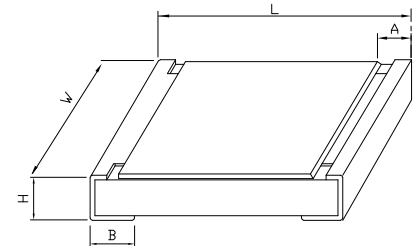
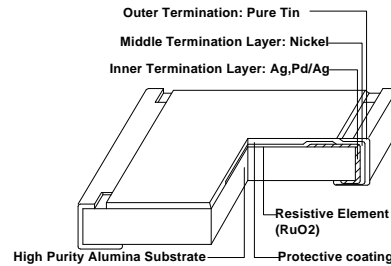


RCRW Series

Thick Film High Power Chip Resistor

TRIGON
COMPONENTS



Resistor

FEATURES

- Small and light weight
- Small size with high power rating
- Taping and bulk cassette are available for automotive pick-and place machines
- Excellent heat resistance and moisture resistance
- Lead free products meet RoHS requirement
- Halogen-Free

ORDERING CODE

RCR W 03 J 1R0 T
(1) (2) (3) (4) (5) (6)

(1) Thick Film High Power Chip Resistor

(2) Function Code

(3) Element Size

02 : 0402
03 : 0603
05 : 0805
06 : 1206
10 : 1210
0A : 2010
12 : 2512

(4) Tolerance

(5) Resistance

3 Digit Code (E24)
4 Digit Code (E96)

(6) Packaging

※Please refer to complete
Ordering Code document (RCRx-
Ord) for more ordering options.

Dimensions Table

Size Type	L (mm)	W (mm)	H (mm)	A (mm)	B (mm)
RCRW-02	1.0 ± 0.10	0.5 ± 0.05	0.32 ± 0.05	0.2 ± 0.10	0.25 ± 0.10
RCRW-03	1.60 ± 0.10	0.80 ± 0.10	0.45 ± 0.10	0.30 ± 0.20	0.30 ± 0.20
RCRW-05	2.00 ± 0.10	1.25 ± 0.10	0.50 ± 0.10	0.35 ± 0.20	0.40 ± 0.20
RCRW-06	3.10 ± 0.10	1.55 ± 0.10	0.55 ± 0.10	0.50 ± 0.25	0.50 ± 0.20
RCRW-10	3.20 ± 0.20	2.60 ± 0.15	0.55 ± 0.10	0.50 ± 0.25	0.50 ± 0.20
RCRW-0A	5.00 ± 0.20	2.50 ± 0.15	0.55 ± 0.10	0.60 ± 0.25	0.50 ± 0.20
RCRW-12	6.35 ± 0.20	3.20 ± 0.15	0.55 ± 0.10	0.60 ± 0.25	0.50 ± 0.20

RCRW Series

Thick Film High Power Chip Resistor

Electrical Characteristics For High Power Low Resistance Chip Resistors

Spec \ Type	High Power Chip Resistor						
Series	RCRW-02	RCRW-03	RCRW-05	RCRW-06	RCRW-10*	RCRW-0A	RCRW-12
size	0402	0603	0805	1206	1210	2010	2512
Resistance range	0.50mΩ ~ 910mΩ						
Tolerance	±1% (E24, E96 series), ±5% (E24 series)						
Temperature Coefficient (TCR; ppm/°C) Resistance Range: 50mΩ ~ 91mΩ Resistance Range: 100mΩ ~ 910mΩ	±200 ±100		±150 ±100	±100	±100	±100	±100
Power Rating (at 70°C)	1/4W		1/3W	1/2W	1/2W	1W	2W
Max. RCWV	477mV		548mV	675mV	200V	954mV	1349mV
Max. Overload Voltage	954mV		1096mV	1350mV	400V	1908mV	2698mV
Operation temperature	-55°C ~ +155°C						

* RCRW-10 is available for old designs only

Electrical Characteristics For High Power High Resistance Chip Resistors

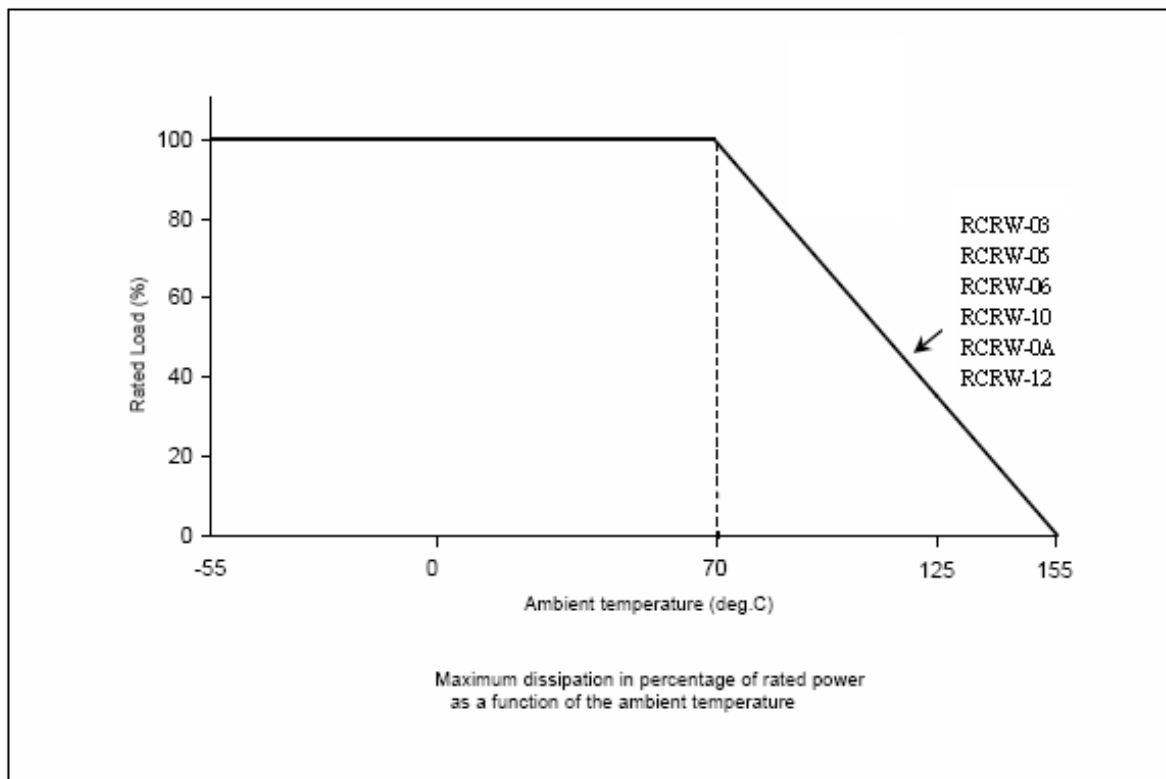
Spec \ Type	High Power Chip Resistor						
Series	RCRW-02	RCRW-03	RCRW-05	RCRW-06	RCRW-10*	RCRW-0A	RCRW-12
size	0402	0603	0805	1206	1210	2010	2512
Resistance range	1Ω ~ 10MΩ						
Tolerance	±1% (E24, E96 series), ±5% (E24 series)						
Temperature Coefficient (TCR; ppm/°C) Resistance Range: 1Ω ~ 9.76Ω, for ±1% tolerance Resistance Range: 1Ω ~ 1MΩ, for ±5% tolerance Resistance Range: 10Ω ~ 1MΩ, for ±1% tolerance	±200 ±200 ±100		±150 ±200 ±100	±200 ±100	±100	±200 ±100	±200 ±100
Power Rating (at 70°C)	1/10W	1/8W	1/4W	1/2W	1/2W	1W	2W
Max. RCWV	50V		150V	200V	200V	200V	300V
Max. Overload Voltage	100V		300V	400V	400V	400V	600V
Operation temperature	-55°C ~ +155°C						

RCRW Series

Thick Film High Power Chip Resistor

TRIGON
COMPONENTS

Derating Curve



RCRW Series

Thick Film High Power Chip Resistor

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COMPONENTS

Environmental Characteristics

Performance Test	Test method	Test Condition	Requirement	
			± 1%	± 5%
Temperature Coefficient of Resistance	JIS-C-5202 5.2 IEC 60115-1 4.8	-55°C ~ +155°C, 20°C is the reference temperature	Within the specification	
Short Time Overload	JIS-C-5202 5.5 IEC 60115-1 4.13	2.5 times Rated Continuous Working Voltage or Max. overload voltage for 2 seconds	± 1.0%	± 2.0%
Insulation Resistance	JIS-C-5202 5.6 IEC 60115-1 4.6	Max. overload voltage for 1 minute	≥ 10G	
Voltage Proof	JIS-C-5202 5.7 IEC 60115-1 4.7	1.42 times Rated Continuous Working Voltage (rms) for 1 minute	No breakdown or flashover	
Substrate Bending Test	JIS-C-5202 6.1 IEC 60115-1 4.33	For size of 2010, 2512, bending once with 5 seconds for 2 mm; For other size, bending once with 5 seconds for 3 mm	± 1.0%	± 1.0%
Resistance to soldering heat	JIS-C-5202 6.4 IEC 60115 4.18	260 ± 5°C for 10 seconds	± 0.5%	± 1.0%
Leaching	JIS-C-5202 6.4 IEC 60115 4.18	260 ± 5°C for 60 seconds	No leaching	
Solderability	JIS-C-5202 6.5 IEC 60115-1 4.17	245 ± 5°C for 3 seconds	>95% coverage	
Endurance at upper category temperature	JIS-C-5202 7.2 IEC 60115-1 2.23.2	At +155°C for 1000 hours	± 1.0%	± 1.5%
Rapid change of temperature	JIS-C-5202 7.4 IEC 60115-1 4.19	-55°C to +155°C, 5 cycles	± 0.5%	± 1.0%
Damp heat with load	JIS-C-5202 7.9	40 ± 2°C, 90~95%R.H. or max working voltage for 1000 hours with 1.5 hours "ON" and 0.5 hours "OFF"	± 2.0%	± 3.0%
Endurance	JIS-C-5202 7.10 IEC 60115-1 4.25.1	70 ± 2°C, or max working voltage for 1000 hours with 1.5 hours "ON" and 0.5 hours "OFF"	± 2.0	± 3.0

Resistor

RCRW Series

Thick Film High Power Chip Resistor

TRIGON
COMPONENTS

Marking

Type	Tolerance	Series	Marking
RCRW-02, RCRW-03, RCRW-05, RCRW-06, RCRW-10*, RCRW-0A, RCRW-12	± 5%	E24 series	3 digits marking
RCRW-05, RCRW-06, RCRW-10, RCRW0A, RCRW-12	± 1%	E24 series / E96 series	4 digits marking
RCRW-03	± 1%	E96 series	See marking table

* RCRW-10 is available for old designs only

Marking Table RCRW-03, 1% (E96 series)

Code	R value	Code	R value	Code	R value	Code	R value
01	100	25	178	49	316	73	562
02	102	26	182	50	324	74	576
03	105	27	187	51	332	75	590
04	107	28	191	52	340	76	604
05	110	29	196	53	348	77	619
06	113	30	200	54	357	78	634
07	115	31	205	55	365	79	649
08	118	32	210	56	374	80	665
09	121	33	215	57	383	81	681
10	124	34	221	58	392	82	698
11	127	35	226	59	402	83	715
12	130	36	232	60	412	84	732
13	133	37	237	61	422	85	750
14	137	38	243	62	432	86	768
15	140	39	249	63	442	87	787
16	143	40	255	64	453	88	806
17	147	41	261	65	464	89	825
18	150	42	267	66	475	90	845
19	154	43	274	67	487	91	866
20	158	44	280	68	499	92	887
21	162	45	287	69	511	93	909
22	165	46	294	70	523	94	931
23	169	47	301	71	536	95	953
24	174	48	309	72	549	96	976

This table shows the first 2 digits for the three digits EIA-96 parts making scheme

-2 -1 0 1 2 3 4 5

The third character is the letter of multiplier: Y=10, X=10, A=10, B=10, C=10, D=10, E=10, F=10

RCRW Series

Thick Film High Power Chip Resistor

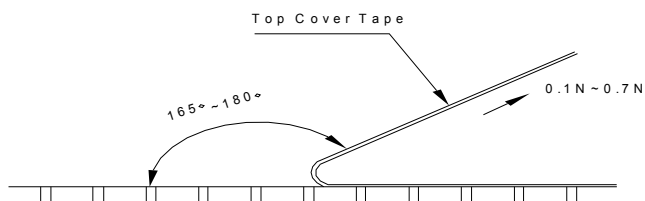
TRIGON
COMPONENTS

Resistor

Peel Strength of Top Cover Tape

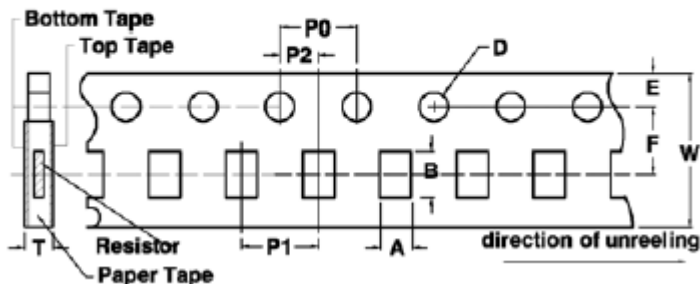
The peel speed shall be about 300mm/min

The peel force of top cover tape shall between 0.1 to 0.7N



Tape and Reel package

Paper Tape



Paper Tape: in mm

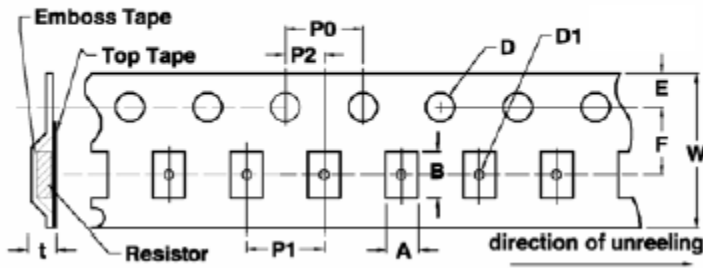
Type	A	B	W	E	F	P1	P2	P0	D	T
RCRW-02	0.7 ± 0.05	1.2 ± 0.05	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.05	2.0 ± 0.05	4.0 ± 0.1	1.5 +0.1/-0	0.45 ± 0.1
RCRW-03	1.10 ± 0.1	1.90 ± 0.1	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.05	2.0 ± 0.05	4.0 ± 0.1	1.5 +0.1/-0	0.70 ± 0.1
RCRW-05	1.60 ± 0.1	2.40 ± 0.2	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.05	2.0 ± 0.05	4.0 ± 0.1	1.5 +0.1/-0	0.85 ± 0.1
RCRW-06	1.90 ± 0.1	3.50 ± 0.2	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.05	2.0 ± 0.05	4.0 ± 0.1	1.5 +0.1/-0	0.85 ± 0.1
RCRW-10	2.80 ± 0.1	3.50 ± 0.2	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.05	2.0 ± 0.05	4.0 ± 0.1	1.5 +0.1/-0	0.85 ± 0.1

RCRW Series

Thick Film High Power Chip Resistor

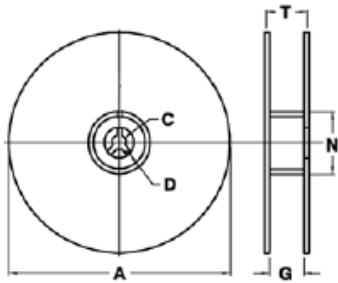
TRIGON
COMPONENTS

Plastic Tape



Emboss Plastic Tape: in mm

Type	A	B	W	E	F	P1	P2	P0	D	D1	T
RCRW-0A	2.8 ± 0.2	5.5 ± 0.2	12 ± 0.3	1.75 ± 0.1	5.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	1.5 +0.1/-0	1.5 +0.25/-0	1.2 Max.
RCRW-12	3.5 ± 0.2	6.7 ± 0.2	12 ± 0.3	1.75 ± 0.1	5.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	4.0 ± 0.1	1.5 +0.1/-0	1.5 +0.25/-0	1.2 Max.



Tape and Reel Size: in mm

* RCRW-10 is available for old designs only

Type	Packing	Tape width	A	N	C	G	T
RCRW-02, RCRW-03, RCRW-05, RCRW-06 RCRW-10	Paper	178mm	180 +0/-3	60 +1/-0	13.0 ± 0.2	9.0 ± 0.3	11.4 ± 1
		254mm	254 ± 1	100 ± 1	13.0 ± 0.2	9.5 ± 0.5	13.5 ± 1
		330mm	330 ± 1	100 ± 1	13.0 ± 0.2	9.5 ± 0.5	13.5 ± 1
RCRW-0A, RCRW-12	Embossed	178mm	180 +0/-3	60 +1/-0	13.0 ± 0.2	13.0 ± 0.5	15.4 ± 1

RCRW Series

Thick Film High Power Chip Resistor

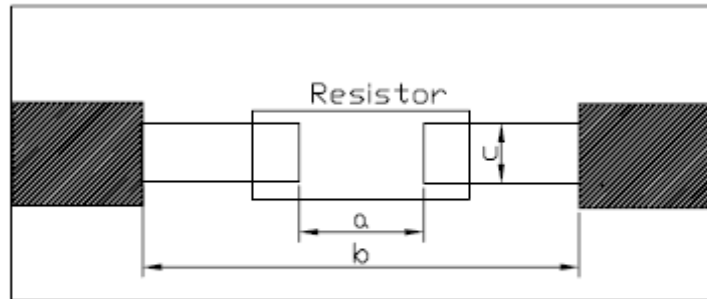
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COMPONENTS

Tape and Reel Qty

unit: piece

Type	Paper Tape			Embossed Tape
	178mm/R	254mm/R	330mm/R	178mm/R
RCRW-02	10000	20000	20000	
RCRW-03	5000	10000	20000	
RCRW-05	5000	10000	20000	--
RCRW-06	5000	10000	20000	--
RCRW-10	5000	10000	20000	--
RCRW-0A, RCRW-12	--	--	--	4000

Recommended land patterns:



Land pattern Size	Dimension(mm)		
	a	b	c
RCRW-02	0.5~0.6	1.4~1.6	0.4~0.6
RCRW-03	0.7~0.9	2.0~2.2	0.8~1.0
RCRW-05	1.0~1.4	3.2~3.8	0.9~1.4
RCRW-06	2.0~2.4	4.4~5.0	1.2~1.8
RCRW-10			
RCRW-0A RCRW-12			