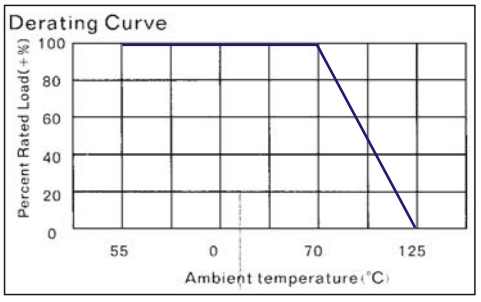
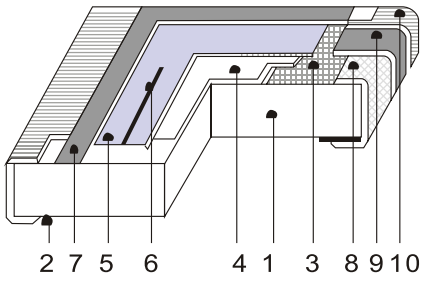
CR(CHIP Resistor)

- Extremely Thin and Light
- Highly Reliable Multilayer Electrode Construction
- Compatible with all Soldering process
- Highly Stable in Auto-Placement Surface Mount Applications
- Barrier Layer End Termination
- Zero Ohm jumper is Available
- Available in 8mm Tape&Reel per EIA Rs481

POWER RATING

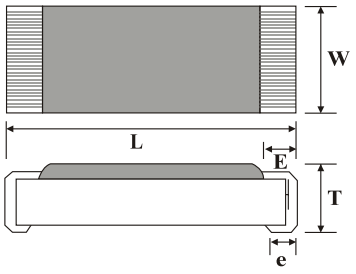


STRUCTURE



1	Ceramic substrate	2	Outer termination(Ag)	3	Inner termination(Ag)
4	Resistor layer	5	Glass layer	6	Trimming cut
7	Protective coat	8	Inner electrode	9	Secondary electrode(Ni)
10	External electrode(Sn100%)				

DIMENSIONS



Note :

Unit: mm

Type	L	W	T	E	e
CR0402	1.00±0.05	0.50±0.05	0.35±0.05	0.15±0.10	0.20±0.10
CR0603	1.60±0.15	0.80±0.10	0.45±0.10	0.25±0.20	0.30±0.20
CR0805	2.00±0.15	1.25±0.15	0.50±0.10	0.35±0.20	0.40±0.20
CR1206	3.10±0.15	1.60±0.15	0.55±0.10	0.45±0.25	0.40±0.25
CR1210	3.10±0.15	2.50±0.15	0.55±0.15	0.35±0.25	0.60±0.25
CR2010	5.00±0.20	2.50±0.20	0.55±0.15	0.65±0.25	0.50±0.25
CR2512	6.25±0.20	3.10±0.20	0.55±0.15	0.85±0.25	0.95±0.25

ELECTRICAL CHARACTERISTICS

Type	Power Rating at70℃	Max. RCWV	Max.Overload Voltage	Resistance Range(1%)	Resistance Range(5%)	Thermal Coefficient (PPM)	ZERO RESISTOR MAX CURRENT
CR0402	1/16W	50V	100V	100≤R≤2.2M	10<R≤2. 2M 1.0≤R≤10	±100 ±200 +500~-250	0.63
CR0603	1/10W	50V	100V	10<R<10M	10<R<10M 1.0≤R≤10	±100 ±200 +500~-250	1
CR0805	1/8W	150V	300V	10<R<10M	10<R<10M 1.0≤R≤10	±100 ±200 +500~-250	1.5
CR1206	1/4W	200V	300V	10<R<10M	10<R<10M 1.0≤R≤10	±100 ±200 +500~-250	1.9
CR1210	1/2W	200V	400V	10<R<10M	10<R<10M 1.0≤R≤10	±100 ±200 +500~-250	2.2
CR2010	3/4W	200V	400V	10<R<10M	10<R<10M 1.0≤R≤10	±100 ±200 +500~-250	3
CR2512	1W	200V	400V	10<R<10M	10<R<10M 1.0≤R≤10	±100 ±200 +500~-250	3

*ZERO OHM JUMPER<0.05OHM

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		1%TOL	5%TOL
Temperature Coefficient	MIL-STD-202F,Method304	-55℃ to+125℃	by Type	by Type
Thermal Shock	MIL-STD-202F,Method107	5Cycles,-55℃to +125℃ (AIR to AIR)	±(0.5%+0.05Ω)	±(1%+0.05Ω)
Low Temperature Operation	MIL-R-55342D,para.4.7.4	One Hour at-65 ℃ Followed by 45 Minutes RCWV	±(0.5%+0.05Ω)	±(1%+0.05Ω)
Short Time Overload	MIL-R-55342D,para.4.7.5	2.5Times RCWV for 5Seconds	±(0.5%+0.05Ω)	±(1%+0.05Ω)
Insulation Resistance	MIL-STD-202F,Method302	RCOV for 1Minute	10000MΩ	10000MΩ
Dielectric Withstand Voltage	MIL-STD-202F,Method301	R.M.S for 1Minute	by Type	by Type
Resistance to Soldering Heat	MIL-STD-202F,Method301C	Soldered to Test Board at 260℃ for 10 seconds	±(0.5%+0.05Ω)	±(1%+0.05Ω)
Moisture Resistance	MIL-STD-202F,Method106F	42Cycles,Total 1000Hours	±(0.5%+0.05Ω)	±(2%+0.05Ω)
Life	MIL-STD-202F,Method108A	1000Hours at 70 ℃ RCWV Intermittent	±(1%+0.05Ω)	±(3%+0.05Ω)
Solderability	MIL-STD-202F,Method208G	235℃ for 2 Seconds	95%min.coverage	95%min.coverage
Bending Strength	JIS-C-5202,Para.6.1.4 Unit Mounted in Center of 90mm Board Length, Deflected 5mm in Either Direction for 5 Seconds		±(1%+0.05Ω)	±(1%+0.05Ω)

CHIP RESISTOR R VALUE DESC

3digit marking
for E24(J)
1R0～1Ω
122～1.2KΩ
473～47KΩ
105～1MΩ
*0402 No Marking

4 digit marking
for E96(F)
22R1～22.1Ω
1020～102Ω
1542～15.4KΩ

(ONLY FOR CR0603)

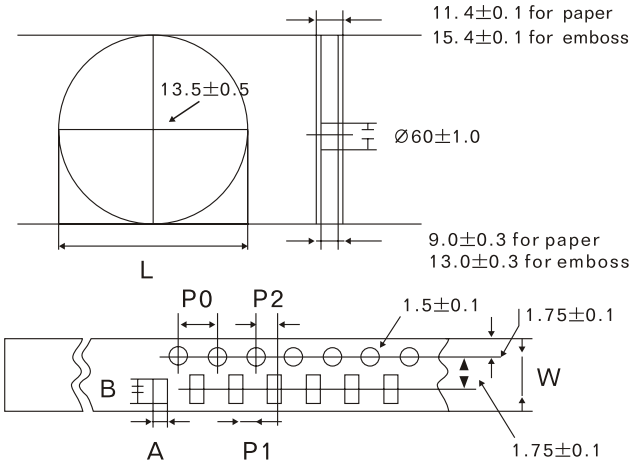
3digit marking
for E 96(F)
02C
$102\times10^{2}=10.2K\Omega$
15E
$140\times10^{4}=1.4M\Omega$

EXPLANATION OF PART NUMBER FOR 0603,±1%
EIA－96 Marking

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

This table shows the first two digits for the three-digit EIA-96 part marking scheme the third character is a letter multiplier:
$Y=10^{-2}$, $X=10^{-1}$, $A=10^{0}$, $B=10^{1}$, $C=10^{2}$, $D=10^{3}$, $E=10^{4}$, $F=10^{5}$

TAPING SPECIFICATION



The plastic reel design follow the RS 481.
Paper tape or PE tape.
All the recyclable material.

L	Component/Reel(Paper)		Component/Reel(EMBOSSED)
	CR0402;CA022A CA024A	CR0603/CR0805/CR1206/ CA034A/CA028L,R CR1210	CR2010/CR2512
178.0±2.0 7"in	10,000	5,000	4,000

Unit: mm

TYPE	A	B	W	P0	P1	P2
CR0402	0.65±0.10	1.15±0.10	8±0.20	4.00±0.10	2.00±0.10	2.00±0.05
CR0603	1.10±0.10	1.90±0.10	8±0.20	4.00±0.10	4.00±0.10	2.00±0.05
CR0805	1.65±0.20	2.40±0.20	8±0.20	4.00±0.10	4.00±0.10	2.00±0.05
CR1206	2.00±0.20	3.60±0.20	8±0.20	4.00±0.10	4.00±0.10	2.00±0.05
CR1210	2.80±0.10	3.50±0.10	8±0.50	4.00±0.10	4.00±0.10	2.00±0.05
CR2010	2.90±0.20	5.40±0.20	12±0.10	4.00±0.10	4.00±0.10	2.00±0.05
CR2512	3.60±0.20	6.90±0.20	12±0.10	4.00±0.10	4.00±0.10	2.00±0.05
CA028R	1.90±0.20	3.60±0.20	8±0.20	4.00±0.10	4.00±0.10	2.00±0.05
CA034A	1.90±0.15	2.40±0.20	8±0.20	4.00±0.10	4.00±0.10	2.00±0.05
CA024A	1.20±0.10	2.20±0.10	8±0.20	4.00±0.10	2.00±0.10	2.00±0.05
CA022A	1.15±0.20	1.15±0.20	8±0.20	4.00±0.10	2.00±0.10	2.00±0.05