

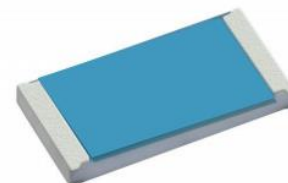
Thick Film High Power Chip Resistor Aluminum Nitride Substrate

■ Features

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

■ Applications

- Industrial.
- Telecom markets.



■ GENERAL SPECIFICATIONS

Model	Rated Power @70°C [W]	Max. Operating Voltage [V]	Resistance Range [Ω]		Operating Temp. Range [°C]	TCR [PPM/°C]
			±1% (E24-E96)	±5% (E24)		
CRP06	2.4	200	10 - 2K		-55~+155	±150
CRP12	3.5	200	3 - 2K		-55~+155	±150

- **Operating Voltage** = $\sqrt{P \times R}$ or Max. operating voltage listed above, whichever is low.
- **Overload Voltage** = $2.5 \times \sqrt{P \times R}$ or Max. overload voltage listed above, whichever is low.
- The power rating depends on the maximum temperature of the resistive element.
- The maximum power rating only applies the temperature of the resistive element is maintained below 155°C.

■ CHARACTERISTICS

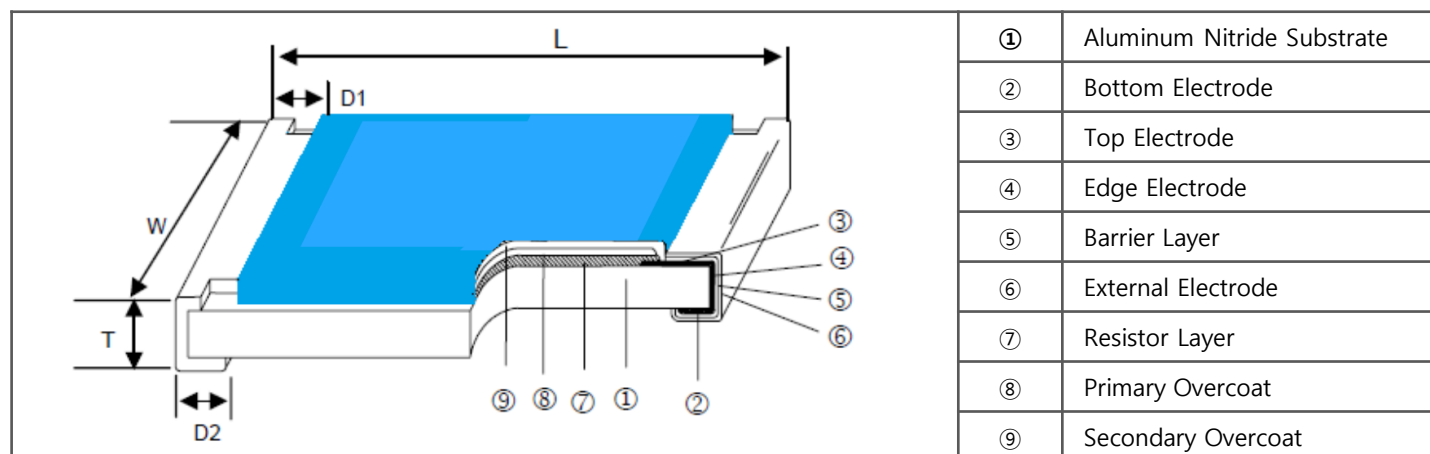
Test	Requirement	Typical	Test Method
Temperature Coefficient of Resistance (T.C.R)	As spec.	±120 ppm	JIS-C-5201-1 4.8 IEC-60115-1 4.8 At 25°C/-55°C and 25°C/+125°C, 25°C is the reference temperature
Short Time Overload	±0.50%	±0.10%	CRP06 : 4.7W applied for 5 seconds CRP12 : 7.7W applied for 5 seconds
Endurance	±0.50%	±0.20%	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1 70±2°C, RCWV for 1000hrs with 1.5 hrs "ON" and 0.5 hr "OFF"
High Temperature Exposure	±0.50%	±0.10%	MIL-STD-202 Method 108 +150°C 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	±0.5%	±0.15%	≥80% RH, 240 hrs
Resistance to Soldering Heat	±0.5%	±0.20%	MIL-STD-202 Method 210 260±5°C for 10 seconds

- RCWV (Rated Continuous Working Voltage) = $\sqrt{P \times R}$ or Max. operating voltage whichever is low.

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

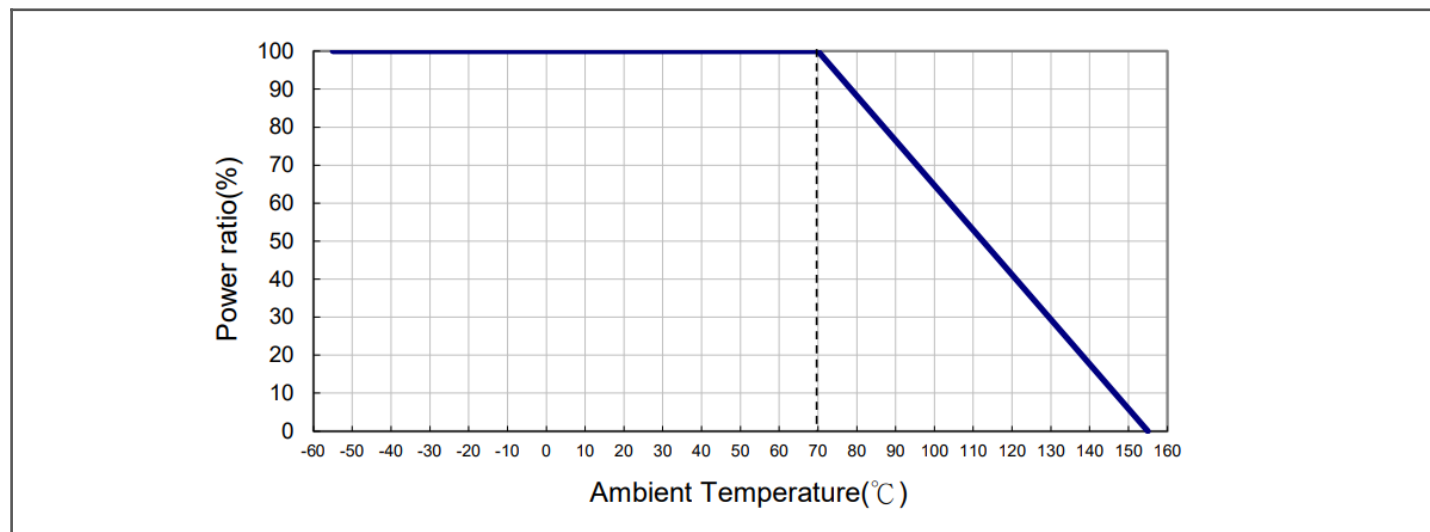
■ Shelf Life : 2 years from production date.

CONSTRUCTION & 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

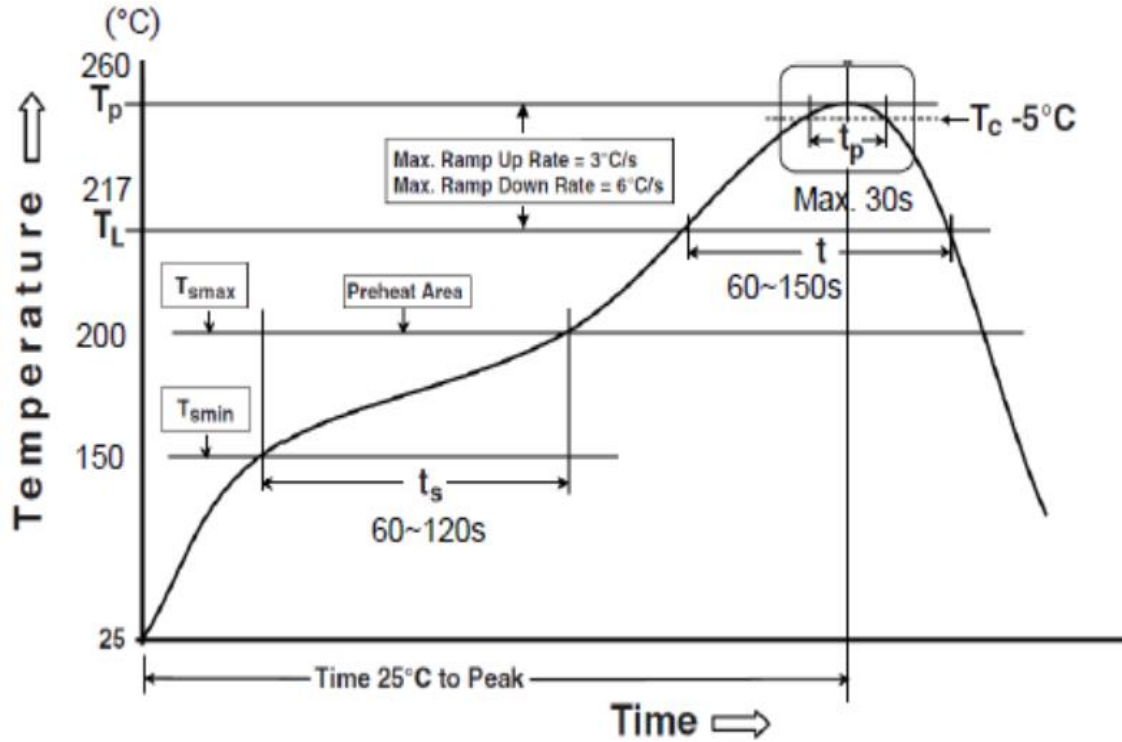
DERATING CURVE



PART NUMBERING

CRP	12	F	L	4	----1K
Model	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

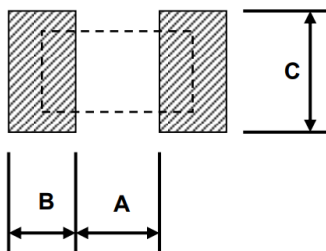
SOLDERING CONDITION (Ref. IPC/JEDEC J-STD-020 & J-STD-002)



Profile Feature	Pb-Free Assembly
Preheat Min. Temperature (T_{smin}) Max. Temperature (T_{smax}) Preheating time (t_s) from (T_{smin} to T_{smax})	150°C 200°C 60-120 seconds
Ramp-up rate (T_L to T_p)	3°C/second max.
Liquidous temperature (T_L) Time (t) maintained above T_L	217°C 60-150 seconds
Min. Peak temperature (T_p min)	235°C
Max. peak temperature (T_p max)	260°C
Time (t_p) within 5°C of the specified classification temperature (T_c)	30 seconds max.
Ramp-down rate (T_p to T_L)	6°C/second max.
Time 25°C to peak temperaute	8 minutes max.

RECOMMEND LAND PATTERN

* Unit : mm

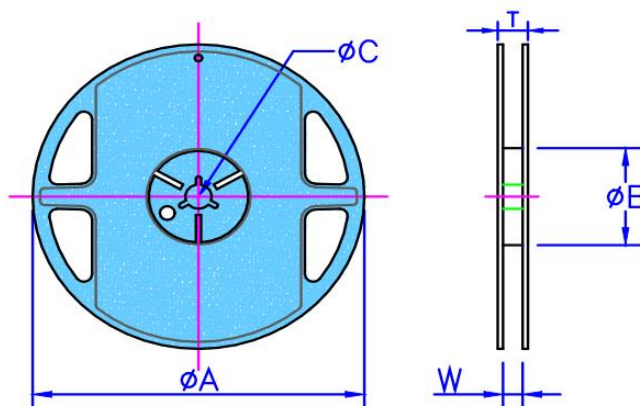


Type	A	B	C
CRP06	0.46	1.73	1.68
CRP12	0.61	3.40	3.30

PACKAGING

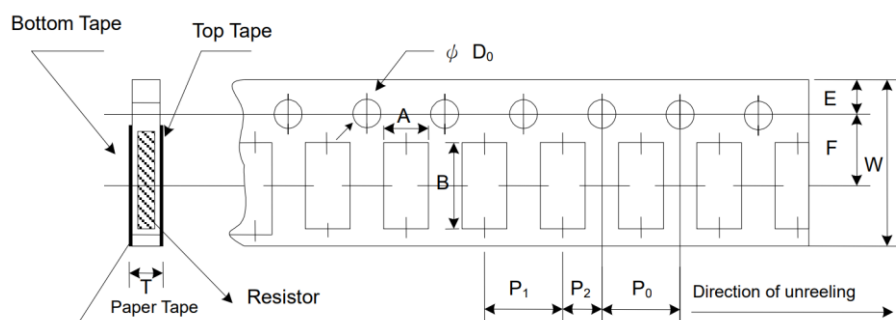
* Unit : mm

* Reel Specifications & Packaging Quantity



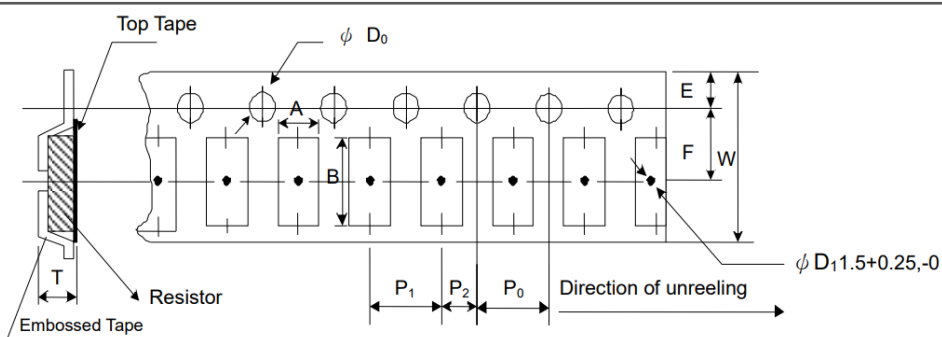
Type	Packaging Quantity		Tape Width	Reel Diameter	ØA	ØB	ØC	W	T
1206	Paper	5K	8mm	7 inch	178.5±1.5	60 ^{+1/-0}	13.0±0.2	9.0±0.5	12.5±0.5
2512	Embossed	4K	12mm	7 inch	178.5±1.5	60 ^{+1/-0}	13.0±0.5	13.0±0.5	15.5±0.5

* Paper Tape Specifications



Type	A	B	W	E	F	P0	P1	P2	ØD0	T
1206	1.90±0.1	3.50±0.2	8.0±0.2	1.75±0.1	3.5±0.05	4.00±0.1	4.00±0.1	2.0±0.05	1.5±0.1	0.85±0.1

* Embossed Plastic Tape Specifications



Type	A	B	W	E	F	P0	P1	P2	ØD0	T
2512	3.50±0.1	6.70±0.1	12.0±0.3	1.75±0.1	5.5±0.05	4.00±0.1	4.00±0.1	2.0±0.05	1.5±0.1	1.2±0

MARKING

- No Marking