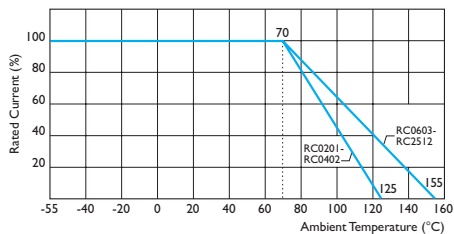


Thick Film Chip Resistors

RC Series

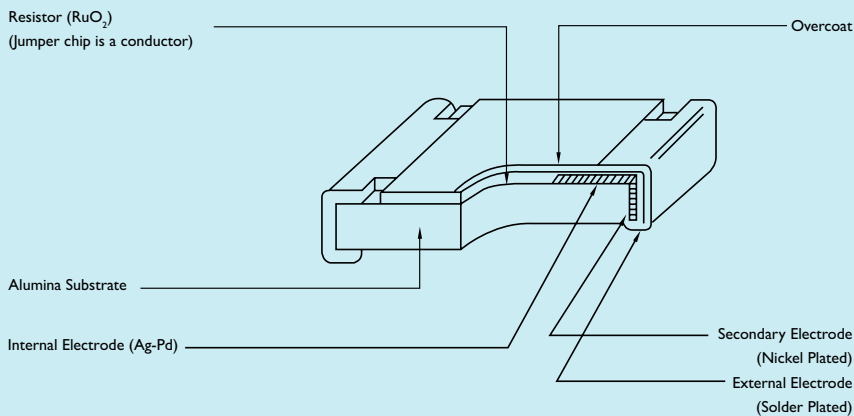


DERATING CURVE

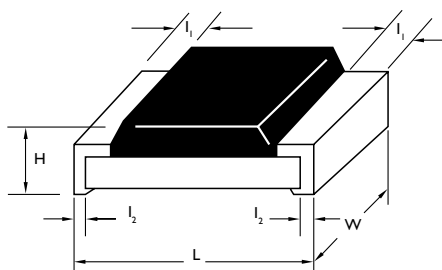


FEATURES

- Extremely Thin and Light
- Highly Reliable Multilayer Electrode Construction
- Compatible with all Soldering Process
- Highly Stable in Auto-Placement Surface Mounting Applications
- Barrier Layer End Termination
- Zero Ohm Jumper is Available
- Available in 8mm Tape & Reel per EIA RS481



DIMENSIONS



Unit : mm

STYLE	L	W	H	l ₁	l ₂
RC0201	0.60±0.10	0.30±0.05	0.25±0.05	0.15±0.10	0.15±0.10
RC0402	1.00±0.05	0.50±0.05	0.35±0.05	0.20±0.10	0.25±0.10
RC0603	1.60±0.10	0.80±0.10	0.45±0.10	0.25±0.15	0.25±0.15
RC0805	2.00±0.10	1.25±0.10	0.50±0.10	0.35±0.20	0.35±0.20
RC1206	3.10±0.10	1.60±0.10	0.55±0.10	0.45±0.20	0.40±0.20
RC1210	3.10±0.10	2.60±0.15	0.50±0.10	0.45±0.15	0.50±0.20
RC2010	5.00±0.10	2.50±0.15	0.55±0.10	0.45±0.15	0.50±0.20
RC2512	6.35±0.10	3.10±0.15	0.55±0.10	0.60±0.20	0.50±0.20

Note :

ELECTRICAL CHARACTERISTICS

STYLE	RC0201	RC0402	RC0603	RC0805	RC1206	RC1210	RC2010	RC2512
Power Rating @ 70°C	1/20W	1/16W	1/10W	1/8W	1/4W	1/3W	3/4W	1W
Operating Temp. Range	-55°C ~ +155°C	-25°C ~ +125°C	-55°C ~ +155°C				-25°C ~ +125°C	-55°C ~ +155°C
Maximum Working Voltage	15V	50V	50V	150V	200V	200V	200V	200V
Maximum Overload Voltage	50V	100V	100V	300V	400V	400V	400V	400V
Dielectric Withstand Voltage	50V	100V	100V	300V	500V	500V	500V	500V
Resistance Range								
E24Tol. ±2%, ±5%	10Ω ~ 1MΩ	1Ω ~ 10MΩ	1Ω ~ 22MΩ					
E96Tol. ±0.5%, ±1%		2.2Ω ~ 4.7MΩ	1Ω ~ 4.7MΩ					
Zero Ohm Jumper	< 0.05Ω							
TCR ±200ppm/°C	10Ω ≤ R ≤ 1M	10Ω ≤ R < 10MΩ	10Ω ≤ R < 10ΩM; 10MΩ < R ≤ 22MΩ					
±250ppm/°C	10Ω ≤ R ≤ 1M							
±300ppm/°C		1Ω ≤ R < 10Ω						
0/+500ppm/°C	10Ω ≤ R < 100Ω							
Jumper Criteria								
Rated Current (A)	0.5	1.0	1.0	2.0	2.0	2.0	2.0	2.0
Maximum Current (A)	1.0	2.0	2.0	5.0	10.0	10.0	10.0	10.0

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		1% TOL.	5% TOL.
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	by Type	
Thermal Shock	MIL-STD-202F, Method 107G	25 Cycles, -65°C to +125°C (Step by Step 2 min.)	±(0.5%+0.05Ω)	±(1%+0.05Ω)
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at - 65°C Followed by 45 Minutes RCWV	±(0.5%+0.05Ω)	±(1%+0.05Ω)
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	±(1%+0.05Ω)	±(2%+0.05Ω)
Insulation Resistance	JIS-C-5202, 5.6	RCOV for 1 Minute	>10GΩ	
Dielectric Withstand Voltage	JIS-C-5202, 5.7	R.M.S. for 1 Minute	by Type	
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	±(0.5%+0.05Ω)	±(1%+0.05Ω)
Moisture Resistance	MIL-STD-202F, Method 106F	42 Cycles.Total 1000 Hours	±(0.5%+0.05Ω)	±(2%+0.05Ω)
Life	MIL-STD-202F, Method 108A	1000 Hours at 70°C RCWV Intermittent	±(1%+0.05Ω)	±(3%+0.05Ω)
Solderability	JIS-C-5202, 6.11	230°C for 5 Seconds	>95% Coverage	
Bending Strength	JIS-C-5202, 6.1.4	Unit Mounted in Center of 90mm Board Length, Deflected 5mm (power chip 2mm) in Either Direction for 5 Seconds	±(1%+0.05Ω)	±(1%+0.05Ω)

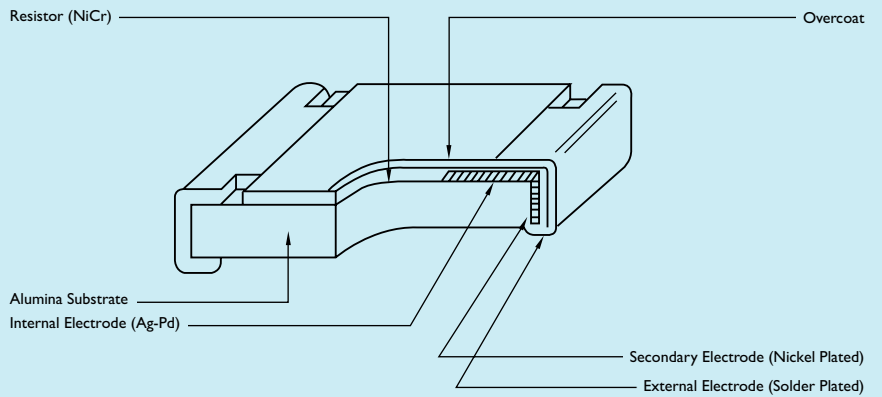
Thin Film Chip Resistors

RT Series

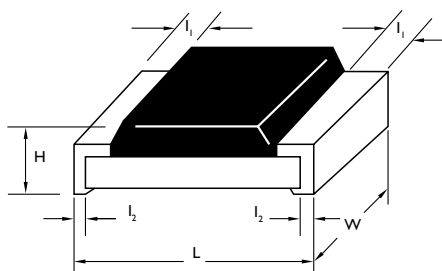


FEATURES

- High Stability
- Low TCR / Low Noise
- High Accuracy ($\pm 0.1\%$, $\pm 0.5\%$)



DIMENSIONS



Unit : mm

STYLE	L	W	H	I ₁	I ₂
RT0201	0.60±0.10	0.30±0.05	0.25±0.05	0.15±0.10	0.15±0.10
RT0402	1.00±0.10	0.50±0.05	0.30±0.05	0.20±0.10	0.25±0.10
RT0603	1.60±0.10	0.80±0.10	0.45±0.10	0.25±0.15	0.25±0.15
RT0805	2.00±0.10	1.25±0.10	0.50±0.10	0.35±0.20	0.35±0.20
RT1206	3.10±0.10	1.60±0.10	0.55±0.10	0.45±0.20	0.40±0.20
RT1210	3.10±0.10	2.60±0.15	0.55±0.10	0.50±0.20	0.50±0.20
RT2010	5.00±0.10	2.50±0.15	0.55±0.10	0.60±0.20	0.50±0.20
RT2512	6.35±0.10	3.20±0.15	0.55±0.10	0.60±0.20	0.50±0.20

ELECTRICAL CHARACTERISTICS

STYLE	RT0201			RT0402			RT0603			RT0805		
Resistance Range in E24/E96 (E192: Special Value on Request)	10Ω ~ 30KΩ (<10Ω; 30 ~ 56KΩ on Request)			10Ω ~ 121KΩ (<10Ω; 121 ~ 220KΩ on Request)			3Ω ~ 681KΩ (<3Ω; 681 ~ 750KΩ on Request)			3Ω ~ 1.5MΩ (<3Ω; 1.5 ~ 2MΩ on Request)		
Operating Mode	Precision	Standard	Power	Precision	Standard	Power	Precision	Standard	Power *	Precision	Standard	Power *
Power Rating @ 70°C	1/64W	1/20W	1/16W	1/64W	1/16W	1/10W	1/32W	1/10W	1/8W	1/20W	1/8W	1/5W
Operation Temperature Range	-10°C to +85°C for Precision Type; -55°C to +125°C for Standard; -55°C to +155°C for Power Type											
Maximum Working Voltage	5V	15V	15V	12.5V	50V	50V	25V	75V	75V	35V	150V	150V
Maximum Overload Voltage	10V	50V	50V	25V	100V	100V	50V	150V	150V	70V	300V	300V
Dielectric Withstand Voltage	50V	50V	50V	75V	75V	75V	100V	100V	100V	200V	200V	200V
Resistance Tolerance	±0.1% ; ±0.25% ; ±0.5% ; ±1.0% (±0.01% ; ±0.05% on Request)											
Temperature Coefficient	±25ppm/°C ; ±50ppm/°C (±10ppm/°C ; ±15ppm/°C on Request)											

STYLE	RT1206			RT1210			RT2010		RT2512	
Resistance Range in E24/E96 (E192: Special Value on Request)	3Ω ~ 1.5MΩ (<3Ω; 1.5 ~ 2M on Request)			1Ω ~ 1MΩ (1M ~ 2MΩ on Request)			10Ω ~ 1MΩ (<10Ω; 1M ~ 2MΩ on Request)		10Ω ~ 1MΩ (<10Ω; 1M ~ 2MΩ on Request)	
Operating Mode	Precision	Standard	Power **	Precision	Standard	Power	Standard	Power	Standard	Power
Power Rating @ 70°C	1/10W	1/8W	1/4W	1/8W	1/4W	2/5W	1/2W	3/4W	3/4W	1W
Operation Temperature Range	-10°C to +85°C for Precision Type; -55°C to +125°C for Standard; -55°C to +155°C for Power Type									
Maximum Working Voltage	50V	200V	200V	50V	200V	200V	200V	200V	200V	200V
Maximum Overload Voltage	100V	400V	400V	100V	400V	400V	400V	400V	400V	400V
Dielectric Withstand Voltage	300V	300V	300V	400V	400V	400V	400V	400V	400V	400V
Resistance Tolerance	±0.1% ; ±0.25% ; ±0.5% ; ±1.0% (±0.01% ; ±0.05% on Request)									
Temperature Coefficient	±25ppm/°C ; ±50ppm/°C (±10ppm/°C ; ±15ppm/°C on Request)									

* Power Mode on Request for RT0603 and RT0805

** Power Mode on Request for RT1206

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	by Type
Thermal Shock	MIL-STD-202F, Method 107G	25 Cycles, -65°C to +125°C (Step by Step 2 min.)	±(0.5%+0.05Ω)*
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at LCT Followed by 45 Minutes RCWV	±(0.5%+0.05Ω)*
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	±(0.5%+0.05Ω)*
Insulation Resistance	JIS-C-5202, 5.6	RCOV for 1 Minute	>10GΩ
Dielectric Withstand Voltage	JIS-C-5202, 5.7	R.M.S. for 1 Minute	by Type
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	±(0.5%+0.05Ω)*
Moisture Resistance	MIL-STD-202F, Method 106F	42 Cycles.Total 1000 Hours	±(0.5%+0.05Ω)*
Life	MIL-STD-202F, Method 108A	1000 Hours at 70°C RCWV Intermittent	±(0.5%+0.05Ω)*
Solderability	JIS-C-5202, 6.11	230°C for 5 Seconds	>95% Coverage
Bending Strength	JIS-C-5202, 6.1.4	Unit Mounted in Center of 90mm Board Length, Deflected 2mm (by Style) in Either Direction for 5 Seconds	±(0.25%+0.05Ω)*

* High Stability, ±0.1% or 0.25%, on Request

Thin Film Chip Resistors

RJ Series

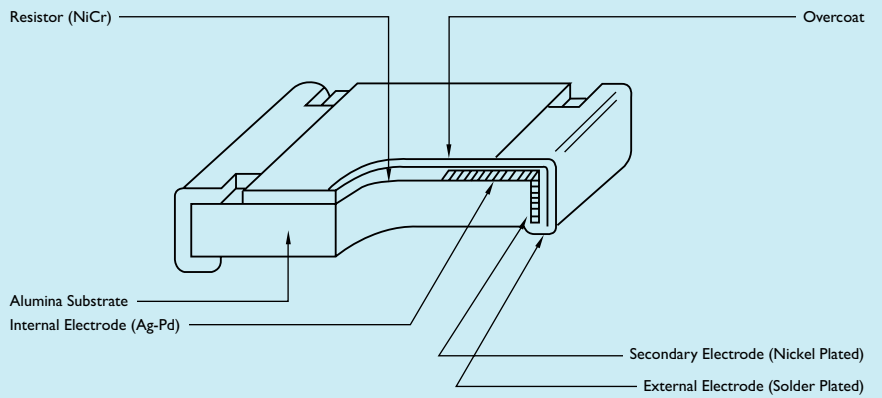


FEATURES

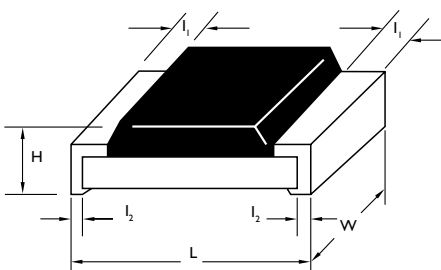
High Stability

TCR : $\pm 50\text{ppm}/^\circ\text{C}$

Tolerance : $\pm 1\%$



DIMENSIONS



Unit : mm

STYLE	L	W	H	l_1	l_2
RJ0201	0.60 ± 0.10	0.30 ± 0.05	0.25 ± 0.05	0.15 ± 0.10	0.15 ± 0.10
RJ0402	1.00 ± 0.10	0.50 ± 0.05	0.30 ± 0.05	0.20 ± 0.10	0.25 ± 0.10
RJ0603	1.60 ± 0.10	0.80 ± 0.10	0.45 ± 0.10	0.25 ± 0.15	0.25 ± 0.15
RJ0805	2.00 ± 0.10	1.25 ± 0.10	0.50 ± 0.10	0.35 ± 0.20	0.35 ± 0.20
RJ1206	3.10 ± 0.10	1.60 ± 0.10	0.55 ± 0.10	0.45 ± 0.20	0.40 ± 0.20
RJ1210	3.10 ± 0.10	2.60 ± 0.15	0.55 ± 0.10	0.50 ± 0.20	0.50 ± 0.20
RJ2010	5.00 ± 0.10	2.50 ± 0.15	0.55 ± 0.10	0.60 ± 0.20	0.50 ± 0.20
RJ2512	6.35 ± 0.10	3.20 ± 0.15	0.55 ± 0.10	0.60 ± 0.20	0.50 ± 0.20

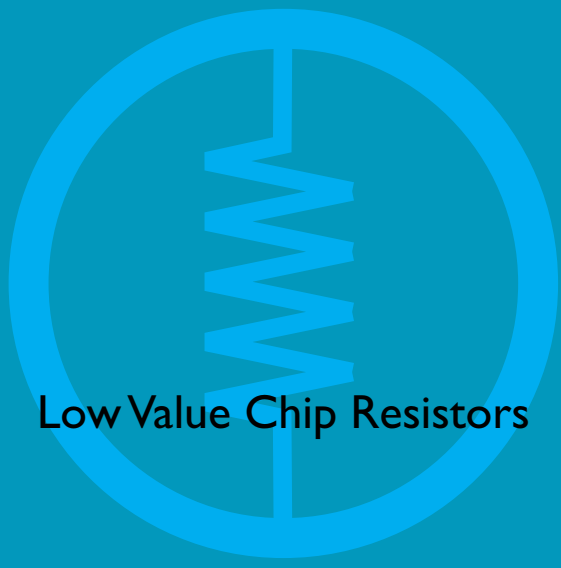
Note :

ELECTRICAL CHARACTERISTICS

STYLE	RJ0201	RJ0402	RJ0603	RJ0805	RJ1206	RJ1210	RJ2010	RJ2512
Power Rating @ 70°C	1/20W	1/16W	1/16W	1/10W	1/8W	1/4W	1/2W	3/4W
Operating Temp. Range	-55°C ~ +125°C							
Maximum Working Voltage	15V	25V	50V	100V	150V	150V	150V	150V
Maximum Overload Voltage	50V	100V	100V	200V	250V	250V	300V	300V
Dielectric Withstand Voltage	50V	100V	100V	250V	250V	250V	400V	400V
Resistance Range	E24 / E96							
(E192 on Request)	10Ω ~ 30KΩ	10Ω ~ 121KΩ	3Ω ~ 681KΩ	3Ω ~ 1.5MΩ	3Ω ~ 1.5MΩ	1Ω ~ 1M	10Ω ~ 1M	10Ω ~ 1M
Resistance Tolerance	±1%							
Temperature Coefficient	±50ppm/°C							

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	±50ppm/°C
Thermal Shock	MIL-STD-202F, Method 107G	25 Cycles, -65°C to +125°C (Step by Step 2 min.)	±(0.5%+0.05Ω)
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at -65°C Followed by 45 Minutes RCWV	±(0.5%+0.05Ω)
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	±(1.0%+0.05Ω)
Insulation Resistance	IIS-C-5202, 5.6	RCOV for 1 Minute	10GΩ
Dielectric Withstand Voltage	IIS-C-5202, 5.7	R.M.S. for 1 Minute	by Type
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	±(0.5%+0.05Ω)
Moisture Resistance	MIL-STD-202F, Method 106F	42 Cycles. Total 1000 Hours	±(0.5%+0.05Ω)
Life	MIL-STD-202F, Method 108A	1000 Hours at 70°C RCWV Intermittent	±(1%+0.05Ω)
Solderability	IIS-C-5202, 6.11	230°C for 5 Seconds	95% min. Coverage
Bending Strength	IIS-C-5202, 6.1.4	Unit Mounted in Center of 90mm Board Length, Deflected 2mm (by Style) in Either Direction for 5 Seconds	±(1%+0.05Ω)



Low Value Chip Resistors

RL Series



FEATURES

Current Sensing of Desktop & NoteBook PC

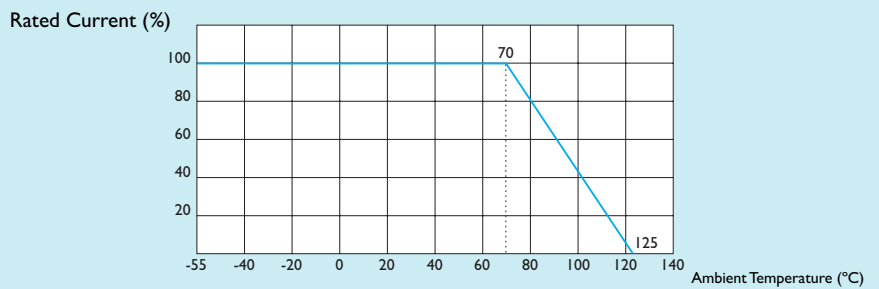
Resistance Values Down to 0.010 Ohms

Highly Reliable Multilayer Electrode Construction

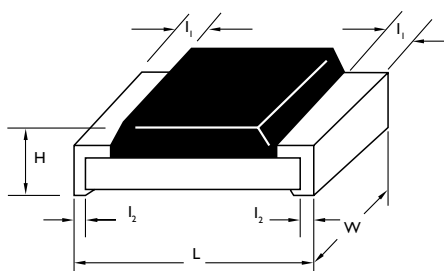
Low Inductance

High Speed Logic Circuits

DERATING CURVE



DIMENSIONS



Unit : mm

STYLE	L	W	H	l ₁	l ₂
RL0402	1.00±0.10	0.50±0.05	0.35±0.05	0.20±0.10	0.25±0.10
RL0603	1.60±0.10	0.80±0.10	0.45±0.10	0.25±0.15	0.25±0.15
RL0805	2.00±0.10	1.25±0.10	0.50±0.10	0.35±0.20	0.35±0.20
RL1206	3.10±0.10	1.60±0.10	0.55±0.10	0.45±0.25	0.40±0.25
RL1210	3.10±0.10	2.60±0.15	0.55±0.10	0.50±0.20	0.50±0.20
RL2010	5.00±0.10	2.50±0.15	0.55±0.10	0.60±0.20	0.50±0.20
RL2512	6.35±0.10	3.20±0.15	0.55±0.10	0.60±0.20	0.50±0.20

Note :

ELECTRICAL CHARACTERISTICS

STYLE	RL0402	RL0603	RL0805	RL1206	RL1210	RL2010	RL2512
Power Rating at 70°C	1/16W	1/10W	1/8W	1/4W	1/1W	3/4W	1W
Operating Temp. Range	-55°C to +125°C						
Derated to 0 Load at	+125°C						
Resistance Range	0.1Ω ~ 0.99Ω	0.01Ω ~ 0.99Ω					
Temperature Coefficient							
10mΩ ≤ Rn < 100mΩ			±1500ppm/°C				
100mΩ ≤ Rn < 1Ω	±800ppm/°C	±600ppm/°C					
Resistance Tolerance	±1%	±5%					

* 50mR ~ 100mR on Request for RL0402

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		1% TOL.	5% TOL.
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	by Type	
Thermal Shock	MIL-STD-202F, Method 107G	25 Cycles, -65°C to +125°C (Step by Step 2 min.)	±1%	±1%
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at -55°C Followed by 45 Minutes RCWV	±1%	±1%
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	±1%	±2%
Insulation Resistance	IIS-C-5202, 5.6	RCOV for 1 Minute	>10GΩ	
Dielectric Withstand Voltage	IIS-C-5202, 5.7	R.M.S. for 1 Minute	by Type	
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	±1%	±1%
Moisture Resistance	MIL-STD-202F, Method 106F	42 Cycles. Total 1000 Hours	±2%	±2%
Life	MIL-STD-202F, Method 108G	1000 Hours at 70°C RCWV Intermittent	±2%	±3%
Solderability	IIS-C-5202, 6.11	230°C for 5 Seconds	>95% Coverage	



Note :

MARKING DIAGRAMS

Chip Resistors



5% Marking
Value=10K Ω
RC
0603/0805/1206
1210/2010/2512



1% Marking
Value=10K Ω
RC/RT/RJ
0805/1206
1210/2010/2512



1% Marking
Value=12.4K Ω
RC/RT/RJ
0603
EIA-96 Marking



No Marking
RC/RT/RJ/RL
0201/0402



1% Marking
Value=1K Ω
RC0603
EIA-24 Marking

Marking Explanation

5% tolerance: 3 digits, first two digits are significant figures, third digit is number of zeros. Letter R is decimal point.

1% tolerance: 4 digits, first three digits are significant figures, fourth digit is number of zeros. Letter R is decimal point.

Letter " 0 " is 0 ohm.

RC0603 1% : EIA-96 Marking, as below list, when value in E-24 series marking with 5%, 3 digits, one short bar under marking letter.

Low Value Chip Resistors



Value=220m Ω
RL0603



Value=20m Ω
RL0805/RL1206/RL1210/RL2010/RL2512

Marking Explanation

Standard MIL resistance marking.

" R " signifies decimal place.

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

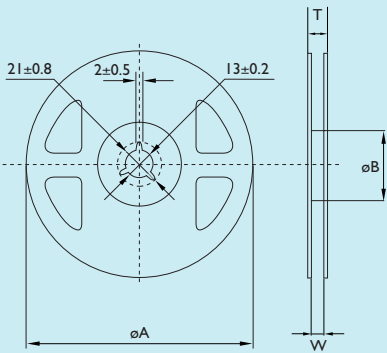
This table shows the first two digits for the three-digit EIA-96 part marking scheme.

The third character is a letter multiplier: Y=10⁻² X=10⁻¹ A=10⁰ B=10¹ C=10² D=10³ E=10⁴ F=10⁵

Note :

TAPING REEL

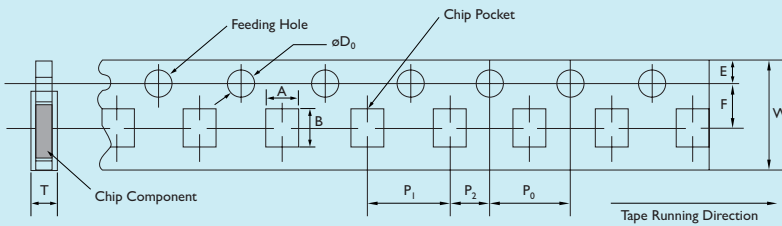
Unit : mm



STYLE	PACKAGING	TAPE WIDE	ϕA	ϕB	W	T
RC/RT/RJ/RL 0201/0402/0603/0805/1206/1210	Paper	8mm	180^{+0}_{-3}	60^{+1}_{-0}	9.0 ± 0.3	11.4 ± 1
RC/RT/RJ/RL 2010/2512	Embossed	12mm	180^{+0}_{-3}	60^{+1}_{-0}	13.0 ± 0.3	15.4 ± 1

PAPER TAPING

Unit : mm



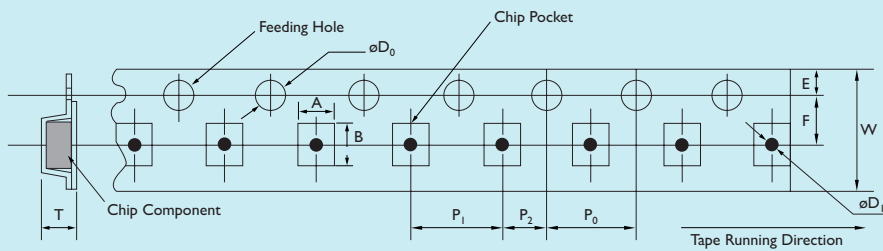
STYLE	A	B	W	E	F	p_0	p_1	p_2	ϕD_0	T
RC/RT/RJ/RL0201	0.45 ± 0.1	0.75 ± 0.1	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	2.0 ± 0.05	$1.5^{+0.1}_{-0}$	0.35 ± 0.1
RC/RT/RJ/RL0402	0.65 ± 0.1	1.15 ± 0.1	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	2.0 ± 0.05	2.0 ± 0.05	$1.5^{+0.1}_{-0}$	0.53 ± 0.1
RC/RT/RJ/RL0603	1.10 ± 0.1	1.90 ± 0.1	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	4.0 ± 0.05	2.0 ± 0.05	$1.5^{+0.1}_{-0}$	0.70 ± 0.1
RC/RT/RJ/RL0805	1.65 ± 0.1	2.40 ± 0.1	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	4.0 ± 0.05	2.0 ± 0.05	$1.5^{+0.1}_{-0}$	0.85 ± 0.1
RC/RT/RJ/RL1206	1.90 ± 0.1	3.50 ± 0.1	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	4.0 ± 0.05	2.0 ± 0.05	$1.5^{+0.1}_{-0}$	0.85 ± 0.1
RC/RT/RJ/RL1210	2.80 ± 0.1	3.50 ± 0.1	8.0 ± 0.2	1.75 ± 0.1	3.5 ± 0.05	4.0 ± 0.1	4.0 ± 0.05	2.0 ± 0.05	$1.5^{+0.1}_{-0}$	0.85 ± 0.1



Note :

EMBOSED TAPING

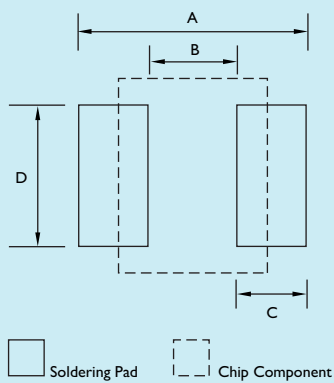
Unit : mm



STYLE	A	B	W	E	F	p_0	p_1	p_2	ϕD_0	ϕD_1	T
RC/RT/RJ/RL2010	2.8 ± 0.2	5.4 ± 0.2	12 ± 0.3	1.75 ± 0.1	5.5 ± 0.05	4.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	1.5 ± 0.1	1.5 ± 0.25	1.0 ± 0.1
RC/RT/RJ/RL2512	3.5 ± 0.2	6.7 ± 0.2	12 ± 0.3	1.75 ± 0.1	5.5 ± 0.05	4.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	1.5 ± 0.1	1.5 ± 0.25	1.0 ± 0.1

RECOMMENDED LAND PATTERN DESIGN

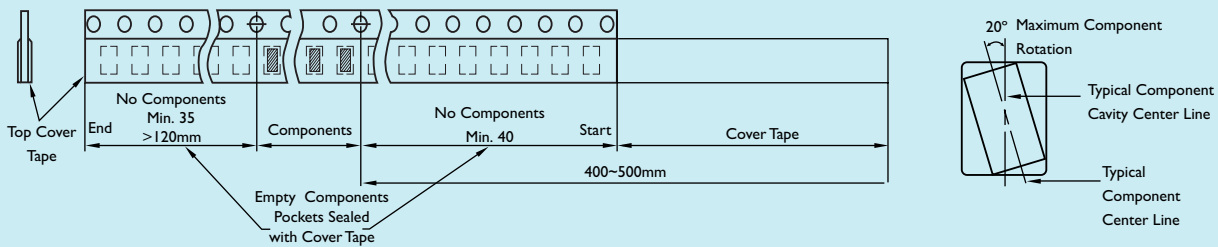
Unit : mm



STYLE	A	B	C	D
RC/RT/RJ/RL0201	1.0	0.3	0.35	0.4
RC/RT/RJ/RL0402	1.5	0.5	0.5	0.6
RC/RT/RJ/RL0603	2.6	0.8	0.9	0.8
RC/RT/RJ/RL0805	3.0	1.2	0.9	1.2
RC/RT/RJ/RL1206	4.2	2.2	1.0	1.5
RC/RT/RJ/RL1210	4.2	2.2	1.0	2.4
RC/RT/RJ/RL2010	6.1	3.3	1.4	2.4
RC/RT/RJ/RL2512	8.0	4.4	1.8	3.0

Note :

TAPING REEL



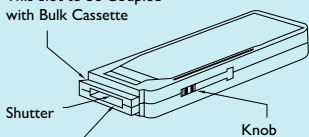
PACKING METHODS

Unit : pcs

PACKING	PAPERTAPING REEL (R)			EMBOSSSED TAPING REEL (K)	BULK CASSETTE (C)
	7" (178mm)	10" (254mm)	13" (330mm)	7" (178mm)	
RC/RT/RJ/RL0201	10,000	20,000	40,000	-	150,000
RC/RT/RJ/RL0402	10,000	20,000	50,000	-	100,000
RC/RT/RJ/RL0603	5,000	10,000	20,000	-	25,000
RC/RT/RJ/RL0805	5,000	10,000	20,000	-	10,000
RC/RT/RJ/RL1206	5,000	10,000	20,000	-	-
RC/RT/RJ/RL1210	5,000	10,000	20,000	-	-
RC/RT/RJ/RL2010	-	-	-	4,000	-
RC/RT/RJ/RL2512	-	-	-	4,000	-

BULK CASSETTE

This Slot to be Coupled with Bulk Cassette

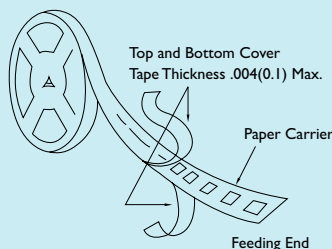


Chip Component Inlet

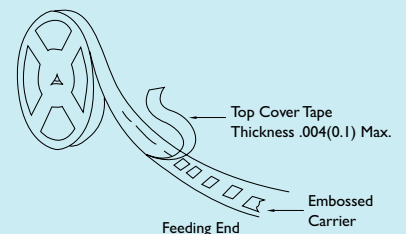
Dimension of Bulk Case
110(L) x 36(W) x 12(T)mm

Bulk case was standardized in Mar. 1992 (EIA-7201).

PAPER CARRIER



EMBOSSSED PLASTIC CARRIER



Thick Film Chip Resistors Array

YC Series

[For 4Pin/2R]

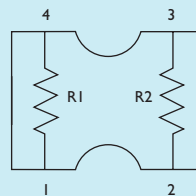


APPLICATIONS

Telecommunication Equipment Lap-Top and Note-Book Computer

SCHEMATICS

YC12

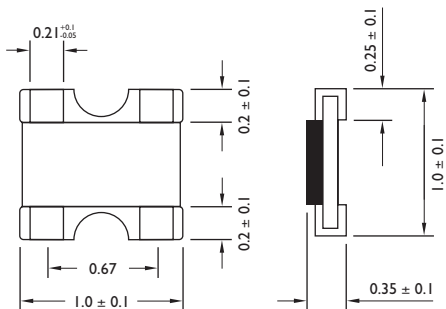


R1=R2

DIMENSIONS

Unit : mm

YC12



Note :

ELECTRICAL CHARACTERISTICS

STYLE	YC12
Power Rating at 70°C	1/16W
Operating Temp. Range	-55°C to +125°C (Derated to 0 Load at +125°C)
Maximum Working Voltage	50V
Maximum Overload Voltage	100V
Dielectric Withstand Voltage	100V
Number of Resistors	2
Resistance Range	10Ω ~ 1MΩ
Temperature Coefficient	± 200ppm/°C
Resistance Tolerance	± 5%

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	± 200ppm/°C
Thermal Shock	MIL-STD-202F, Method 107G	25 Cycles, -65°C to +125°C (Step by Step 2min.)	± (1%+0.05Ω)
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at -65°C Followed by 45 Minutes RCWV	± (1%+0.05Ω)
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	± (2%+0.05Ω)
Insulation Resistance	JIS-C-5202, 5.6	RCOV for 1 Minute	> 10GΩ
Dielectric Withstand Voltage	JIS-C-5202, 5.7	R.M.S. for 1 Minute	by Type
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	± (1%+0.05Ω)
Moisture Resistance	MIL-STD-202F, Method 106F	42Cycles.Total 1000 Hours	± (2%+0.1Ω)
Life	MIL-STD-202F, Method 108A	1000 Hours at 70°C RCWV Intermittent	± (3%+0.1Ω)
Solderability	JIS-C-5202, 6.11	230°C for 5 Seconds	> 95% Coverage
Bending Strength	JIS-C-5202, 6.1.4	Unit Mounted in Center of 90mm Board Length, Deflected 1mm in Either Direction for 5 Seconds	± (1%+0.05Ω)

Thick Film
Chip Resistors Array

YC Series

[For 8Pin/4R]

YC12



YC16



YC32



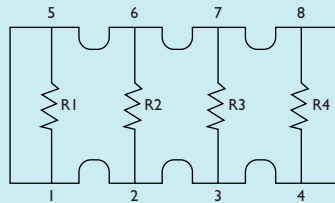
APPLICATIONS

Telecommunication Equipment Lap-Top and Note-Book Computer

SCHEMATICS

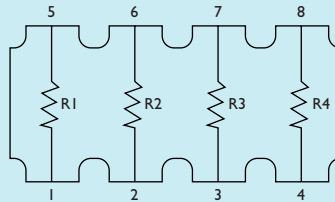
YC12

YC16



$R1=R2=R3=R4$

YC32

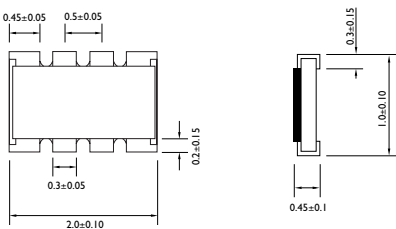


$R1=R2=R3=R4$

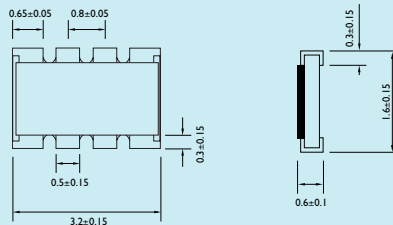
DIMENSIONS

Unit : mm

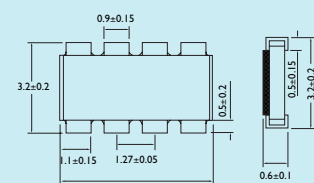
YC12



YC16



YC32



Note :

ELECTRICAL CHARACTERISTICS

STYLE	YC12	YC16	YC32
Power Rating at 70°C	1/16W	1/16W	1/8W
Operating Temp. Range	-55°C to +125°C		
Maximum Working Voltage	50V		200V
Maximum Overload Voltage	100V		400V
Dielectric Withstand Voltage	100V		500V
Number of Resistors	4		
Resistance Range	10Ω ~ 1MΩ		
Temperature Coefficient	±200ppm/°C		
Resistance Tolerance	±1% ±5%		

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	by Type
Thermal Shock	MIL-STD-202F, Method 107G	25 Cycles, -65°C to +125°C (Step by Step 2min.)	±(1%+0.05Ω)
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at -65°C Followed by 45 Minutes RCWV	±(1%+0.05Ω)
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	±(2%+0.05Ω)
Insulation Resistance	JIS-C-5205, 5.6	RCOV for 1 Minute	>10GΩ
Dielectric Withstand Voltage	JIS-C-5205, 5.7	R.M.S. for 1 Minute	by Type
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	±(1%+0.05Ω)
Moisture Resistance	MIL-STD-202F, Method 106F	42Cycles.Total 1000 Hours	±(2%+0.05Ω)
Life	MIL-STD-202F, Method 108A	1000 Hours at 70°C RCWV Intermittent	±(3%+0.10Ω)
Solderability	JIS-C-5205, 6.11	230°C for 5 Seconds	>95% Coverage
Bending Strength	JIS-C-5202, 6.1.4	Unit Mounted in Center of 90mm Board Length, Deflected 1mm in Either Direction for 5 Seconds	±(1%+0.05Ω)

Thick Film
Chip Resistors Network

YC Series

[For 9Pin/8R 10Pin/8R]

YC15



YC35

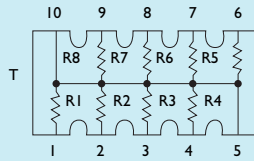


APPLICATIONS

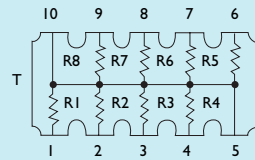
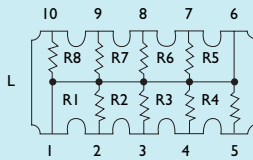
Telecommunication Equipment Lap-Top and Note-Book Computer

SCHEMATICS

YC15



YC35

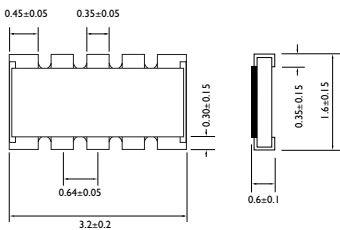


$$R1=R2=R3=R4=R5=R6=R7=R8$$

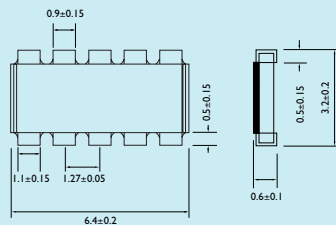
DIMENSIONS

Unit : mm

YC15



YC35



Note :

ELECTRICAL CHARACTERISTICS

STYLE	YC15	YC35
Power Rating at 70°C	1/32W	1/16W
Operating Temp. Range	-55°C to +125°C (Derated to 0 Load at +125°C)	
Maximum Working Voltage	25V	50V
Maximum Overload Voltage	50V	100V
Dielectric Withstand Voltage	50V	100V
Number of Resistors	8	
Resistance Range	33Ω ~ 100KΩ	10Ω ~ 330KΩ
Temperature Coefficient	±200ppm/°C	
Resistance Tolerance	±5%	

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	±200ppm/°C
Thermal Shock	MIL-STD-202F, Method 107	25 Cycles, -65°C to +125°C (Step by Step 2min)	±(1%+0.05Ω)
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at -65°C Followed by 45 Minutes RCWV	±(1%+0.05Ω)
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	±(2%+0.05Ω)
Insulation Resistance	JIS-C-5205, 5.6	RCOV for 1 Minute	>10GΩ
Dielectric Withstand Voltage	JIS-C-5205, 5.7	R.M.S. for 1 Minute	by Type
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	±(1%+0.05Ω)
Moisture Resistance	MIL-STD-202F, Method 106F	42Cycles.Total 1000 Hours	±(2%+0.05Ω)
Life	MIL-STD-202F, Method 108A	1000 Hours at 70°C RCWV Intermittent	±(3%+0.1Ω)
Solderability	JIS-C-5205, 6.11	230°C for 5 Seconds	>95% coverage
Bending Strength	JIS-C-5202, 6.1.4	Unit Mounted in Center of 90mm Board Length, Deflected 1mm in Either Direction for 5 Seconds	±(1%+0.05Ω)

Thick Film
Chip Resistors Array

YC Series

[For 16Pin/8R]

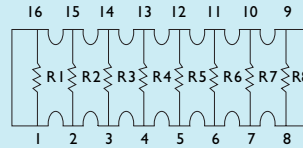


APPLICATIONS

Telecommunication Equipment Lap-Top and Note-Book Computer

SCHEMATICS

YC24

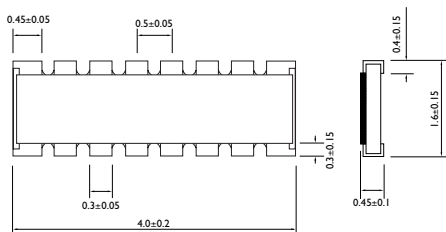


$R1=R2=R3=R4=R5=R6=R7=R8$

DIMENSIONS

Unit : mm

YC24



Note :

ELECTRICAL CHARACTERISTICS

STYLE	YC24
Power Rating at 70°C	1/16W
Operating Temp. Range	-55°C to + 125°C (Derated to 0 Load at + 125°C)
Maximum Working Voltage	50V
Maximum Overload Voltage	100V
Dielectric Withstand Voltage	100V
Number of Resistors	8
Resistance Range	10Ω ~ 1MΩ
Temperature Coefficient	± 200ppm/°C
Resistance Tolerance	± 5% ± 1%

ENVIRONMENTAL CHARACTERISTICS

PERFORMANCE TEST	TEST METHOD		APPRAISE
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	± 200ppm/°C
Thermal Shock	MIL-STD-202F, Method 107	25 Cycles, -65°C to +125°C (Step by Step 2min.)	± (1%+0.05Ω)
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at -65°C Followed by 45 Minutes RCWV	± (1%+0.05Ω)
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	± (2%+0.05Ω)
Insulation Resistance	JIS-C-5205, 5.6	RCOV for 1 Minute	> 10GΩ
Dielectric Withstand Voltage	JIS-C-5205, 5.7	R.M.S. for 1 Minute	by Type
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	± (1%+0.05Ω)
Moisture Resistance	MIL-STD-202F, Method 106F	42Cycles.Total 1000 Hours	± (2%+0.05Ω)
Life	MIL-STD-202F, Method 108A	1000 Hours at 70°C RCWV Intermittent	± (3%+0.05Ω)
Solderability	JIS-C-5205, 6.11	230°C for 5 Seconds	> 95% Coverage
Bending Strength	JIS-C-5202, 6.1.4	Unit Mounted in Center of 90mm Board Length, Deflected 1mm in Either Direction for 5 Seconds	± (1%+0.05Ω)

Thick Film
Chip Resistors Network

TC Series

[For 8Pin/4R]

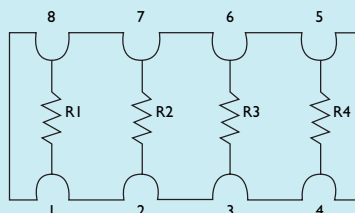


APPLICATIONS

Telecommunication Equipment Lap-Top and Note-Book Computer

SCHEMATICS

TC16

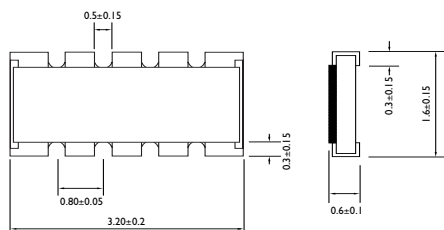


R1=R2

DIMENSIONS

Unit : mm

TC16





Note :

ELECTRICAL CHARACTERISTICS

STYLE	TC16
Power Rating at 70°C	1/16W
Operating Temp. Range	-55°C to +125°C (Derated to 0 Load at +125°C)
Maximum Working Voltage	50V
Maximum Overload Voltage	100V
Dielectric Withstand Voltage	100V
Number of Resistors	4
Resistance Range	10Ω ~ 1MΩ
Temperature Coefficient	±200ppm/°C
Resistance Tolerance	±5%

ENVIRONMENTAL CHARACTERISTICS

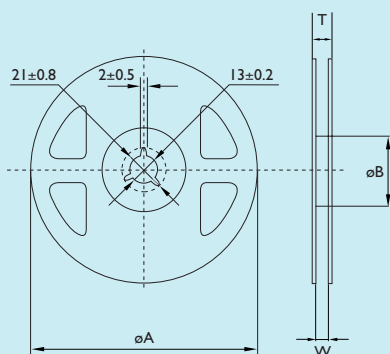
PERFORMANCE TEST	TEST METHOD		APPRAISE
Temperature Coefficient	MIL-STD-202F, Method 304	LCT to UCT	±200ppm/°C
Thermal Shock	MIL-STD-202F, Method 107	25 Cycles, -65°C to +125°C (Step by Step 2min.)	±(1%+0.05Ω)
Low Temperature Operation	MIL-R-55342D, Para.4.7.4	One Hour at -65°C Followed by 45 Minutes RCWV	±(1%+0.05Ω)
Short Time Overload	MIL-R-55342D, Para.4.7.5	2.5 Times RCWV for 5 Seconds	±(2%+0.05Ω)
Insulation Resistance	JIS-C-5205, 5.6	RCOV for 1 Minute	>10GΩ
Dielectric Withstand Voltage	JIS-C-5205, 5.7	R.M.S. for 1 Minute	by Type
Resistance to Soldering Heat	MIL-STD-202F, Method 210C	Soldered to Test Board at 260°C for 10 Seconds	±(1%+0.05Ω)
Moisture Resistance	MIL-STD-202F, Method 106F	42Cycles.Total 1000 Hours	±(2%+0.05Ω)
Life	MIL-STD-202F, Method 108A	1000 Hours at 70°C RCWV Intermittent	±(3%+0.1Ω)
Solderability	JIS-C-5205, 6.1	230°C for 5 Seconds	>95% Coverage
Bending Strength	JIS-C-5202, 6.1.4	Unit Mounted in Center of 90mm Board Length, Deflected 1mm in Either Direction for 5 Seconds	±(1%+0.05Ω)



Note :

TAPING REEL

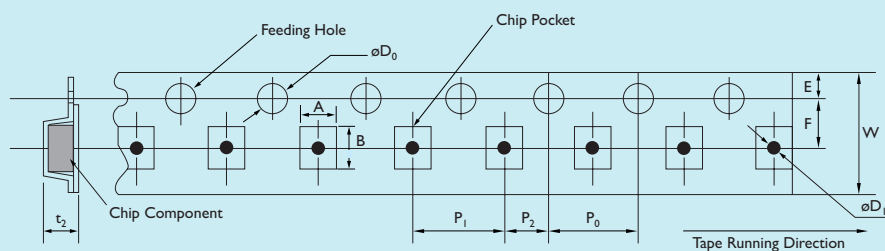
Unit : mm



STYLE	PACKAGING	TAPE WIDE	øA	øB	W	T
YC12/YC15/YC16/TC16	Paper	8mm	180^{+0}_{-3}	60^{+1}_{-0}	9.0 ± 0.3	11.4 ± 1
YC24	Paper	12mm	180^{+0}_{-3}	60^{+1}_{-0}	13.0 ± 0.3	15.4 ± 1
YC32/YC35	Embossed	12mm	180^{+0}_{-3}	60^{+1}_{-0}	13.0 ± 0.3	15.4 ± 1

EMBOSSED TAPING

Unit : mm



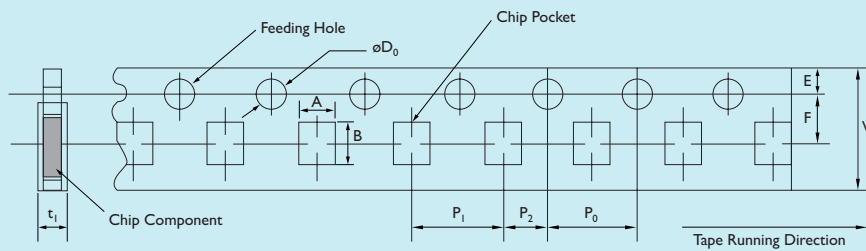
STYLE	NO. OF RES.	A	B	W	E	F	P ₀	P ₁	P ₂	øD ₀	øD ₁	t ₂
YC32	4	3.5 ± 0.2	5.6 ± 0.2	12 ± 0.3	1.75 ± 0.1	5.5 ± 0.05	4 ± 0.1	4 ± 0.1	2 ± 0.05	1.5 ± 0.1	1.5 ± 0.25	1.0 ± 0.1
YC35	8	3.5 ± 0.2	6.7 ± 0.2	12 ± 0.3	1.75 ± 0.1	5.5 ± 0.05	4 ± 0.1	4 ± 0.1	2 ± 0.05	1.5 ± 0.1	1.5 ± 0.25	1.0 ± 0.1



Note :

PAPERTAPING

Unit : mm



STYLE	NO. OF RES.	A	B	W	E	F	P ₀	P ₁	P ₂	øD ₀	t ₁
YC12	2	1.2±0.1	1.2±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4.0±0.1	2.0±0.1	2.0±0.05	1.5 ^{+0.1} ₀	0.7±0.1
YC12	4	1.2±0.1	2.2±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4.0±0.1	2.0±0.1	2.0±0.05	1.5 ^{+0.1} ₀	0.7±0.1
YC15	8	2.0±0.1	3.6±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4.0±0.1	4.0±0.1	2.0±0.05	1.5 ^{+0.1} ₀	0.85±0.1
YC16/TC16	4	2.0±0.1	3.6±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4.0±0.1	4.0±0.1	2.0±0.05	1.5 ^{+0.1} ₀	0.85±0.1
YC24	8	1.8±0.2	4.4±0.2	12±0.3	1.75±0.1	5.5±0.05	4.0±0.1	4.0±0.1	2.0±0.05	1.5 ^{+0.1} ₀	0.7±0.1

PACKING METHODS

Unit : pcs

STYLE	PACKING	PAPERTAPING REEL (R) 7"(178mm)	EMBOSSSED TAPING REEL (K) 7"(178mm)
		YC12	10,000
YC16/TC16	5,000	-	
YC15	5,000	-	
YC24	5,000	-	
YC32/YC35	-	4,000	

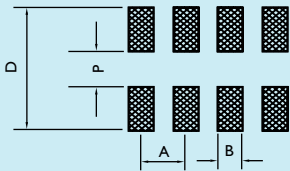


Note :

RECOMMENDED LAND PATTERN DESIGN

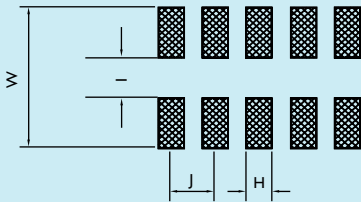
Unit : mm

For Popular Pattern



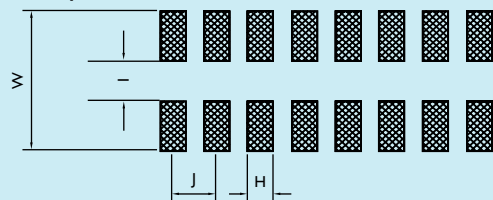
STYLE	A	B	D	P
YC12	0.5 ± 0.05	0.3 ± 0.05	2.2 ± 0.2	0.5 ± 0.1
YC16/TC16	0.80 ± 0.05	0.45 ± 0.05	2.8 ± 0.2	0.8 ± 0.1
YC32	1.27 ± 0.05	0.6 ± 0.05	4.5 ± 0.2	2.0 ± 0.1

For Popular Pattern



STYLE	J	H	W	I
YC15	0.64 ± 0.05	0.3 ± 0.05	2.8 ± 0.2	0.8 ± 0.1
YC35	1.27 ± 0.05	0.6 ± 0.05	4.5 ± 0.2	2.0 ± 0.1

For Popular Pattern



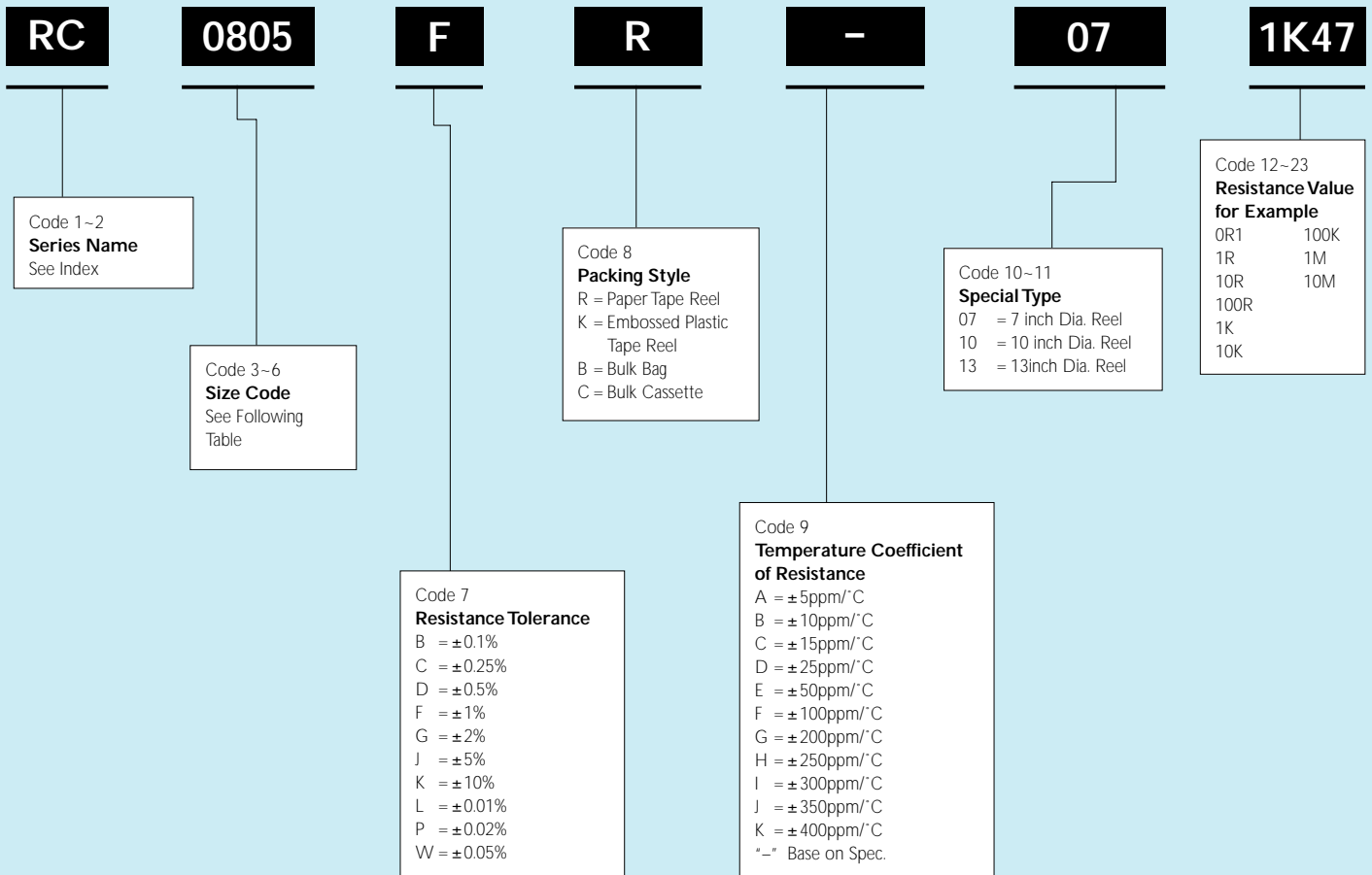
STYLE	J	H	W	I
YC24	0.5 ± 0.05	0.3 ± 0.05	2.8 ± 0.2	0.9 ± 0.1

Note :

EXPLANATIONS OF ORDERING CODE

For Chip Resistors (RC, RT, RJ, RL, RS, SK Series) & RW, RP Series

Explanations of Ordering Code



CODE 3~6

SIZE CODE (UNIT: INCHES)

0201=0.024 x 0.012		5020=0.472 x 0.196
0402=0.040 x 0.020	1210=0.122 x 0.102	5020=0.472 x 0.196
0603=0.063 x 0.033	2010=0.197 x 0.098	5021=0.472 x 0.196
0805=0.083 x 0.051	2512=0.250 x 0.126	5022=0.472 x 0.196
1206=0.122 x 0.063		

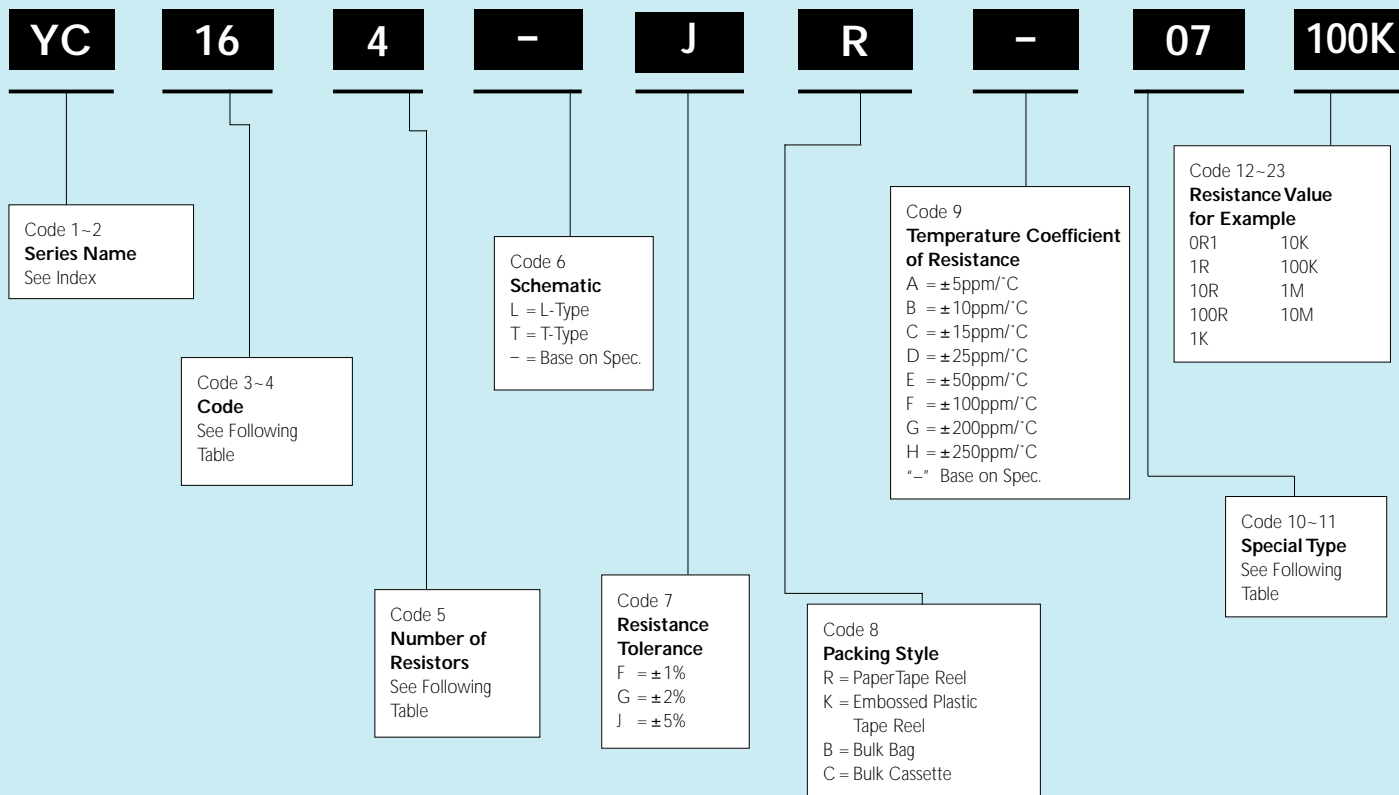


Note :

EXPLANATIONS OF ORDERING CODE

For Thick Film Chip Resistor Networks (YC,TC Series)

Explanations of Ordering Code



CODE 3~4

POWER RATING

12	1/16W
15	1/32W
16	1/16W
17	1/32W
24	1/16W
32	1/8W
35	1/16W

CODE 5

NUMBER OF RESISTORS

2	=2 Resistors
4	=4 Resistors
8	=8 Resistors
9	=9 Resistors
A	=10 Resistors
C	=12 Resistors

CODE 10~11

SPECIAL TYPE

07	=7 Inch Dia. Reel
10	=10 Inch Dia. Reel
13	=13 Inch Dia. Reel