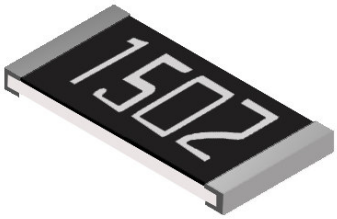
Data Sheet

Customer：	
Product Type:	Thick Film Chip Resistors
Part No.:	CR-05 / CR-06
Issued Date:	12-Aug-09
Document No.:	CR Series REV.0001

深圳市达一电子有限公司



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RoHS Compliant

Produced by (QC)	Checked (QC)	Approved by (QC)	Prepared by (Sales)	Accepted by (Customer)
12-Aug-09	12-Aug-09	12-Aug-09	12-Aug-09	
Shella Huang	***J.C. Liu***	***J.C. Liu***		

Thick Film Chip Resistors

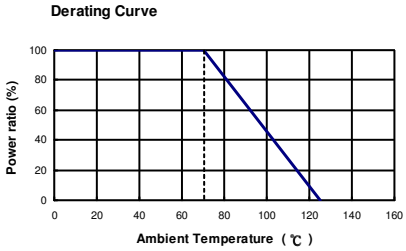
（CR Series）

1. Scope

This specification applies to all sizes of rectangular-type fixed chip resistors with Ruthenium-base as material.

2. Features

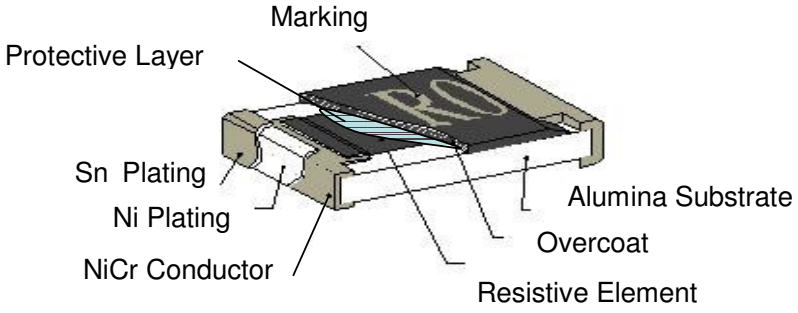
- Small size and light weight
- Highly reliable multilayer electrode construction
- Compatible with all soldering process



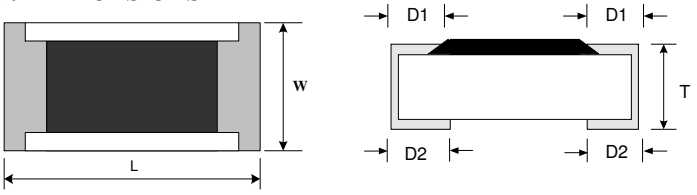
3.Applications

- Telecommunication Equipments
- Radio and Tape Recorders, TV Tuners
- Video Cameras, Watches, Pocket Calculators
- Automotive Industry
- Computers, Instruments
- Medical and Military Equipment

4. Construction



5. Dimensions



Unit: mm

Type	Size (Inch)	L	W	T	D1	D2
CR-05	0805	2.00±0.10	1.25±0.10	0.50±0.10	0.35±0.20	0.40±0.20
CR-06	1206	3.10±0.10	1.55±0.10	0.55±0.10	0.50±0.25	0.50±0.20

6. Product Identification

CR-	05	J	L	7	----1G
(1)	(2)	(3)	(4)	(5)	(6)

(1) Product Type: CR-=Thick Film Chip Resistor

(2) Dimensions: 05=0805, 06=1206

(3) Tolerance: J=±5%

(4) Function: L=Standard

(5) Packaging: 7=7" Reel 5K, A=10" Reel 10K, D=13" Reel 20K (0805,1206)

F=Bulk

(6) Resistance: ----1G=1G, --500M=500M

"-" to fill up 6 spaces

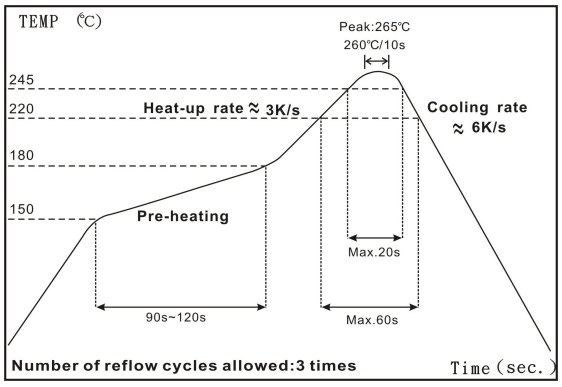
7. Electrical Characteristics

● Standard Electrical Specifications

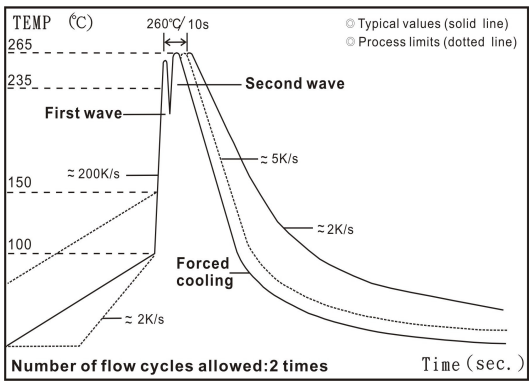
Item / Type	Power Rating at 70℃	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Tolerance	Resistance Range	TCR (PPM/℃)
CR-05 (0805)	1/8W	-55 ~ +125℃	150V	300V	±5%	100M ~ 500M 501M ~ 1G	±500 ±1000
CR-06 (1206)	1/4W		200V	400V			

Operating Voltage =$\sqrt{}$(P*R) or Maximum operating voltage listed above, whichever is lower.
Overload Voltage =2.5*$\sqrt{}$(P*R) or Maximum overload voltage listed above, whichever is lower.

● Soldering condition



IR Reflow Soldering



Wave Soldering (Flow Soldering)

(1) Time of IR reflow soldering at maximum temperature point 260℃ : 10s

(2) Time of wave soldering at maximum temperature point 260℃ : 10s

(3) Time of soldering iron at maximum temperature point 410℃ : 5s

8. Environmental Characteristics

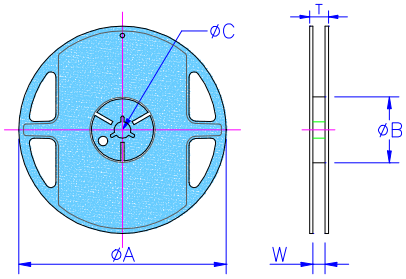
Item	Requirement	Test Method
	5%	
Temperature Coefficient of Resistance (T.C.R.)	Within the specification	**JIS C 5201-1 4.8** **IEC 60115-1 4.8** -55°C~+125°C, 25°C is the reference temperature
Short Time Overload	±(2.0%+0.05Ω)	**JIS C 5201-1 4.13** **IEC 60115-1 4.13** 2.5 times RCWV or Max. overload voltage for 5 seconds, 2 seconds for high power series
Insulation Resistance	≧10G	**JIS C 5201-1 4.6** **IEC 60115-1 4.6** Max. overload voltage for 1 minute
Endurance	±(3.0%+0.10Ω)	**JIS C 5201-1 4.25** **IEC 60115-1 4.25.1** 70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±(3.0%+0.10Ω)	**JIS C 5201-1 4.24** 40±2°C, 90~95% R.H., Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	±(1.5%+0.10Ω)	**JIS C 5201-1 4.23.2** **IEC 60115-1 2.23.2** at +125°C for 1000 hrs
Bending Strength	±(1.0%+0.05Ω)	**JIS C 5201-1 4.33** **IEC 60115-1 4.33** Bending once for 5 seconds with 3 mm 2010, 2512 sizes: 2 mm
Solderability	>95% coverage	**JIS C 5201-1 4.17** **IEC 60115-1 4.17** 245±5°C for 3 seconds
Resistance to Soldering Heat	±(1.0%+0.05Ω)	**JIS C 5201-1 4.18** **IEC 60115-1 4.18** 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 RCWV (RMS) for 1 minute
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
Rapid Change of Temperature	±(1.0%+0.05Ω)	**JIS C 5201-1 4.19** **IEC 60115-1 4.19** -55°C to +125°C, 5 cycles

＊ Storage Temperature: 25±3℃; Humidity < 80%RH

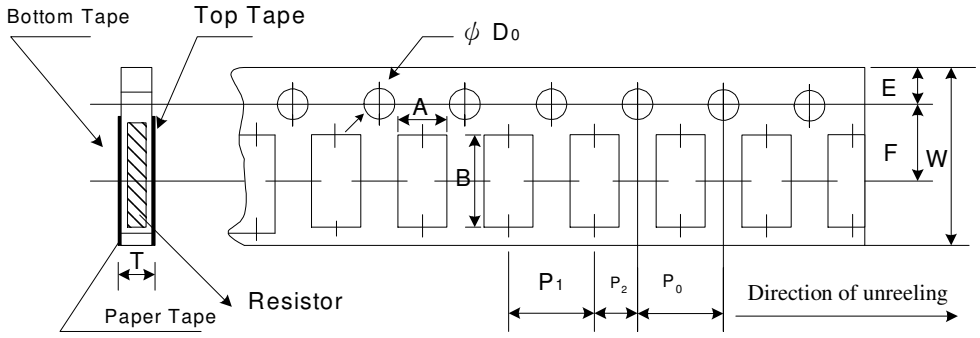
9. Packaging

9-1 Reel Specifications & Packaging Quantity Unit: mm

Type	Tape Width	Reel Diameter	ΦA	ΦB	ΦC	W	T	Packaging	
								Method	Quantity
CR-05 CR-06	8mm	7 inch	178.5±1.5	$60^{+1/-0}$	13.0±0.2	9.0±0.5	12.5±0.5	Paper	5K
		10 inch	254±1	100±0.5	13.0±0.2	9.5±0.5	13.5±0.5		10K
		13 inch	330±1	100±0.5	13.0±0.2	9.5±0.5	13.5±0.5		20K



9-2 Paper Tape Specifications



Unit: mm

Type	A	B	W	E	F	P_0	P_1	P_2	ϕD_0	T
CR-05	1.60±0.10	2.40±0.2	8.0±0.2	1.75±0.1	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.1
CR-06	1.90±0.10	3.50±0.2	8.0±0.2	1.75±0.1	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.1

10. Marking

5% for 0805/1206: 3 digits marking in E24

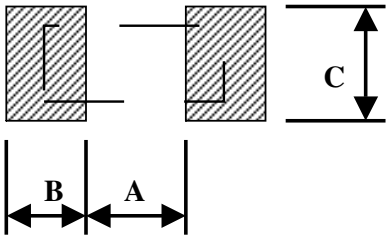
Example:

Resistance	1G	500M
Marking	108	507

(1st and 2nd are E24 code and 3rd code is multiplier)

E24 code	10	11	12	13	15	16	18	20	22	24	27	30	33	36	39	43	47	51	56	62	68	75	82	91

11. Recommend Land Pattern



Unit: mm

Type	A	B	C
CR-05	1.20	0.70	1.30
CR-06	2.00	0.90	1.60