ω(<50mΩ)	

Operating Voltage= $\sqrt{(P^*R)}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage=2.5*√ (P*R) or Max. overload voltage listed above, whichever is lower.

Calchip is capable of manufacturing the optional spec based on customer's requirement.

Environmental Characteristics

Item		Requirement		Test Method
nem	±1% and Below	±5%	Jumper	Test Method
Temperature Coefficient of Resistance (T.C.R.) As Spec.			-55°C~+125°C, 25°C is the reference temperature	
Short Time Overload	±(1.0%+0.05Ω)	±(2.0%+0.05Ω)	<50mΩ	2.5 times RCWV or Max. overload voltage for 5 seconds
Insulation Resistance	≧10G			Max. overload voltage for 1 minute
Endurance	±(2.0%+0.10Ω)	±(3.0%+0.10Ω)	<100mΩ	70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Biased Humidity	±(2.0%+0.10Ω)	±(3.0%+0.10Ω)	<100mΩ	1000 hrs 85°C/85%RH 10% of operating power.

Environmental Characteristics



lterr		Requirement		Test Method		
Item	1% and Below	5%	Jumper	lest Method		
High Temperature Exposure	±(1.0%+0.05Ω)	±(1.5%+0.10Ω)	<50mΩ	at +155°C for 1000 hrs		
Bending Strength	±(1.0%+0.05Ω)	±(1.0%+0.05Ω)	<50mΩ	Bending once for 5 seconds 2010, 2512 sizes: 2 mm Other sizes: 3mm		
Thermal Shock	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	<50mΩ	-55C/+155°C. Note: Number of cycles required-300, Maximum transfer time-20 seconds, Dwell time-15minutes. Air-Air.		
Solderability	95% min. covera	ige		245±5°C for 3 seconds		
Resistance to Soldering Heat	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	<50mΩ	260±5°C for 10 seconds		
Voltage Proof	No breakdown o	r flashover		1.42 times RCWV (RMS) for 1 minute		
Leaching	Individual leach Total leaching a			260±5°C for 30 seconds		
Temperature Cycling	±(0.5%+0.05Ω)	±(1.5%+0.05Ω)	<50mΩ	-55°C to +125°C, 1000 cycles		
Moisture Resistance	±(2.0%+0.05Ω)	±(3.0%+0.05Ω)	<50mΩ	24 hrs/cycle		
Mechanical Shock	±(0.25%+0.05Ω)	±(1.0%+0.05Ω)	<50mΩ	Wave Form: Tolerance for half sine shock pulse. Peak value is 100g's. Normal duration (D) is 6.		
Vibration	±(0.5%+0.05Ω)	±(1.0%+0.05Ω)	<50mΩ	5 g's for 20 min., 12 cycles each of 3 orientations, 10-2000 Hz		
ESD	±(1%+0.05Ω)			Human body, 2KV		
Flame Retardance Not flame			Temperature sensing at 500 $^\circ\!C$, voltage power subjected to 32VDC current clamped up to 500ADC and decreased in 1.0VDC/hour.			
Resistance to solvents	Marking Unsmea	ared		Add Aqueous wash chemical - OKEM Clean or equivalent. Do not use banned solvents.		
Terminal strength	No broken			Force of 1.8kg for 60 seconds.		
Sulfur Test	△R±0.5%		<50mΩ	3~5ppm H2S, 50±2°C, 91~93% R.H., no power rating for 1000 hrs		

■ Reference Standards: IEC60115-1, 60068-2-58; JIS-C 5201-1, 6429; ASTM-B-809; AEC-Q200; MIL-STD-202; JESD22

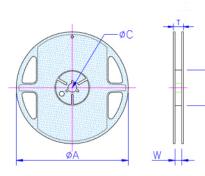
■ Storage Temperature: 25±3°C; Humidity < 80%RH

Packaging

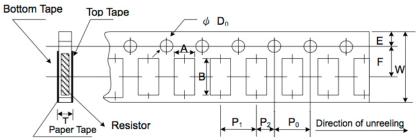
Reel Specifications & Packaging Quantity



Туре	Packagir Quantit		Tape Width	Reel Diameter	ΦΑ	ФВ	ΦC	w	т
CAS04	Paper	10K	0	7 in ch	470 5 4 5	60 ^{+1/-0}	10.0.0.0	0.010.5	40 5 40 5
CAS06 CAS10 CAS12 CAS14		5K	8mm	7 inch	178.5±1.5	60	13.0±0.2	9.0±0.5	12.5±0.5
CAS20 CAS25	Embossed	4K	12mm	7 inch	178.5±1.5	60+1/-0	13.0±0.5	13.0±0.5	15.5±0.5



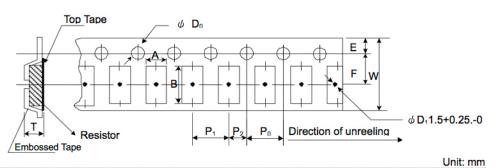
Paper Tape Specifications



Unit: mm

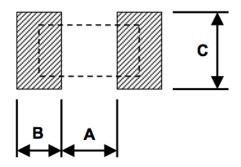
						Unit: mm				
Туре	Α	В	W	E	F	P ₀	P 1	P ₂	ΦD₀	Т
CAS04	0.65±0.10	1.15±0.10	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	2.00±0.05	2.00±0.05	1.50+0.1,-0	0.45±0.10
CAS06	1.10±0.10	1.90±0.10	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.70±0.10
CAS10	1.60±0.10	2.40±0.20	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.10
CAS12	1.90±0.10	3.50±0.20	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.10
CAS14	2.90±0.10	3.50±0.20	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.10

Embossed Plastic Tape Specifications



Туре	A	В	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	т
CAS20	2.8±0.10	5.5±0.10	12.0±0.30	1.75±0.10	5.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.1, -0	1.2 ⁺⁰
CAS25	3.5±0.10	6.7±0.10	12.0±0.30	1.75±0.10	5.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.1, -0	1.2 ⁺⁰

Recommend Land Pattern



Туре	Α	В	С
CAS04	0.50	0.45	0.60
CAS06	0.90	0.60	0.90
CAS10	1.20	0.70	1.30
CAS12	2.00	0.90	1.60
CAS14	2.00	0.90	2.80
CAS20	3.80	0.90	2.80
CAS25	3.80	1.60	3.50

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Unit: mm