Data Sheet

Customer:	
Product:	Thick Film High Power Chip Resistor (Aluminum Nitride Substrate)- CRP Series
Size :	2512/1206
Issued Date:	26-Aug-25
Edition:	REV.A4

RoHS Compliant

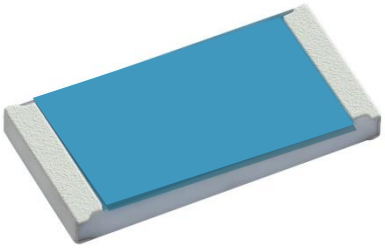
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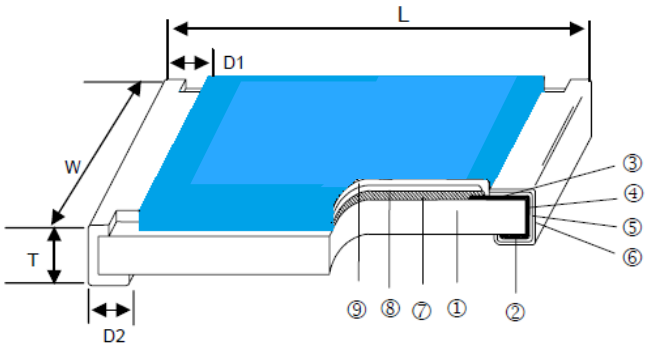
Thick Film High Power Chip Resistor Aluminum Nitride Substrate



■Features

- Thick film resistive element on an aluminum nitride (AlN) substrates
- Lead (Pb)-free wraparound termination over nickel barrier.
- MSL: Level 1

■Construction



①	Aluminum Nitride 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

■Applications

- Industrial
- Telecom markets

■Dimensions

Type	Size (Inch)	L (mm)	W (mm)	T (mm)	D1 (mm)	D2 (mm)
CRP06	1206	3.10±0.13	1.52±0.13	0.51±0.13	0.38±0.13	1.22±0.13
CRP12	2512	6.35±0.13	3.15±0.13	0.51±0.13	0.60±0.25	2.70±0.10

■Part Numbering

CRP	12	F	L	4	----1K
Product Type	Dimensions	Resistance Tolerance	Function Code	Packaging Code	Resistance
CRP	06: 1206 12: 2512	F: ±1% J: ±5%	L: Standard	4: 7” Reel 4Kpcs 7: 7” Reel 5Kpcs	- - - -1K: 1KΩ - - - 10R: 10Ω “-“ to fill up 6 spaces

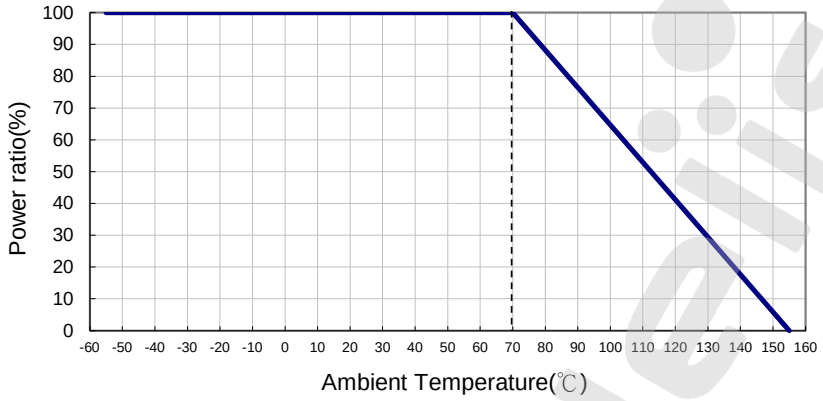
■Electrical Specifications

Item / Type	Power Rating at 70℃	Operating Temp. Range	Max. Operating Voltage	Resistance Range (Ω)		TCR (PPM/℃)
				±1%(E24、E96)	±5%(E24)	
CRP06	2.4W	-55 ~ +155°C	200	10Ω – 2KΩ		±150
CRP12	3.5W	-55 ~ +155°C	200	3Ω – 2KΩ		±150

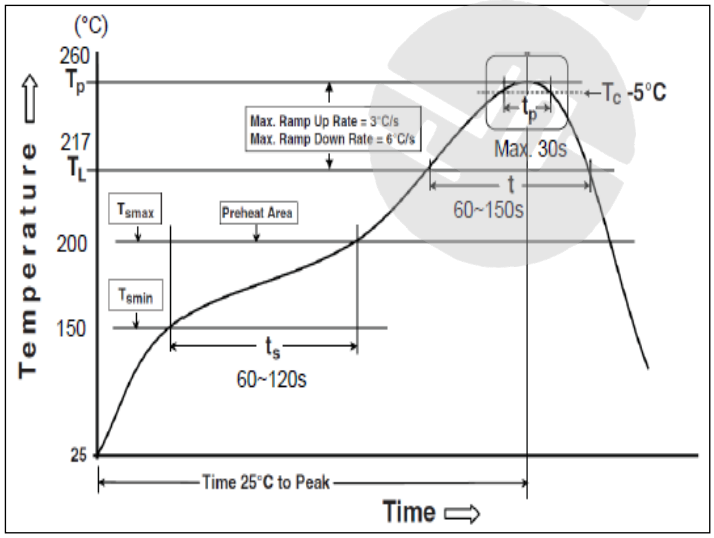
Operating Voltage=$\sqrt{}$(P*R) or Max. operating voltage listed above, whichever is lower.

The power rating depends on the maximum temperature of the resistive element. The maximum power rating only applies if the temperature of the resistive element is maintained below 155℃.

■Derating Curve



■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.

■Environmental Characteristics

Item	Requirement	Typical	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	± 120 ppm	**JIS-C-5201-1 4.8** **IEC-60115-1 4.8** At 25°C/-55°C and 25°C/+125°C, 25°C is the reference temperature
Short Time Overload	± 0.50 %	± 0.10 %	CRP06:4.7W applied for 5s CRP12:7.7W applied for 5s
Endurance	± 0.50 %	± 0.20 %	**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”
High Temperature Exposure	± 0.50 %	± 0.10 %	**MIL-STD-202 Method 108** +150℃ for 100hrs
Solderability	95% min. coverage	95% min. coverage	**JIS-C-5201-1 4.17** **IEC-60115-1 4.17** 245±5°C for 3 seconds
Terminal Strength	No evidence of mechanical damage	No evidence of mechanical damage	CRP06:2kg force applied CRP12:3kg force applied
Moisture Resistance	± 0.50 %	± 0.15 %	≥ 80% RH, 240 hrs
Resistance to Soldering Heat	± 0.50 %	± 0.20 %	**MIL-STD-202 Method 210** 260±5°C for 10 seconds

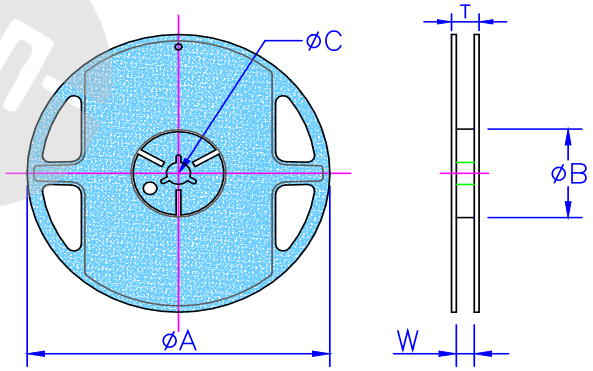
RCWV(Rated Continuous Working Voltage)=√(P*R) or Max. Operating Voltage whichever is lower.

■Storage Temperature: 15~28°C; Humidity < 80%RH

■Shelf Life: 2 years from production date.

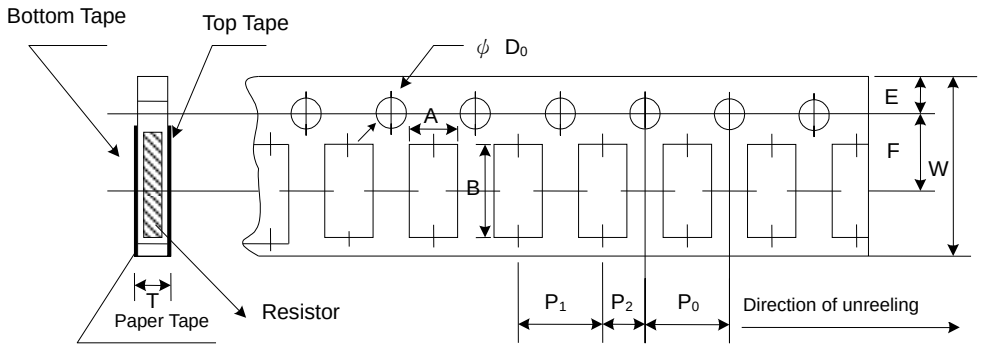
■Packaging

Reel Specifications & Packaging Quantity



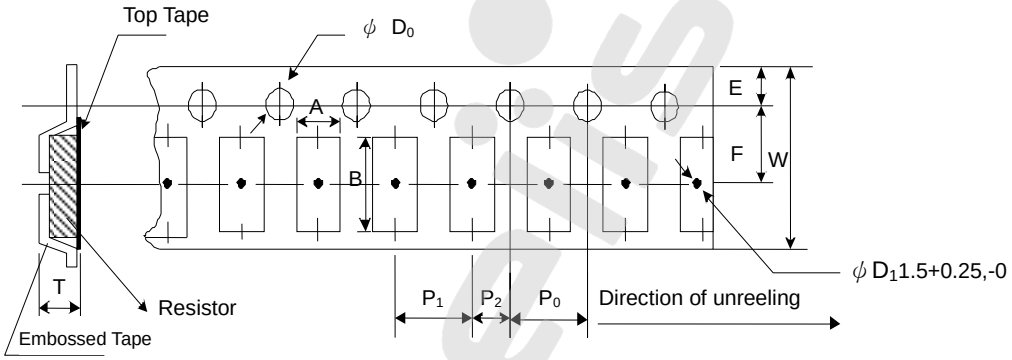
Type	Packaging Quantity		Tape Width	Reel Diameter	ΦA (mm)	ΦB (mm)	ΦC (mm)	W (mm)	T (mm)
1206	Paper	5K	8mm	7 inch	178.5±1.5	$60^{+1/-0}$	13.0±0.2	9.0±0.5	12.5±0.5
2512	Embossed	4K	12mm	7 inch	178.5±1.5	$60^{+1/-0}$	13.0±0.5	13.0±0.5	15.5±0.5

Paper Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P0 (mm)	P1 (mm)	P2 (mm)	ΦD0 (mm)	T (mm)
1206	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

Embossed Plastic Tape Specifications

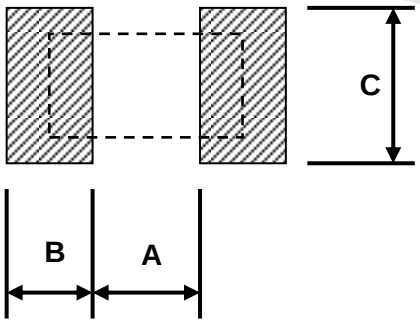


Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P0 (mm)	P1 (mm)	P2 (mm)	ΦD0 (mm)	T (mm)
2512	3.50±0.10	6.70±0.10	12.0±0.30	1.75±0.10	5.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.1, -0	1.2^{+0}

■Marking

No Marking

■Recommend Land Pattern



Type	A (mm)	B (mm)	C (mm)
CRP06	0.46	1.73	1.68
CRP12	0.61	3.40	3.30

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A	Mar 10, 2021	-	- New product release
Version A1	Nov 15, 2021	-	- Increase the shelf life description
Version A2	Feb 15, 2022	-	- Derating Curve changes the temperature range
Version A3	Jun 15, 2022	-	- Modify Soldering Condition
Version A4	Aug 26, 2025	-	- Modify the descriptions in the Features