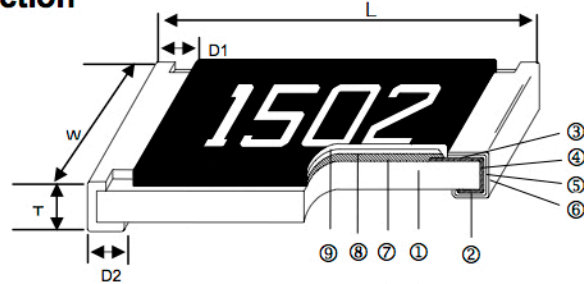


Automotive Grade Anti-Sulfurated Chip Resistor - CAS Series



Construction



① Alumina Substrate	④ Edge Electrode (NiCr)	⑦ Resistor Layer (RuO ₂ /Ag)
② Bottom Electrode (Ag)	⑤ Barrier Layer (Ni)	⑧ Primary Overcoat (Glass)
③ Top Electrode (Ag-Pd)	⑥ External Electrode (Sn)	⑨ Secondary Overcoat (Epoxy)

Features

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

Applications

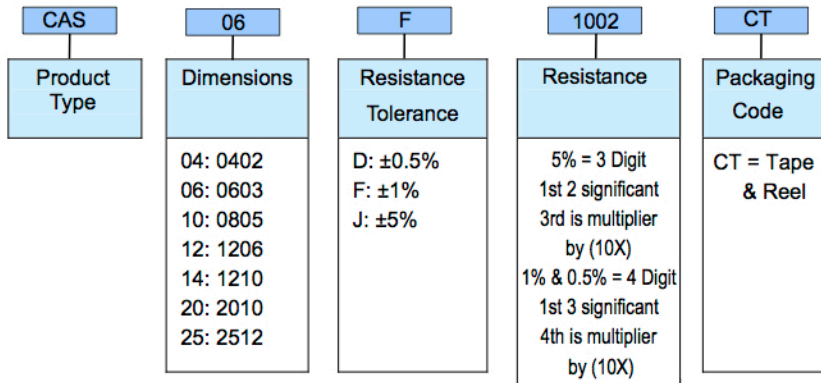
- Automotive
- High-end Computer
- Industrial Equipment
- Automatic Equipment Controller
- Medical Equipment
- High-end Multimedia Electronics
- Outdoor Electronic Applications

Dimensions

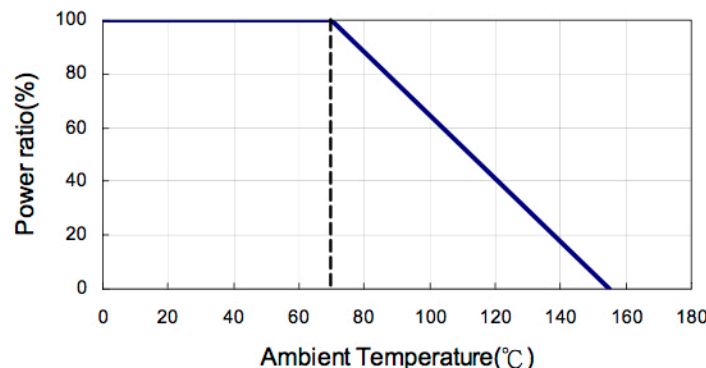
Unit: mm

Type	Size (Inch)	L	W	T	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

Part Numbering



Derating Curve



Environmental Characteristics

Item	Requirement			Test Method
	1% and Below	5%	Jumper	
High Temperature Exposure	$\pm(1.0\%+0.05\Omega)$	$\pm(1.5\%+0.10\Omega)$	<50m Ω	at +155°C for 1000 hrs
Bending Strength	$\pm(1.0\%+0.05\Omega)$	$\pm(1.0\%+0.05\Omega)$	<50m Ω	Bending once for 5 seconds 2010, 2512 sizes: 2 mm Other sizes: 3mm
Thermal Shock	$\pm(0.5\%+0.05\Omega)$	$\pm(1.0\%+0.05\Omega)$	<50m Ω	-55C/+155°C. Note: Number of cycles required-300, Maximum transfer time-20 seconds, Dwell time-15minutes. Air-Air.
Solderability	95% min. coverage			245 \pm 5°C for 3 seconds
Resistance to Soldering Heat	$\pm(0.5\%+0.05\Omega)$	$\pm(1.0\%+0.05\Omega)$	<50m Ω	260 \pm 5°C for 10 seconds
Voltage Proof	No breakdown or flashover			1.42 times RCWV (RMS) for 1 minute
Leaching	Individual leaching area \leq 5% Total leaching area \leq 10%			260 \pm 5°C for 30 seconds
Temperature Cycling	$\pm(0.5\%+0.05\Omega)$	$\pm(1.5\%+0.05\Omega)$	<50m Ω	-55°C to +125°C, 1000 cycles
Moisture Resistance	$\pm(2.0\%+0.05\Omega)$	$\pm(3.0\%+0.05\Omega)$	<50m Ω	24 hrs/cycle
Mechanical Shock	$\pm(0.25\%+0.05\Omega)$	$\pm(1.0\%+0.05\Omega)$	<50m Ω	Wave Form: Tolerance for half sine shock pulse. Peak value is 100g's. Normal duration (D) is 6.
Vibration	$\pm(0.5\%+0.05\Omega)$	$\pm(1.0\%+0.05\Omega)$	<50m Ω	5 g's for 20 min., 12 cycles each of 3 orientations, 10-2000 Hz
ESD	$\pm(1\%+0.05\Omega)$			Human body, 2KV
Flame Retardance	Not flame			Temperature sensing at 500°C, voltage power subjected to 32VDC current clamped up to 500ADC and decreased in 1.0VDC/hour.
Resistance to solvents	Marking Unsmearred			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	$\Delta R \pm 0.5\%$		<50m Ω	3~5ppm H2S, 50 \pm 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

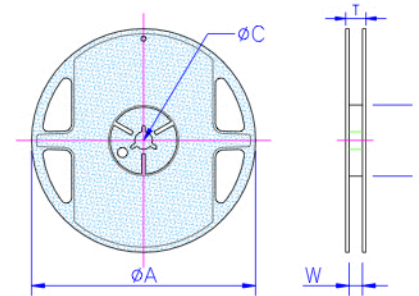
■ Storage Temperature: 25 \pm 3°C; Humidity < 80%RH

■ Packaging

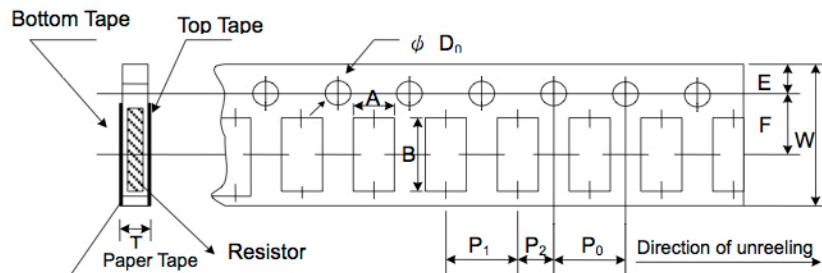
Reel Specifications & Packaging Quantity

Unit: mm

Type	Packaging Quantity	Tape Width	Reel Diameter	ΦA	ΦB	ΦC	W	T	
CAS04	Paper	10K	7 inch	178.5±1.5	60 ^{+1/0}	13.0±0.2	9.0±0.5	12.5±0.5	
CAS06		5K							
CAS10									
CAS12									
CAS14									
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



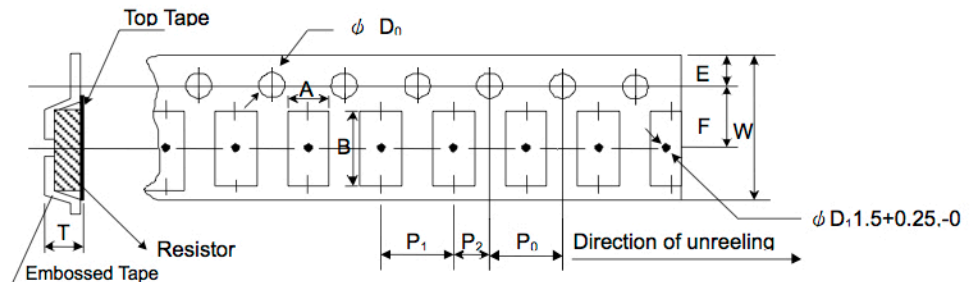
Paper Tape Specifications



Unit: mm

Type	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	T
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

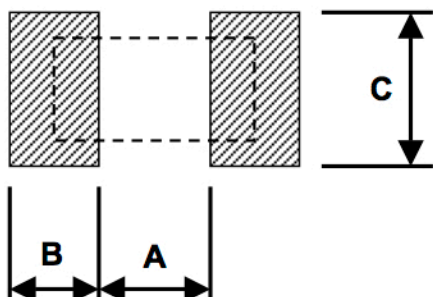


Unit: mm

Type	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	T
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

Unit: mm



Type	A	B	C
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