Data Sheet

Customer:	
Product:	Automotive Grade Current Sensing Thin Film Chip Resistor – CSTF..A Series
Size:	1206
Issued Date:	07-Nov-25
Edition:	REV.A

RoHS Compliant

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07-Nov-25	07-Nov-25	07-Nov-25		
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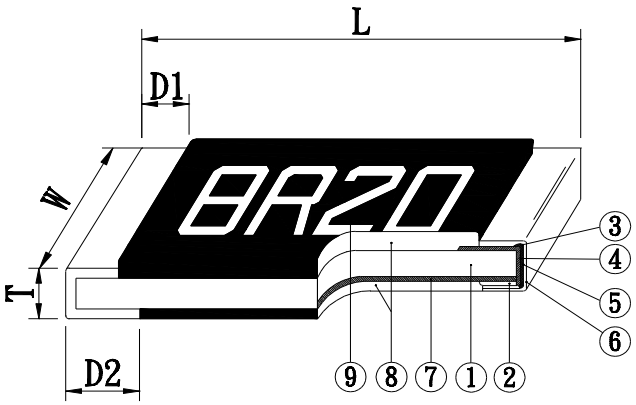
Automotive Grade Current Sensing Thin Film Chip Resistor



Features

- AEC-Q200 Qualified
- Highly reliable multilayer electrode construction
- Reduced size of final equipment reliability
- Low TCR of ±50 PPM/°C
- Resistance values from 1 to 10 ohm
- High purity alumina substrate for high power dissipation
- RoHS Compliance
- 100% CCD inspection
- MSL: Level 1

Construction



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

Applications

- Automotive Industry
- Power Management Applications
- Switching Power Supply
- Over Current Protection in Audio Applications
- Voltage Regulation Module (VRM)
- DC-DC Converter, Battery Pack, Charger, Adaptor
- Automotive Engine Control
- Disk Driver

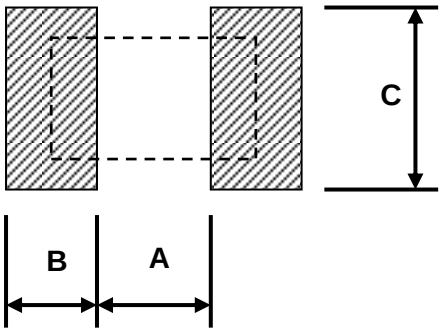
Dimensions

Type	Size (Inch)	L (mm)	W (mm)	T (mm)	D1 (mm)	D2 (mm)	Weight (g) (1000pcs)
CSTF06	1206	3.10±0.10	1.55±0.10	0.55±0.10	0.40±0.25	0.40±0.25	9.2

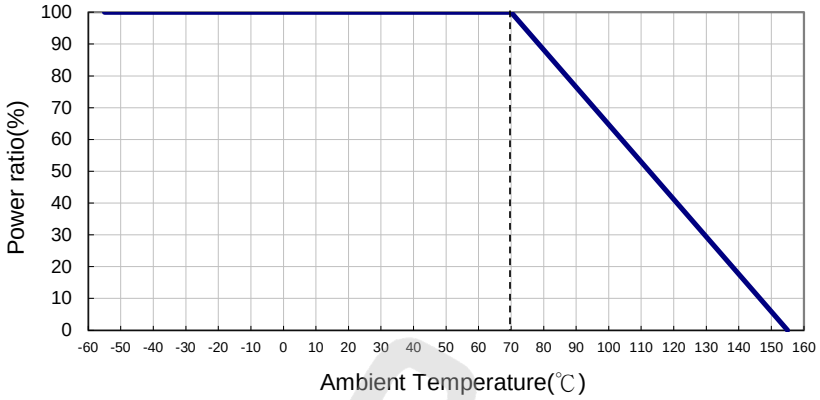
Part Numbering

CSTF	06	F	T	D	U	0010	A
Product Type	Dimensions (L×W)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Marking
	06: 1206	F: ±1% G: ±2% J: ±5%	T: Taping Reel	D: ±50 E: ±100	T: 1W U: 1/2W	0010: 1Ω 4R70: 4.7Ω 0100: 10Ω	A: Automotive Grade

■Recommend Land Pattern



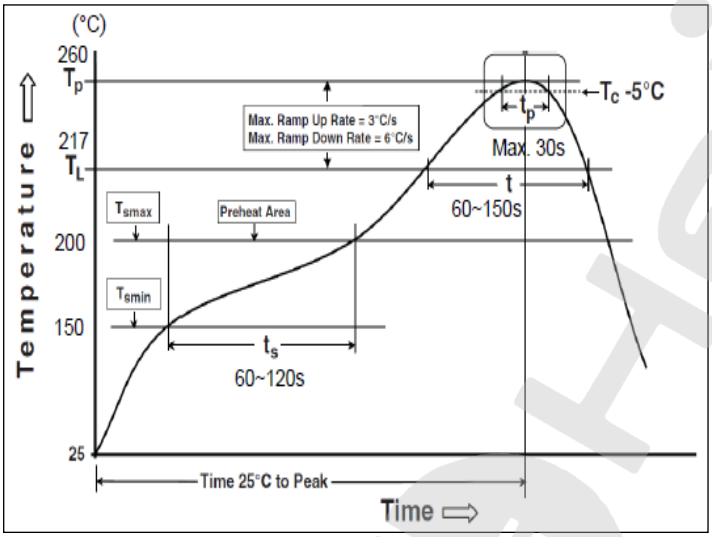
■Derating Curve



Pad Layout

Type	A (mm)	B (mm)	C (mm)
CSTF06	2.00	1.15	1.70±0.2

■Soldering Condition (Ref. IPC/JEDEC J-STD-020 & J-STD-002)



Reflow Profiles	
Profile Feature	**Pb-Free Assembly**
Preheat Min. Temperature (Tsmin) Max Temperature (Tsmax) Preheating time (ts) from (Tsmin to Tsmax)	 150 °C 200 °C 60-120 seconds
Ramp-up rate (T_L to Tp)	3 °C/second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L	217 °C 60-150 seconds
Min. Peak temperature (Tp min)	235°C
Max. Peak temperature (Tp max)	260°C
Time (tp) within 5 °C of the specified classification temperature (Tc)	30 seconds max.
Ramp-down rate (Tp to T_L)	6 °C/second max.
Time 25 °C to peak temperature	8 minutes max.

■Electrical Specifications

Type \ Item	Power Rating at 70°C	Operating Temp. Range	Max. Operating Current	Resistance Range			TCR (PPM/°C)
				±1% (E24、E96)	±2% (E24)	±5% (E24)	
CSTF06 (1206)	1/2W 1W	-55 ~ +155°C	0.707A 1A	1Ω - 10Ω			±50 ±100

Operating Voltage=√(P*R) ; Operating Current=√(P/R)

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

■Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	**JIS C 5201-1 4.8** **IEC 60115-1 4.8** At 25°C/+125°C, 25°C is the reference temperature
Short Time Overload	±(1.0%+0.05Ω)	**JIS C 5201-1 4.13** **IEC 60115-1 4.13** RCWV*2.5 or Max. Overload Voltage whichever is lower for 5 seconds
Insulation Resistance	≧10G	**JIS C 5201-1 4.6** **IEC 60115-1 4.6** Max. Overload Voltage for 1 minute
Operational Life(Endurance)	±(1.0%+0.05Ω)	**JIS-C-5201-1 4.25** **IEC-60115-1 4.25.1** 70±2°C, RCWV for 1000 hrs with 1.5 hrs “ON” and 0.5 hr “OFF”
Biased Humidity	±(0.5%+0.05Ω)	**MIL-STD-202 Method 103** 1000 hrs 85°C/85%RH 10% of operating power(≦100V).
High Temperature Exposure	±(1.0%+0.05Ω)	**MIL-STD-202 Method 108** at +155°C for 1000 hrs
Board Flex	±(1.0%+0.05Ω)	**AEC-Q200-005** Bending once for 60 seconds
Solderability	95% min. coverage	**JIS C 5201-1 4.17** **IEC 60115-1 4.17** **J-STD-002** 245±5°C for 3 seconds
Resistance to Soldering Heat	±(0.5%+0.05Ω)	**MIL-STD-202 Method 210** 260±5°C for 10 seconds
Voltage Proof	No breakdown or flashover	**JIS C 5201-1 4.7** **IEC 60115-1 4.7** 1.42 times Max. Operating Voltage for 1 minute CSTF06:400V
Leaching	Individual leaching area ≦5% Total leaching area ≦10%	**JIS C 5201-1 4.18** **IEC 60068-2-58 8.2.1** 260±5°C for 30 seconds
Temperature Cycling	±(1.0%+0.05Ω)	**JESD22 Method JA-104** -55°C to +155°C, 1000 cycles
Mechanical Shock	±(0.25%+0.05Ω)	**MIL-STD-202 Method 213** Wave Form: Tolerance for half sine shock pulse. Peak value is 100g’s. Normal duration (D) is 6.
Vibration	±(0.5%+0.05Ω)	**MIL-STD-202 Method 204** 5 g’s for 20 min., 12 cycles each of 3 orientations, 10-2000 Hz
ESD	±(1.0%+0.05Ω)	**AEC-Q200-002** Human body, 2KV
Resistance to Solvents	No visible damage on appearance and marking.	**MIL-STD-202 Method 215** Add Aqueous wash chemical - OKEM Clean or equivalent. Do not use banned solvents.
Terminal Strength	No broken	**AEC-Q200-006** Force of 1.8kg for 60 seconds.
Flammability	No ignition of the tissue paper or scorching or the pinewood board	**UL-94** V-0 or V-1 are acceptable. Electrical test not required.

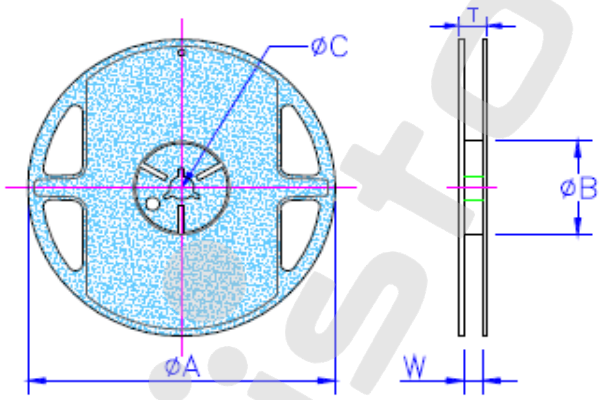
Item	Requirement	Test Method
Sulfur Test	△R±1%	**EIA-977 (Condition A)** 60±2°C, no power rating for 500 hrs.

RCWV(Rated Continuous Working Voltage)=√(P*R) or Max. Operating Voltage whichever is lower.

- **Storage Temperature: 15~28°C; Humidity < 80%RH**
- **Shelf Life: 2 years from production date.**

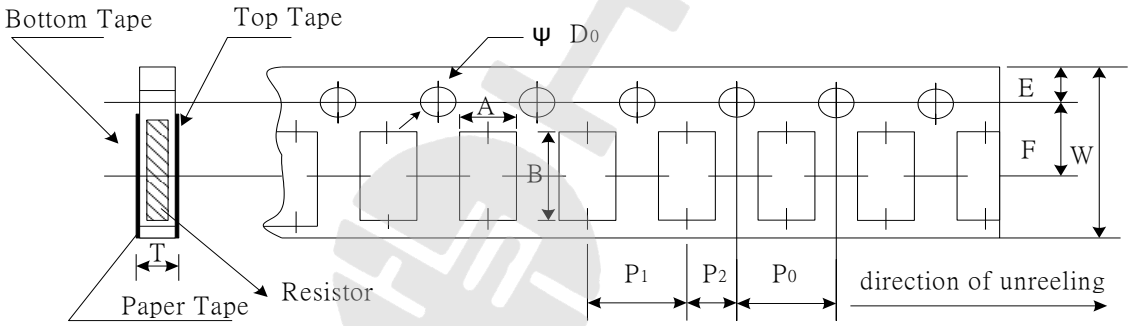
■Packaging

Packaging Quantity & Reel Specifications



Type	ΦA (mm)	ΦB (mm)	ΦC (mm)	W (mm)	T (mm)	Paper Tape (EA)
CSTF06	178.0±1.0	60.0+1.0	13.5±0.7	9.5±0.1	11.5±1.0	5,000

Paper Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P0 (mm)	P1 (mm)	P2 (mm)	ΦD0 (mm)	T (mm)
CSTF06	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

■Marking

1%, 5% for 1206: 4 digits marking

Example:

Resistance	1Ω	4.7Ω	10Ω
Marking	1R00	4R70	10R0

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A	Nov 07, 2025	-	- New product release