

Thick Film Chip Resistors



CR Series

MERITEK

FEATURES

- Excellent mechanical strength and electrical stability
- Ideal for pick and place machinery
- Stable high frequency characteristics
- Miniature, high board density
- Equivalent specification EIAJ- RC- 2690,
- EIAJ- RC- 1009B, EIA- RS- 481A
- Operating Temperature Range : -55°C ~ +155°C

PART NUMBERING SYSTEM

Meritek Series **CR** **10** **1002** **F**

Size

	01	02	04	08	10	16	20	25
	2512	2010	1210	1206	0805	0603	0402	0201

Resistance Value

5%	3 digits. First 2 are significant, third is multiplier (10 ^x)
1%	4 digits. First 3 are significant, fourth is multiplier (10 ^x)

000 = Jumper "0" ohm "R" indicates decimal on value

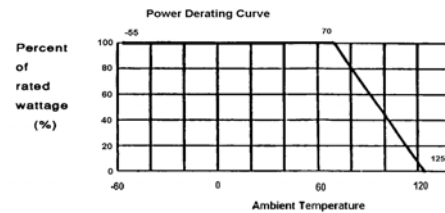
Tolerance

CODE	F	J
	±1%	±5%



POWER DERATING CURVE

For operating conditions where ambient temperature exceeds 70°C, ratings must be derated in accordance with the curve below.



STANDARD CHIP > 1 Ω

TYPE	Rated power at 70°C	Max. working voltage	Max. overload voltage	T.C.R. (ppm / °C)	Resistance Range					Jumper Current	Jumper resistance	
					B (±0.1%) E-96	D (±0.5%) E-96	F (±1%) E-96	G (±2%) E-24	J (±5%) E-24		J (±5%)	F (±1%)
CR20 (0402)	1/16 W	50V	100V	+500 -200	----	10 ~ 99	1 ~ 9.9	1 ~ 9.9	1 ~ 9.9	1A	50m Max.	35m Max.
				±200	100 ~ 1M	100 ~ 1M	10 ~ 1M	10 ~ 1M	10 ~ 20M			
CR16 (0603)	1/10 W	75V	150V	±100	100 ~ 1M	100 ~ 1M	33 ~ 1M	----	----	1A	50m Max.	30m Max.
				±200	----	1 ~ 99	1 ~ 32 1.1M ~ 10M	1 ~ 10M	1 ~ 20M			
CR10 (0805)	1/8 W	150V	300V	±100	100 ~ 1M	100 ~ 1M	33 ~ 1M	----	----	2A	50m Max.	25m Max.
				±200	----	1 ~ 99	1 ~ 32 1.1M ~ 10M	1 ~ 10M	1 ~ 20M			
CR08 (1206)	1/4 W	200V	400V	±100	100 ~ 1M	100 ~ 1M	33 ~ 1M	----	----	2A	50m Max.	25m Max.
				±200	----	1 ~ 99	1 ~ 32 1.1M ~ 10M	1 ~ 10M	1 ~ 20M			
				±100 (*)	1 ~ 1M	1 ~ 1M	1 ~ 1M	1 ~ 10M	1 ~ 20M			
CR04 (1210)	1/2 W	200V	400V	±100	100 ~ 1M	100 ~ 1M	33 ~ 1M	----	----	2A	50m Max.	25m Max.
				±200	----	----	10 ~ 32 1.1M ~ 10M	10 ~ 10M	10 ~ 20M			
				±400	----	----	1 ~ 9.9	1 ~ 9.9	1 ~ 9.9			
CR02 (2010)	3/4 W	200V	400V	±100	----	----	10 ~ 1M	----	----	2A	50m Max.	25m Max.
				±200	----	----	----	10 ~ 1M	10 ~ 10M			
				±400	----	----	1 ~ 9.9	1 ~ 9.9	1 ~ 9.9			
CR01 (2512)	1 W	200V	400V	±100	----	----	10 ~ 1M	----	----	2A	50m Max.	25m Max.
				±200	----	----	----	10 ~ 1M	10 ~ 10M			
				±400	----	----	1 ~ 9.9	1 ~ 9.9	1 ~ 9.9			

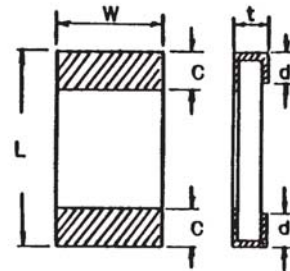
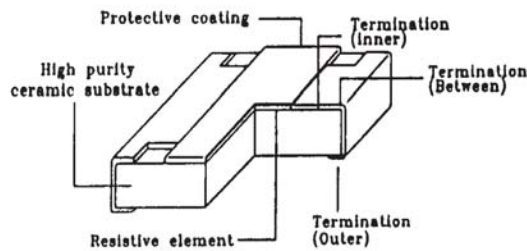
Operating Temperature Range : -55°C ~ +155°C

(*) available upon request

STANDARD CHIP < 1 Ω

Type	Rated Power at 70°C	Max. Rated Current	Max. Overload Current	T.C.R. (ppm/°C)	Resistance Range	
					F(± 1%) E-24 jB E-96	G(± 2%) J(± 5%) E-24
CR16 0603	1/10 W	1.41A	3.52A	± 600	50 ~ 99 mΩ	50 ~ 99 mΩ
				± 300	100 ~ 199 mΩ	100 ~ 199 mΩ
				± 600	200 ~ 499 mΩ	200 ~ 499 mΩ
				± 400	500 ~ 976 mΩ	500 ~ 910 mΩ
CR10 0805	1/8 W	1.94A	4.85A	± 800	33 ~ 49 mΩ	33 ~ 49 mΩ
				± 600	50 ~ 99 mΩ	50 ~ 99 mΩ
				± 300	100 ~ 199 mΩ	100 ~ 199 mΩ
				± 500	200 ~ 499 mΩ	200 ~ 499 mΩ
CR08 1206	1/3 W	3.65A	9.12A	± 1000	25 ~ 49 mΩ	25 ~ 49 mΩ
				± 600	50 ~ 99 mΩ	50 ~ 99 mΩ
				± 300	100 ~ 199 mΩ	100 ~ 199 mΩ
				± 500	200 ~ 499 mΩ	200 ~ 499 mΩ
CR01 2512	1 W	6.32A	15.80A	± 500	50 ~ 99 mΩ	50 ~ 99 mΩ
				± 300	100 ~ 199 mΩ	100 ~ 199 mΩ
				± 500	200 ~ 499 mΩ	200 ~ 499 mΩ
				± 400	500 ~ 976 mΩ	500 ~ 910 mΩ

Construction and Materials



DIMENSIONS

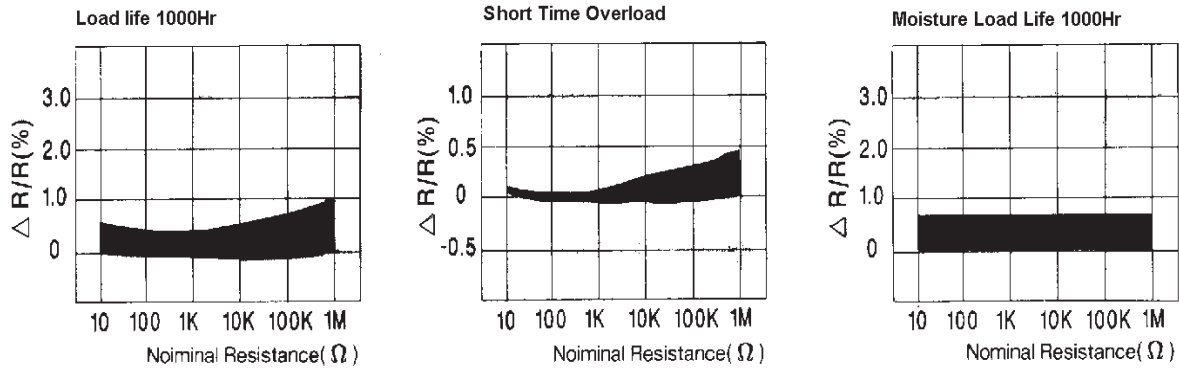
Size	Dimensions in millimeters (mm)				
	L	W	C	d	t
CR25 (0201)	0.60 ±0.03	0.30 ±0.03	0.15 ±0.03	0.15 ±0.03	0.23 ±0.03
CR20 (0402)	1.00 ±0.10	0.50 ±0.10	0.25 ±0.05	0.25 ±0.05	0.35 ±0.10
CR16 (0603)	1.60 ±0.10	0.80 +0.15/-0.05	0.30 ±0.15	0.30 ±0.15	0.45 ±0.10
CR10 (0805)	2.00 + 0.15/-0.10	1.25 +0.10/-0.05	0.35 ±0.20	0.35 ±0.15	0.50 ±0.10
CR08 (1206)	3.10 ±0.10	1.55 ±0.10	0.45 ±0.20	0.35 ±0.15	0.55 +0.10/-0.05
CR04 (1210)	3.10 ±0.10	2.55 ±0.10	0.50 ±0.20	0.50 ±0.20	0.55 ±0.10
CR02 (2012)	5.00 ±0.20	2.50 ±0.2	0.60 ±0.20	0.60 ±0.20	0.55 ±0.10
CR01 (2512)	6.30 ±0.20	3.20 ±0.2	0.60 ±0.20	0.60 ±0.20	0.55 ±0.10

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CHARACTERISTIC DATA



CHARACTERISTIC

ITEM	0.5%, 1%	2%, 5%	TEST METHOD
Temperature Cycling	$\pm(0.5\% + 0.05\Omega)$	$\pm(1.0\% + 0.10\Omega)$	JIS-C5202-7.4 Cycle between -55°C and +125°C for 5 cycles
Low Temperature Operation	$\pm(0.5\% + 0.05\Omega)$	$\pm(1.0\% + 0.10\Omega)$	By manufacturer Followed by 45 Minutes of RCWV.
Short Time Overload	$\pm(1.0\% + 0.05\Omega)$	$\pm(2.0\% + 0.10\Omega)$	JIS-C5202-5.5 Apply 2.5 times rated voltage for 5 seconds
Resistance to Soldering Heat	$\pm(0.5\% + 0.05\Omega)$	$\pm(1.0\% + 0.05\Omega)$	JIS-C5202-6.10 Immerse for 10 sec. in solder at 260 $\pm 5^\circ\text{C}$
Loading Life in Moisture	$\pm(0.5\% + 0.05\Omega)$	$\pm(2.0\% + 0.05\Omega)$	JIS-C5202-7.9 40°C, 1000Hrs at RCWV, 1.5Hr ON, 0.5Hr OFF
Resistance to Dry Heat	$\pm(1.0\% + 0.05\Omega)$	$\pm(2.0\% + 0.10\Omega)$	JIS-C5202-7.2 96Hrs at 125°C
Load Life	$\pm(1.0\% + 0.05\Omega)$	$\pm(3.0\% + 0.10\Omega)$	JIS-C5202-7.10 70°C, 1000Hrs at RCWV, 1.5Hr ON, 0.5Hr OFF
Solderability	Coverage $\geq 95\%$	Coverage $\geq 95\%$	JIS-C5202-6.11 Immerse for 3 sec. in solder at 215 $\pm 3^\circ\text{C}$
Bending Strength	$\pm(1.0\% + 0.05\Omega)$	$\pm(1.0\% + 0.05\Omega)$	JIS-C5202-6.1.4 5mm deflection in either direction (CR20=3mm)
Intermittent Overload	$\pm(5.0\% + 0.10\Omega)$	$\pm(5.0\% + 0.10\Omega)$	JIS-C5202-5.8 Apply 4 times rated voltage, 1 sec ON, 25 sec OFF, 10000
Dielectric Withstanding Voltage	No short or burned appearance		JIS-C5202-5.7 Apply 500VAC for 1 min. (0603--300VAC) (0402-- 300VAC/1sec)
Terminal Strength	No evidence of mechanical damage		JIS-C5202-5.9 Apply 5N pushing force for 10 sec

RCWV= Rated Continuous Working Voltage

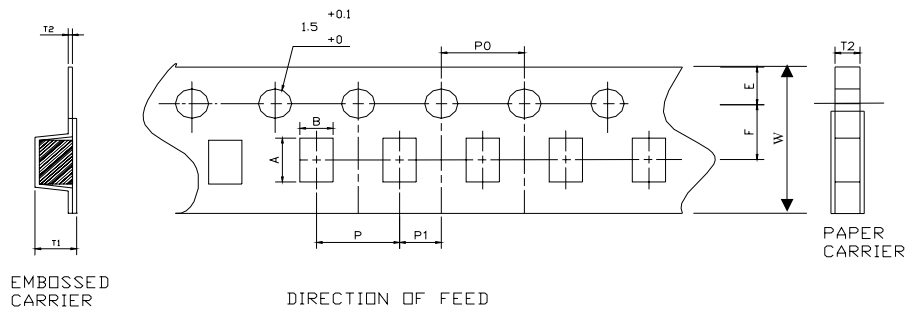
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Taping & Reel Specifications

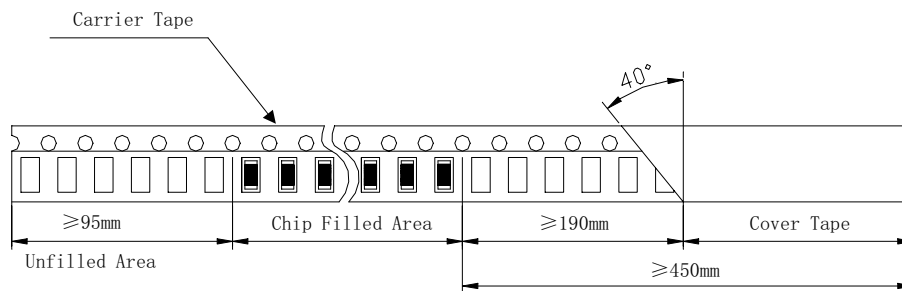
Tape Dimension:



Unit: mm

Packaging	DIM TYPE	A	B	W	E	F	T1	T2	P	P0	10x P0	P1
(TP) Paper Tape	CR20	1.15 ±0.05	0.65 ^{+0.1} _{±0.05} ^{0.05}	8.0 ±0.2	1.75 ±0.1	3.5 ±0.05	----	0.45 ±0.05	2.0±0.1	4.0 ±0.05	40.0 ±0.2	2.0± 0.05
	CR16	1.70±0.1	1.00	8.0 ±0.2	.75 ±0.1	3.5 ±0.05	----	0.6 ±0.1	4.0±0.1 2.0±0.1	4.0 ±0.05	40.0 ±0.20	2.0± 0.05
	CR10	2.30 ±0.1	1.55 ±0.1	8.0 ±0.2	1.75 ±0.1	3.5 ±0.05	----	0.75 ±0.1	4.0±0.1	4.0 ±0.05	40.0 ±0.20	2.0± 0.05
	CR08	3.5 ±0.2	1.9 ±0.2	8.0 ±0.2	1.75 ±0.1	3.5 ±0.05	----	0.75 ±0.1	4.0±0.1	4.0 ±0.05	40.0 ±0.20	2.0± 0.05
	CR04	3.5 ±0.2	2.8 ±0.2	8.0 ±0.2	1.75 ±0.1	3.5 ±0.05	----	0.75 ±0.1	4.0±0.1	4.0 ±0.05	40.0 ±0.20	2.0± 0.05
	CR02	5.5 ±0.2	2.8 ±0.2	12 ±0.2	1.75 ±0.1	5.5 ±0.05	----	0.75 ±0.1	4.0±0.1	4.0 ±0.05	40.0 ±0.20	2.0± 0.05
(TE) Embossed	CR02	5.5 ±0.2	2.8 ±0.2	12 ±0.2	1.75 ±0.1	5.5 ±0.05	0.85 ±0.15	0.23 ±0.15	4.0±0.1	4.0 ±0.05	40.0 ±0.20	2.0± 0.05
	CR01	6.7 ±0.2	3.4 ±0.2	12 ±0.2	1.75 ±0.1	5.5 ±0.05	0.85 ±0.15	0.23 ±0.15	4.0±0.1	4.0 ±0.05	40.0 ±0.20	2.0± 0.05

Lead Dimensions:



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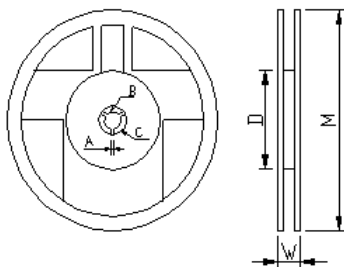
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Carrier Qty:

TYPE	Tape Width	Taping Package (pcs/reel)											
		Paper Carrier								Plastic			
		2 mm Pitch				4mm Pitch				4 mm Pitch			
		TH	H2	H3	H4	TP	P2	P3	P4	TE	E2	E3	E4
CR20	8mm	10,000	20,000	30,000	40,000	--	--	--	--	--	--	--	--
CR16	8mm	---	---	---	---	5,000	10,000	15,000	20,000	---	---	---	---
CR10	8mm												
CR08	8mm												
CR04	8mm												
CR02	12mm	--	--	--	--	5,000	--	--	--	4,000	8,000	12,000	16,000
CR01	12mm	--	--	--	--	--	--	--					
Reel Type		7"	10"	13"	13"	7"	10"	13"	13"	7"	10"	13"	13"

Reel Dimensions:



Reel Type/Tape	W	M	A	B	C	D
7" reel for 8 mm tape	12.5 ±1.5	178 ±2.0	2.0 ±0.5	13.5 ±0.5	21.0 ±0.5	60.0 ±2.0
7" reel for 12 mm tape	16.5 ±1.5	178 ±2.0				80.0 ±2.0
10" reel for 8 mm tape	14.0 ±1.5	254 ±2.0				100.0 ±2.0
13" reel for 8 mm tape	14.0 ±1.5	330 ±2.0				100.0 ±2.0