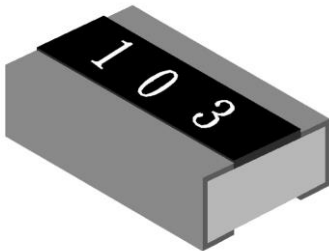




CRW Series Thick Film Wide Terminal
Chip Resistor Product Specifications

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Thick Film Wide Terminal Chip Resistor— CRW Series



Application

- Navigation equipment
- Power equipment: Power supply, Illumination equipment
- Indoor lighting, Central door locking

Features

- Small size and light weight
- Reliability, high quality
- Chip resistor of the wide terminal type

Parts Number Explanation

Example:

CRW	0612	J	10R0	P	05	Z
Product Type	Size (Inch)	Resistor Tolerance	Resistor Value	Package	Quantity	Optional
CRW	0508 0612 1020 1218 1225	F : ±1% J : ±5%	10mR=R010 100mR=R100 1R=1R00 10R=10R0 100R=100R 1K=1K00 1M=1M00	P : Paper Taping (0508、0612) E : Embossed Taping (1020~1225)	04 : 4000PCS 05 : 5000PCS	Z : Default H: High Power



CRW Series Thick Film Wide Terminal
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■ Standard Electrical Specifications

Type \ Item	Rated Power at 70℃	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range	
					F (±1%)	J (±5%)
CRW0508	0.75W	200V	400V	±200	1Ω≤R<10Ω	
				±100	10Ω≤R≤1MΩ	
CRW0612	0.75W			±200	1Ω≤R<10Ω	
				±100	10Ω≤R≤10MΩ	
CRW1020	1W			±200	1Ω≤R<10Ω	
				±100	10Ω≤R≤10MΩ	
CRW1218	1W			±200	1Ω≤R<10Ω	
				±100	10Ω≤R≤10MΩ	
CRW1225	2W			±200	1Ω≤R<10Ω	
				±100	10Ω≤R≤10MΩ	

- For non-standard parts, please contact our sales dept.
- Operating Temperature Range : -55℃ ~ +155℃

■ High Power Electrical Specifications

Type \ Item	Rated Power at 70℃	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range	
					F (±1%)	J (±5%)
CRW0508	1W	200V	400V	±150	1Ω ≤ R < 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	
CRW0612	1.5 W			±100	1Ω ≤ R ≤ 10MΩ	
CRW1020	2 W			±100	1Ω ≤ R ≤ 10MΩ	
CRW1218	2 W			±100	1Ω ≤ R ≤ 10MΩ	
CRW1225	3W			±100	1Ω ≤ R ≤ 10MΩ	

- For non-standard parts, please contact our sales dept.
- Operating Temperature Range : -55℃ ~ +155℃



CRW Series Thick Film Wide Terminal
Chip Resistor Product Specifications

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Low Ohm Chip Resistor Electrical Specifications

Type \ Item	Rated Power at 70℃	Rated Voltage Range	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range (mΩ)
					F(±1%)、J(±5%)
CRW0612	0.75W	0.087~0.86V	2.154V	±1800	10 ≤ R < 50
				±800	50 ≤ R < 100
				±600	100 ≤ R < 1000
CRW1020	1W	0.10~0.99V	2.475V	±1800	10 ≤ R < 50
				±800	50 ≤ R < 100
				±600	100 ≤ R < 1000
CRW1218	1W	0.10~0.99V	2.475V	±1800	10 ≤ R < 50
				±800	50 ≤ R < 100
				±600	100 ≤ R < 1000
CRW1225	2W	0.14~1.41V	3.518 V	±1800	10 ≤ R < 50
				±800	50 ≤ R < 100
				±600	100 ≤ R < 1000

- For non-standard parts, please contact our sales dept.
- Operating Temperature Range : -55℃ ~ +155℃

Jumper Electrical Specifications

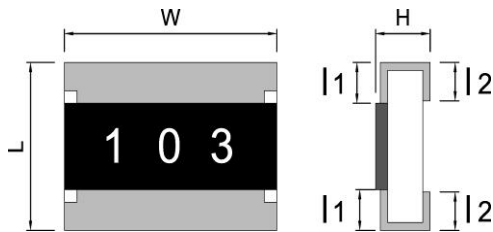
Type	0612	1020	1218	1225
Jumper Resistance Value	20mΩMax			
Jumper Rated Current	4A	6A	6A	8A
Max. Over Load Current <1 second and 1 times	15A	22A	22A	30A



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Chip Resistor Product Specifications

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Type Dimension



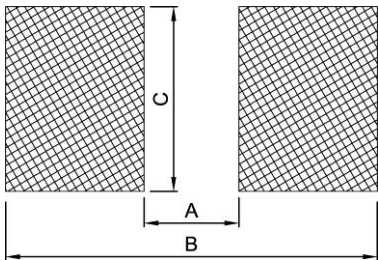
CRW0508 / CRW0612 / CRW1020 / CRW1218 / CRW1225

Dimension Unit: mm

Type	L	W	H	l ₁	l ₂
CRW0508	1.25 ± 0.10	2.00 ± 0.10	0.55 ± 0.10	0.25 ± 0.20	0.50 ± 0.20
CRW0612	1.60 ± 0.20	3.20 ± 0.20	0.55 ± 0.10	0.30 ± 0.20	0.50 ± 0.20
CRW1020	2.50 ± 0.20	5.00 ± 0.20	0.55 ± 0.10	0.40 ± 0.20	0.75 ± 0.20
CRW1218	3.10 ± 0.10	4.60 ± 0.10	0.55 ± 0.05	0.40 ± 0.20	0.50 ± 0.20
CRW1225*Z	3.20 ± 0.20	6.50 ± 0.20	0.55 ± 0.20	0.40 ± 0.20	0.75 ± 0.20
CRW1225*H	3.20 ± 0.20	6.50 ± 0.20	0.65 ± 0.20	0.40 ± 0.20	0.75 ± 0.20

General Information

Recommend Land Pattern Design



Dimension Unit: mm

Type	0508	0612	1020	1218	1225
Item					
A	0.4	0.60	0.75	2.04	0.85
B	1.8	2.90	3.40	4.24	3.70
C	2.00	3.20	5.00	4.80	6.40



CRW Series Thick Film Wide Terminal
Chip Resistor Product Specifications

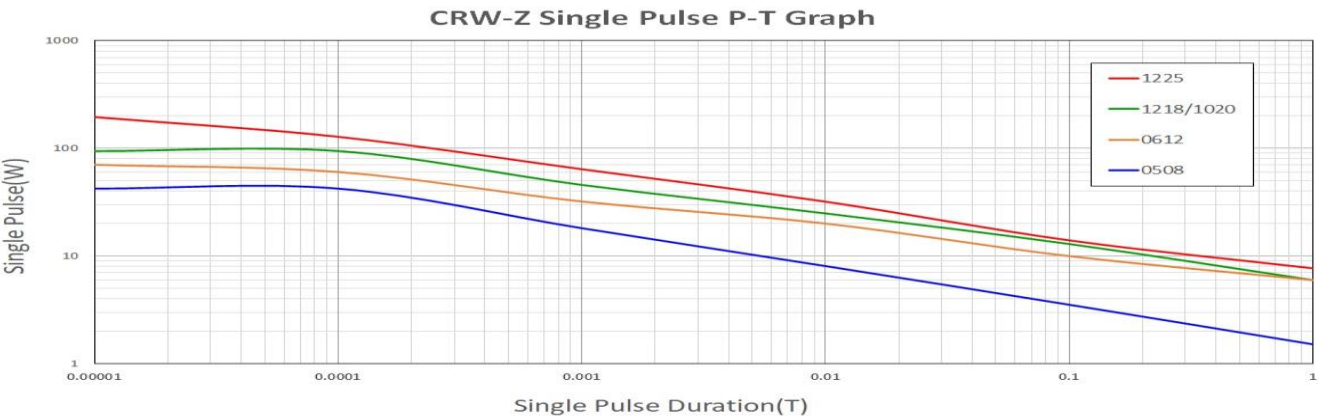
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■ Performance Characteristics

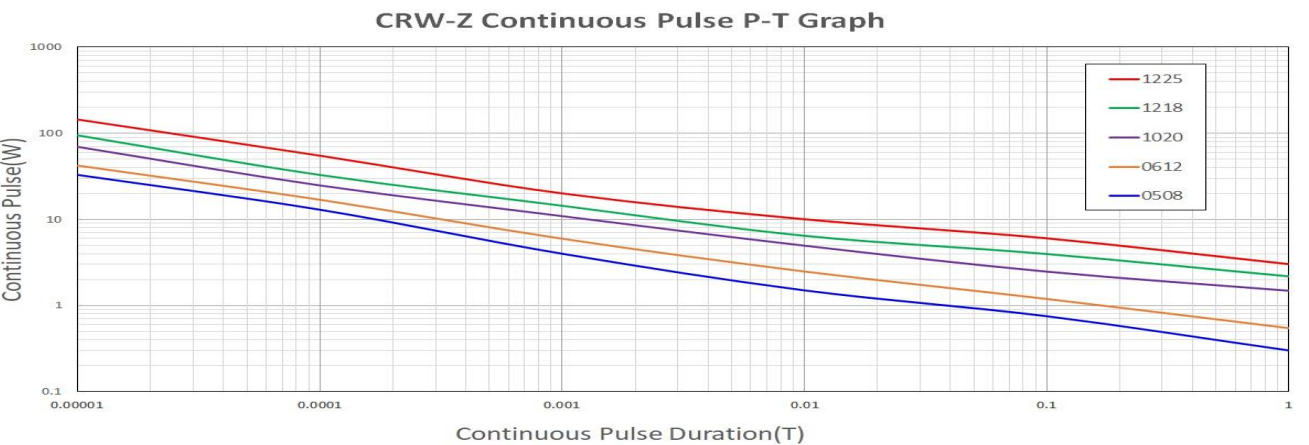
■ Functional performance

CRW-Z :

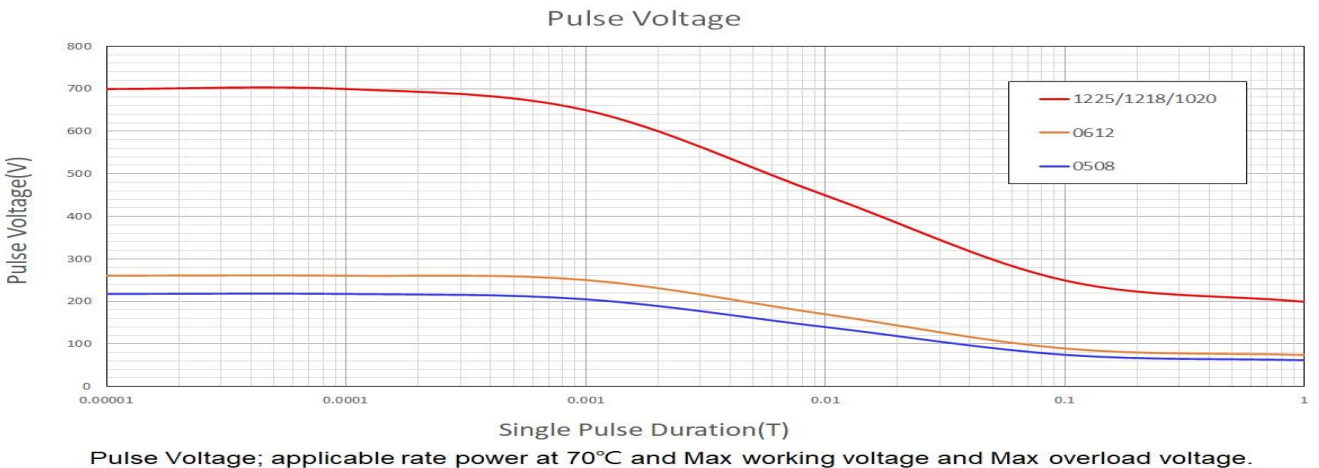
Single Pulse



Continuous Pulse



Pulse Voltage

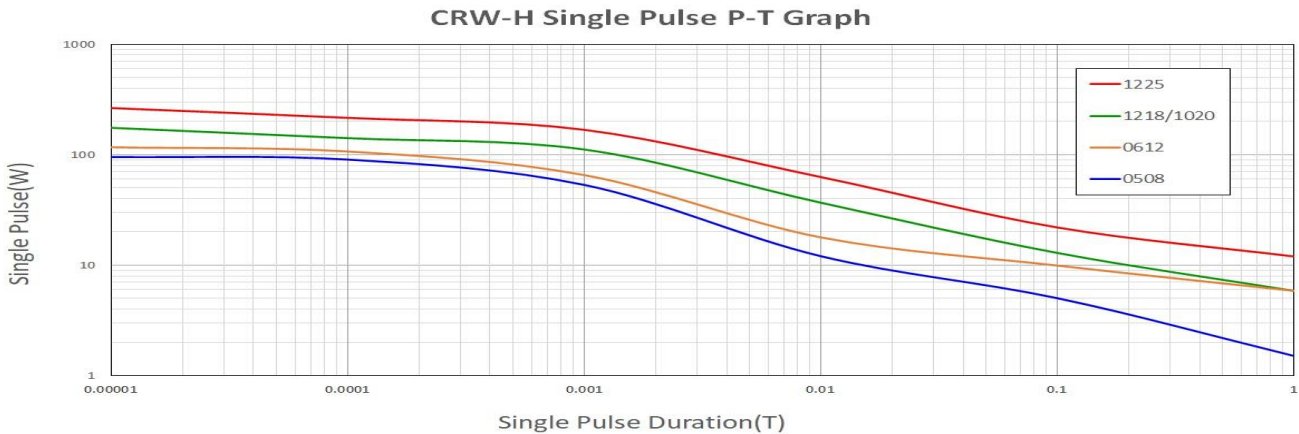




CRW Series Thick Film Wide Terminal
Chip Resistor Product Specifications

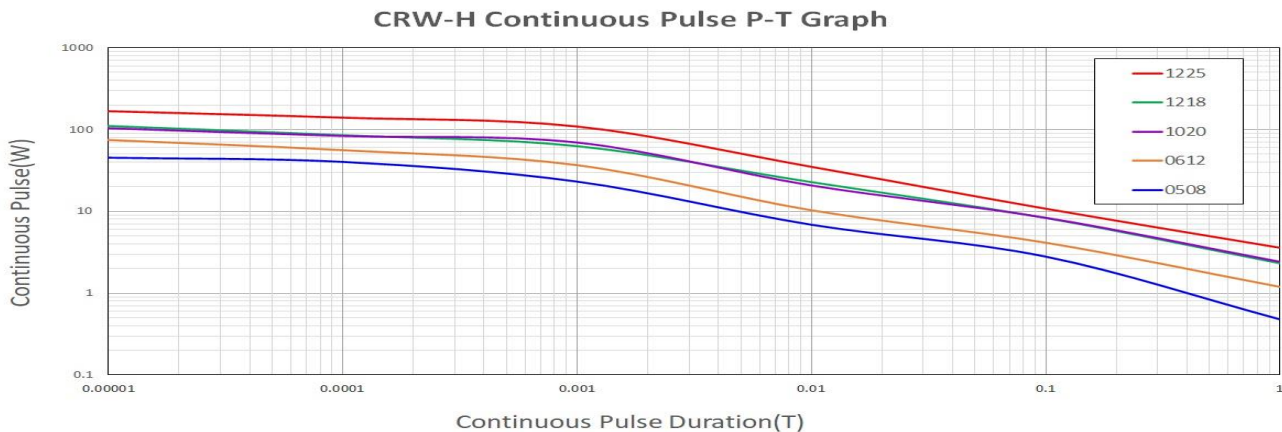
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CRW-H :
Single Pulse



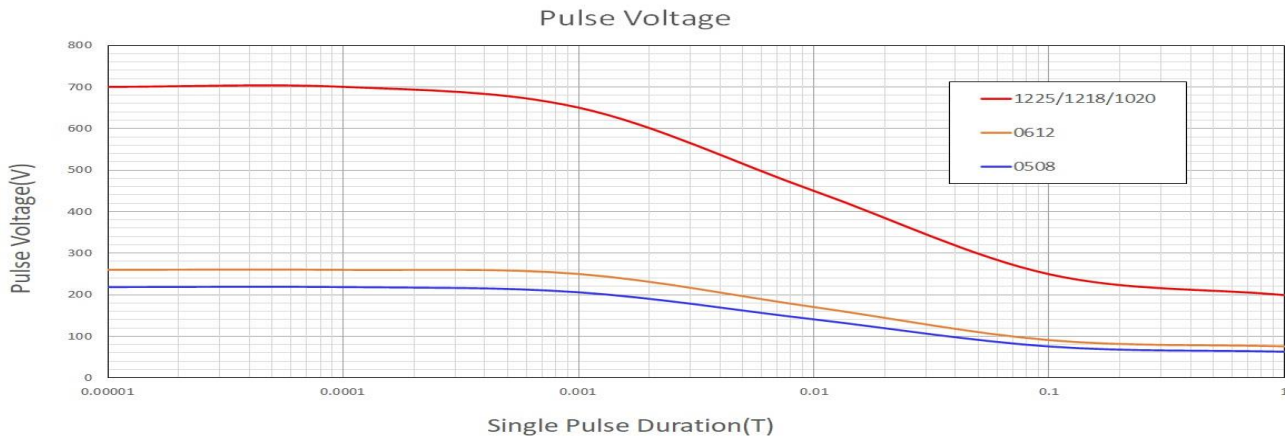
Single pulse; applicable rate power at 70°C and Max working voltage and Max overload voltage.

Continuous Pulse



Continuous pulse; applicable rate power at 70°C and Max working voltage and Max overload voltage.

Pulse Voltage



Pulse Voltage; applicable rate power at 70°C and Max working voltage and Max overload voltage.



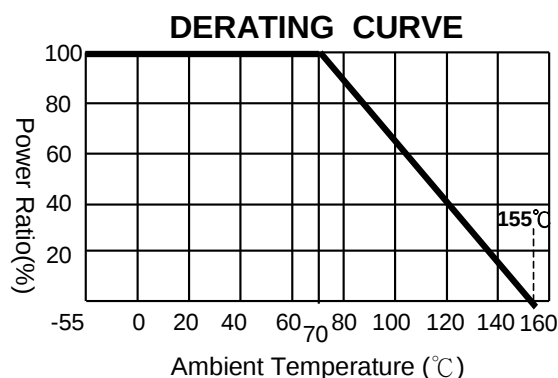
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■ Power Derating Curve



Power rating or current rating is in the case based on continuous full-load at ambient temperature of 70°C. For operation at ambient temperature in excess of 70°C, the load should be derated in accordance with figure of derating Curve.

■ Voltage Rating or Current Rating

Resistance Range: $\geq 1\Omega$

Rated Voltage: The resistor shall have a DC continuous working voltage or a RMS AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined formula as following:

$$E(RCWV) = \sqrt{P \times R}$$

E=Rated voltage(V)

P=Power rating(W)

R=Nominal resistance(Ω)



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■ Reliability Test and Requirement

Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (T.C.R)	JIS-C-5201-1 4.8 IEC-60115-1 4.8	At 25°C / -55°C and 25°C / +155°C, 25°C is the reference temperature	As Spec
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	Z:6.25*Rated power or Max Overload voltage whichever is less for 5 seconds. H:5*Rated power or Max Overload voltage whichever is less for 5 seconds. Jumper : Over Load Current for 5 seconds 0612=10A / 1020=15A / 1218=15A 1225=20A	1% and below : $\pm(1.0\%+0.05\Omega)$ 2%、5% : $\pm(2.0\%+0.10\Omega)$ Jumper : Max 0.02 Ω after test.
Leaching	JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1	260 $\pm$ 5°C for 30 seconds.	Individual leaching area $\leq$ 5% Total leaching area $\leq$ 10%
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	260 $\pm$ 5°C for 10 seconds.	1% and below : $\pm(0.5\%+0.05\Omega)$ 2%、5% : $\pm(1.0\%+0.05\Omega)$
Rapid Change of Temperature	JIS-C-5201-1 4.19 IEC-60115-1 4.19	-55°C to +155°C, 5 cycles	1% and below : $\pm(0.5\%+0.05\Omega)$ 2%、5% : $\pm(1.0\%+0.10\Omega)$
Resistance to Solvent	JIS-C-5201-1 4.29	The tested resistor be immersed into isopropyl alcohol of 20~25°C for 60 secs. Then the resistor is left in the room for 48 hrs.	1% and below : $\pm(0.5\%+0.05\Omega)$ 2%、5% : $\pm(0.5\%+0.05\Omega)$ Jumper : Max 0.02 Ω after test.
Damp Heat with Load	JIS-C-5201-1 4.24 IEC-60115-1 4.24	40 $\pm$ 2°C, 90~95% R.H. RCWV or Max. working voltage whichever is less for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF" .	1% and below : $\pm(1.0\%+0.05\Omega)$ 2%、5% : $\pm(2.0\%+0.05\Omega)$ Value <1 Ω : $\pm(2.0\%+0.05\Omega)$ Jumper : Max 0.05 Ω after test.
Load Life (Endurance)	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	70 $\pm$ 2°C, RCWV or Max. working voltage whichever is less for 1000 hrs with 1.5 hrs "ON" and 0.5 hr "OFF".	1% and below : $\pm(1.0\%+0.05\Omega)$ 2%、5% : $\pm(3.0\%+0.10\Omega)$ Value <1 Ω : $\pm(3.0\%+0.10\Omega)$ Jumper : Max 0.05 Ω after test.
Insulation Resistance	JJIS-C-5201-1 4.6 IEC-60115-1 4.6	Apply 100VDC for 1 minute.	$\geq$ 10G Ω
Bending Strength	JIS-C-5201-1 4.33 IEC-60115-1 4.33	Bending once for 5 seconds D : 0508、0612、1020、1218、1225=2mm	1% and below : $\pm(1.0\%+0.05\Omega)$ 2%、5% : $\pm(1.0\%+0.05\Omega)$

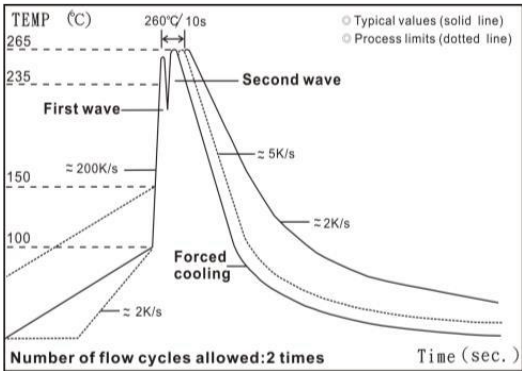


CRW Series Thick Film Wide Terminal
Chip Resistor Product Specifications

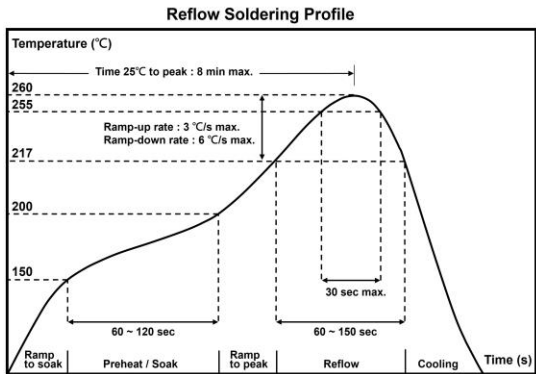
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Recommended Customer Soldering Parameters

Wave solder Temperature condition



Solder reflow Temperature condition



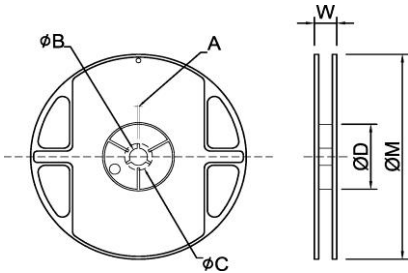
Rework temperature (hot air equipment) : 350°C, 3~5seconds

Recommended reflow methods

IR, vapor phase oven, hot air oven
If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Appendix For SMD Chip Resistor

Packaging Information



Dimension

Unit: mm

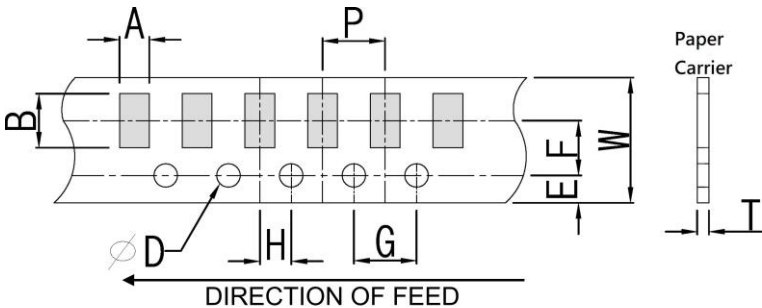
Type	Size		A	ϕB	ϕC	ϕD	W	ϕM
0508/0612	7"	5K/Reel	2.0±0.5	13.5±1.0	21±1.0	60±1.0	11.5±2.0	178±2.0
1020/1218/1225	7"	4K/Reel	2.0±0.5	13.5±1.0	21±1.0	60±1.0	16.0±2.0	178±2.0



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Chip Resistor Product Specifications

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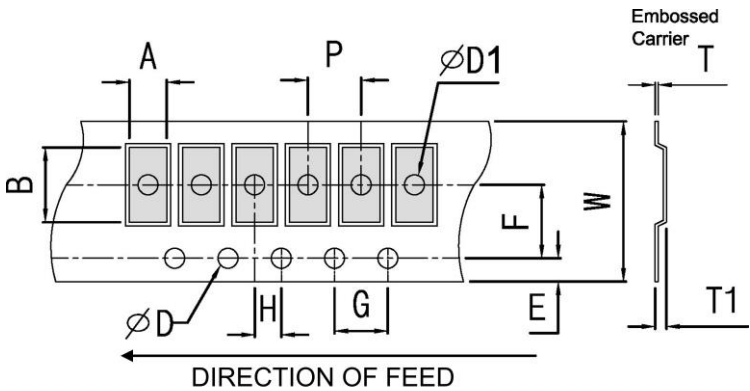
Tapping Specification



Dimension

Unit: mm

Packaging	Type	A	B	W	E	F	G	H	T	ϕD	P
Paper Type	0508	1.50 ± 0.15	2.25 ± 0.15	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.75 ± 0.1	$1.50^{+0.10}_{-0}$	4.0 ± 0.1
	0612	1.90 ± 0.2	3.50 ± 0.2	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.75 ± 0.1		4.0 ± 0.1



Dimension

Unit: mm

Packaging	Type	A	B	W	E	F	G	H	T	ϕD	$\phi D1$	T1	P
Embossed Type	1020	2.80 ± 0.2	5.60 ± 0.2	12 ± 0.1	1.75 ± 0.1	5.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.23 ± 0.1	$1.50^{+0.10}_{-0}$	1.50 ± 0.1	0.85 ± 0.15	4.0 ± 0.1
	1225*Z	3.40 ± 0.2	6.70 ± 0.2	12 ± 0.1	1.75 ± 0.1	5.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.23 ± 0.1		1.50 ± 0.1	0.85 ± 0.15	
	1225*H	3.40 ± 0.2	6.70 ± 0.2	12 ± 0.1	1.75 ± 0.1	5.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.23 ± 0.1		1.50 ± 0.1	1.0 ± 0.15	
	1218	3.30 ± 0.2	4.60 ± 0.2	12 ± 0.1	1.75 ± 0.1	5.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	0.23 ± 0.1		1.50 ± 0.1	0.85 ± 0.15	

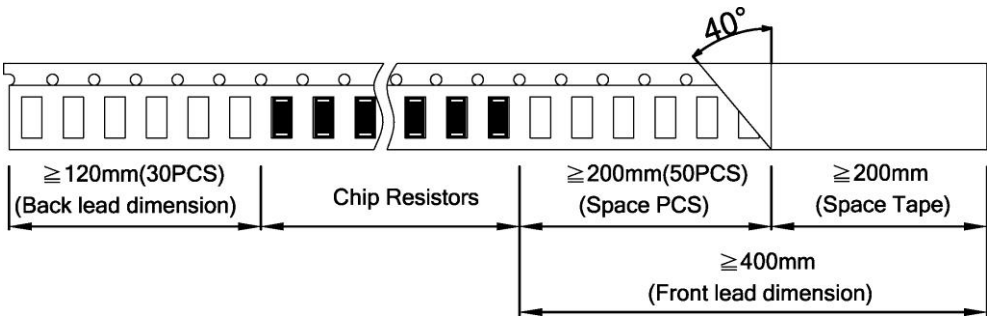


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Chip Resistor Product Specifications

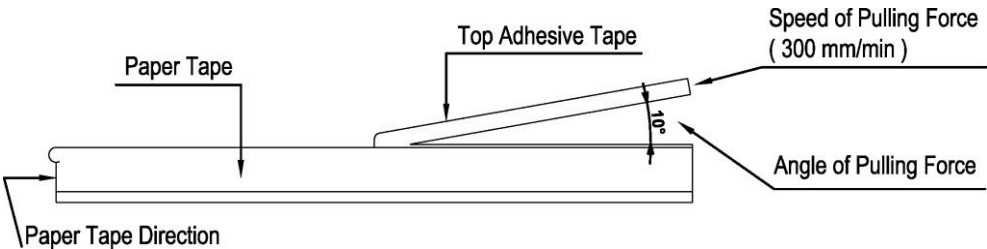
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Packing Material Data/Storage Data

Front & Back Lead Dimension

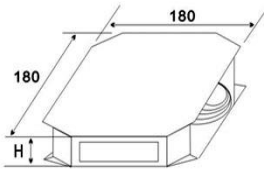


Top Adhesive Peel Off Strength : 10~70g

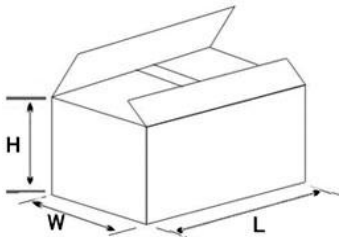


Package

Inner Box Size	
Reel	Size H(mm)
1	13
2	24
3	36
5	60
10	113



External Box Size			
Contain (Kpcs)	Length (mm)	Width (mm)	Height (mm)
25K	180	180	60
50K	180	180	110
150K	430	200	200
300K	400	400	200



Storage Data :

Storage time at the environment temp: 25±5℃ & humidity: 60±20% is valid for two years.

Product Testing Method:

Our products are tested with our company's tapping & testing equipments by using four-feet probe to touch at the back of both electrodes. Supposed different testing points or methods are requested, please advise beforehand and customized-made production is available.