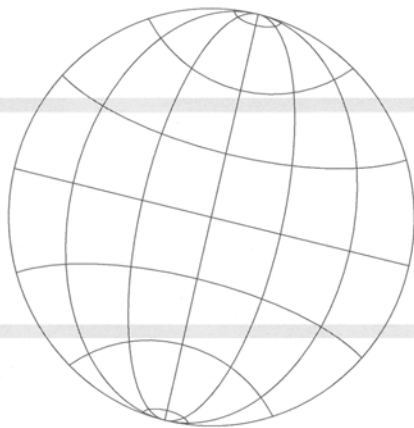


**Absolutely
Basic
Components
Oriented**



CHIP RESISTORS

THICK FILM CHIP RESISTORS

THICK FILM CHIP RESISTORS ARRAY

THIN FILM CHIP RESISTORS

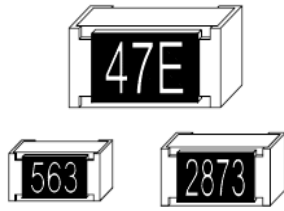
ULTRA LOW RESISTANCE METAL STRIP RESISTORS



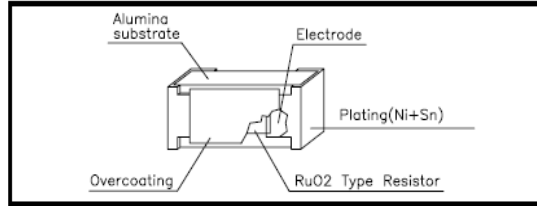
RALEC

ISO9001 / QS9000
ISO14001&OHSAS18001

THICK FILM CHIP RESISTORS



Construction



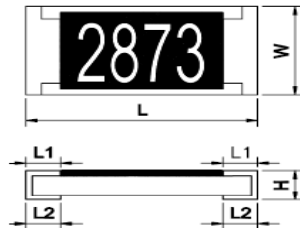
Feature

1. Small size and light weight.
2. High reliability and stability.
3. Lower assembly cost.
4. Apply to all kinds of SMT process.
5. Apply to Pb & Pb-Free Wave Solder & Reflow Solder.
6. Comply with RoHS.

Application

1. Computer application, NB, MB, add-on card harddisk....
2. Mobile phone, Telecom....
3. Consumer electrical equipment, PDA, Digital Camera....
4. Battery charger, DC-DC power converter
5. Automotive

Unit : mm



TYPE	Size Code	Dimensions				
		L	W	H	L1	L2
ACR0201 (0603)		0.60± 0.03	0.30± 0.03	0.23± 0.03	0.15± 0.05	0.15± 0.05
ACR0402 (1005)		1.00± 0.10	0.50± 0.05	0.30± 0.05	0.20± 0.10	0.25± 0.10
ACR0603 (1608)		1.60± 0.10	0.80± 0.10	0.45± 0.10	0.30± 0.15	0.30± 0.15
ACR0805 (2012)		2.00± 0.10	1.25± 0.10	0.50± 0.10	0.35± 0.20	0.35± 0.15
ACR1206 (3216)		3.05± 0.10	1.55± 0.10	0.55 ^{+0.10} _{-0.05}	0.45± 0.20	0.35± 0.15
ACR1210 (3225)		3.05± 0.10	2.55± 0.10	0.55± 0.10	0.50± 0.20	0.50± 0.20
ACR2010 (5025)		5.00± 0.20	2.50± 0.20	0.55± 0.10	0.60± 0.20	0.60± 0.20
ACR2512 (6432)		6.30± 0.20	3.20± 0.20	0.55± 0.10	0.60± 0.20	0.60± 0.20

Standard Electrical Specifications

Resistance Range: $\geq 1\Omega$

Type	Rated Power at 70°C	Max. Working Voltage	Max. Overload Voltage	T.C.R. (ppm/°C)	Resistance Range				Jumper Rated Current		Jumper Resistance Value	
					B(± 0.1%) E-24、E-96	D(± 0.5%) E-24、E-96	F(± 1%) E-24、E-96	G(± 2%)、J(± 5%) E-24	J (± 5%)	F (± 1%)	J (± 5%)	F (± 1%)
ACR 0201	$\frac{1}{20}$ w	25V	50V	± 600	—	$1\Omega \leq R < 25\Omega$	$25\Omega \leq R \leq 10M\Omega$	$1\Omega \leq R < 25\Omega$	0.5A	0.5A	50mΩ MAX.	35mΩ MAX.
					± 250	$25\Omega \leq R \leq 10M\Omega$	$25\Omega \leq R \leq 10M\Omega$	$25\Omega \leq R \leq 10M\Omega$				
ACR 0402	$\frac{1}{16}$ w	50V	100V	± 100	$100\Omega \leq R \leq 1M\Omega$	$100\Omega \leq R \leq 1M\Omega$	$100\Omega \leq R \leq 1M\Omega$	$100\Omega \leq R \leq 1M\Omega$	1A	1.5A	50mΩ MAX.	20mΩ MAX.
					± 200	$10\Omega \leq R < 100\Omega$	$10\Omega \leq R < 100\Omega$	$10\Omega \leq R < 100\Omega$				
					+500 -200	—	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$				
ACR 0603	$\frac{1}{10}$ w	75V	150V	± 100	$100\Omega \leq R \leq 1M\Omega$	$100\Omega \leq R \leq 1M\Omega$	$33\Omega \leq R \leq 1M\Omega$	—	1A	2A	50mΩ MAX.	20mΩ MAX.
					± 200	$1\Omega \leq R < 100\Omega$	$1\Omega \leq R < 33\Omega$ $1M < R \leq 10M\Omega$	$1\Omega \leq R \leq 20M\Omega$				
ACR 0805	$\frac{1}{8}$ w	150V	300V	± 100	$100\Omega \leq R \leq 1M\Omega$	$100\Omega \leq R \leq 1M\Omega$	$33\Omega \leq R \leq 1M\Omega$	—	2A	2.5A	50mΩ MAX.	20mΩ MAX.
					± 200	$1\Omega \leq R < 100\Omega$	$1\Omega \leq R < 33\Omega$ $1M < R \leq 10M\Omega$	$1\Omega \leq R \leq 20M\Omega$				
ACR 1206	$\frac{1}{4}$ w	200V	400V	± 100	$100\Omega \leq R \leq 1M\Omega$	$100\Omega \leq R \leq 1M\Omega$	$33\Omega \leq R \leq 1M\Omega$	—	2A	3.5A	50mΩ MAX.	20mΩ MAX.
					± 200	$1\Omega \leq R < 100\Omega$	$1\Omega \leq R < 33\Omega$ $1M < R \leq 10M\Omega$	$1\Omega \leq R \leq 20M\Omega$				
ACR 1210	$\frac{1}{2}$ w	200V	400V	± 100	$100\Omega \leq R \leq 1M\Omega$	$33\Omega \leq R \leq 1M\Omega$	$33\Omega \leq R \leq 1M\Omega$	—	2A	4A	50mΩ MAX.	20mΩ MAX.
					± 200	—	$10\Omega \leq R < 33\Omega$ $1M < R \leq 10M\Omega$	$10\Omega \leq R \leq 20M\Omega$				
					± 400	—	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$				
ACR 2010	$\frac{3}{4}$ w	200V	400V	± 100	$100\Omega \leq R \leq 1M\Omega$	$33\Omega \leq R \leq 1M\Omega$	$10\Omega \leq R \leq 1M\Omega$	—	2A	5A	50mΩ MAX.	20mΩ MAX.
					± 200	—	—	$10\Omega \leq R \leq 10M\Omega$				
					± 400	—	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$				
ACR 2512	1W	200V	400V	± 100	$100\Omega \leq R \leq 1M\Omega$	$33\Omega \leq R \leq 1M\Omega$	$10\Omega \leq R \leq 1M\Omega$	—	2A	7A	50mΩ MAX.	20mΩ MAX.
					± 200	—	—	$10\Omega \leq R \leq 10M\Omega$				
					± 400	—	$1\Omega \leq R < 10\Omega$	$1\Omega \leq R < 10\Omega$				

Operating Temperature Range

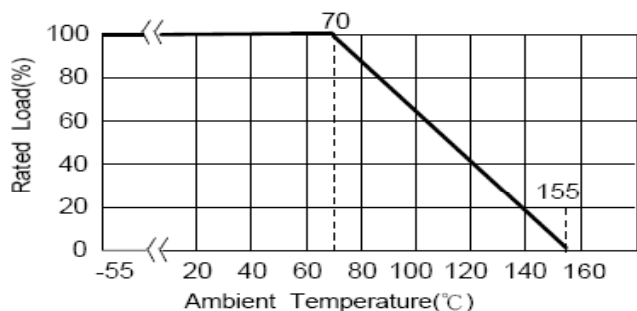
-55°C ~ +155°C (0201: -55°C ~ +125°C)

Reliability Test

Item	Specification			Test Method
	R: ≥ 1Ω		R: < 1Ω	
	0.5%、1%	2%、5%	1%、2%、5%	
Temperature Coefficient of Resistance	Within the specification of TCR			JIS-C5202-5.2 $TCR (ppm/^{\circ}C) = \frac{(R_2 - R_1)}{R_1 (T_2 - T_1)} \times 10$ R1: Resistance at room temperature R2: Resistance at -55°C or +125°C T1: Room temperature T2: Temperature -55°C or +125°C (RTT01 at 125 °C)
Short Time Overload	± (1.0% + 0.05Ω)	± (2.0% + 0.10Ω)	± (2.0% + 0.001Ω)	JIS-C5202-5.5 Apply 2.5 times rated voltage or Max. Overload Voltage for 5 seconds.
Insulation Resistance	≥ 10 ⁹ Ω			JIS-C5202-5.6 Put the resistor in the fixture, add 100 VDC in +,- terminal for 60 seconds then measured the insulation resistance.
Dielectric Withstand Voltage	No short or burned on the appearance			JIS-C5202-5.7 Apply 500VAC for 1min.(RTT02,03 300VAC).
Intermittent Overload	± (5.0% + 0.10Ω)	± (5.0% + 0.001Ω)		JIS-C5202-5.8 Apply rated voltage 2.5 times, 1sec ON, 25sec OFF, 10000 test cycle.
Core Body Strength	± (1.0% + 0.05Ω)	± (1.0% + 0.001Ω)		JIS-C5202-6.1.4 Applied R0.5 test probe at its central part then pushing 1Kgf force on the sample for 10 sec.
Terminal Strength	No evidence of mechanical damage			JIS-C5202-6.1.4 Apply 5N pushing force for 10sec.
Resistance to Solvent	± (0.5% + 0.05Ω)	± (1.0% + 0.001Ω)		JIS-C5202-6.9 Immersed into isopropyl alcohol of 20 ~ 25°C for 60 seconds.
Solderability	Coverage ≥ 95%			By SONY SS-00254-2, JIS-C5202-6.11
Joint strength of solder	± (1.0% + 0.05Ω)	± (1.0% + 0.001Ω)		By SONY SS-00254-7, JIS-C5202-6.1.4
	After application of temperature cycle, adhesion or bending load should be 50% or more of initial strength.			
Leaching Test	Coverage ≥ 95%			By SONY SS-00254-9
Vibration	± (0.5% + 0.05Ω)	± (1.0% + 0.05Ω)	± (1.0% + 0.001Ω)	JIS-C5202-6.3 Frequency range: 10 Hz to 55Hz to 10Hz/1min. Amplitude: 1.5 mm This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (a total of 6 hrs).
Resistance to Dry Heat	± (1.0% + 0.05Ω)	± (2.0% + 0.10Ω)	± (1.0% + 0.001Ω)	JIS-C5202-7.2 1000 Hrs at 155°C. (RTT01 at 125 °C)
Thermal Shock	± (0.5% + 0.05Ω)	± (1.0% + 0.05Ω)	± (1.0% + 0.001Ω)	MIL-STD 202 Method 107 Cycle between -55°C and +125°C 15 minute for 300 cycles.
Loading Life in Moisture	± (0.5% + 0.05Ω)	± (2.0% + 0.10Ω)	± (2.0% + 0.001Ω)	JIS-C5202-7.9 40± 2°C, 90~95 %RH, 1000Hrs at RCWV, 1.5Hrs ON, 0.5Hrs OFF.
Load Life	± (1.0% + 0.05Ω)	± (3.0% + 0.10Ω)	± (2.0% + 0.001Ω)	JIS-C5202-7.10 70°C, 1000Hrs at RCWV, 1.5Hr ON, 0.5Hr OFF
Low Temperature Operation	± (0.5% + 0.05Ω)	± (1.0% + 0.05Ω)	± (1.0% + 0.001Ω)	MIL-R-5532D 4.7.4 1 Hrs, -55°C, Followed by 45 minutes of RCWV.
Whisker Test	Max 50 μm			By SONY SS-00254-8, JIS-C5202

RCWV=Rated Continuous Working Voltage

Power Derating Curve



Marking



FOR E-24&E-96

◎2%,5% 3 digits indication
 first 2 digits are significant figures
 3rd digit is multiplier (10^x)
 EX. Marking --> 563
 $56 \times 10^3 = 56000\Omega = 56K\Omega$

◎0.1%、0.5%、1% 4 digits indication
 first 3 digits are significant figures 4th digit is multiplier (10^x)
 EX. Marking --> 3922
 $392 \times 10^2 = 39200\Omega = 39.2K\Omega$

FOR RTT03 0.1%、0.5%、1%(E-96)

◎3 digit indication
 first 2 digits are significant for E-96 Part marking scheme.
 3rd digit is multiplier:

Y=10⁻² X=10⁻¹ A=10⁰ B=10¹
 C=10² D=10³ E=10⁴ F=10⁵

Type RTT01,02:No marking Code

THICK FILM CHIP RESISTORS

Standard Resistance Values

For 2%,5%(E-24)

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

For 1%(E-96)

100	102	105	107	110	113	115	118	121	124	127	130
133	137	140	143	147	150	154	158	162	165	169	174
178	182	187	191	196	200	205	210	215	221	226	232
237	243	249	255	261	267	274	280	287	294	301	309
316	324	332	340	348	357	365	374	383	392	402	412
422	432	442	453	464	475	487	499	511	523	536	549
562	576	590	604	619	634	649	665	681	698	715	732
750	768	787	806	825	845	866	887	909	931	953	976

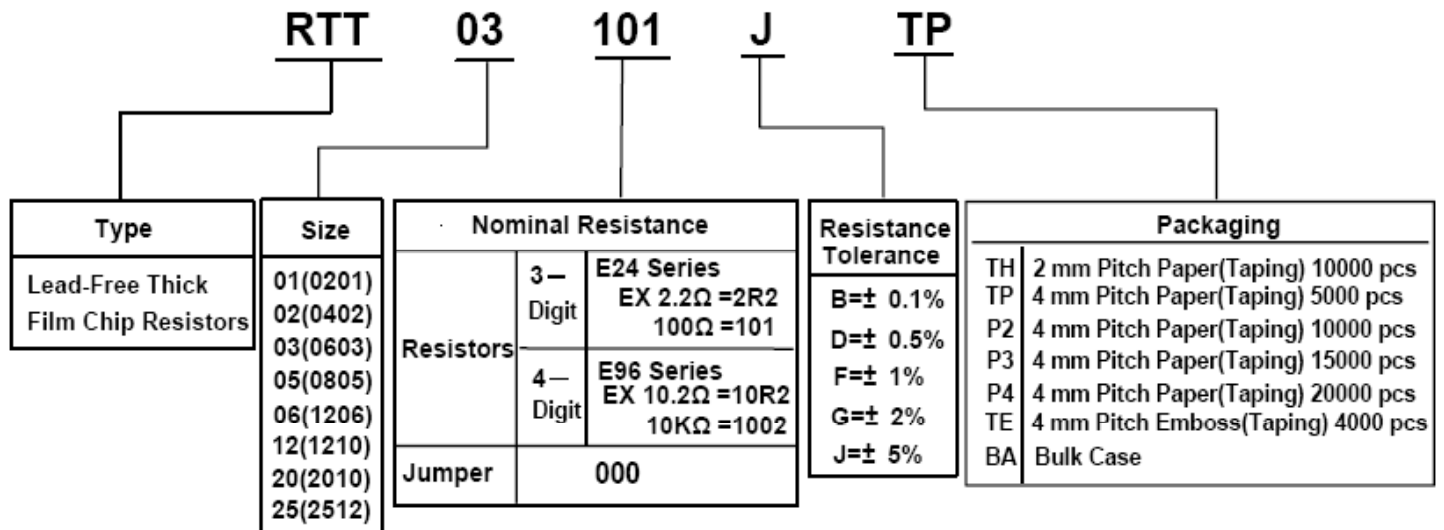
Alternate Marking Method

For RTT03 1%(E-96)

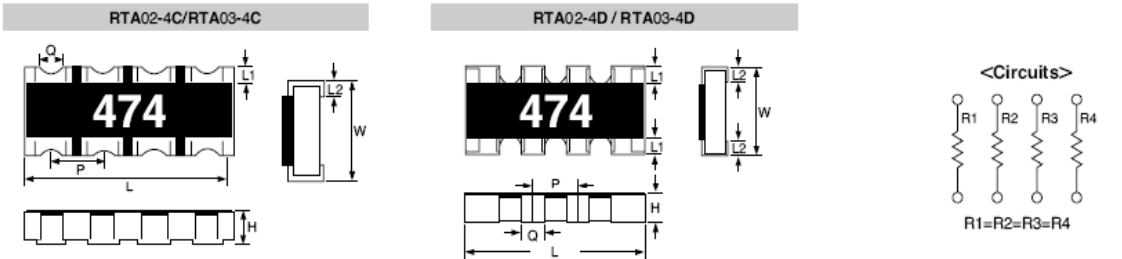
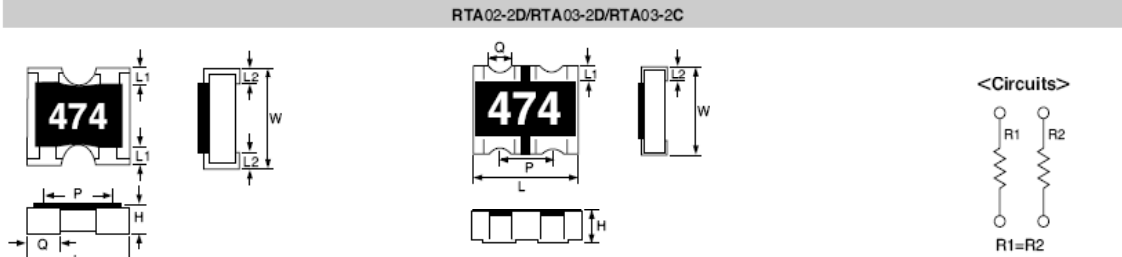
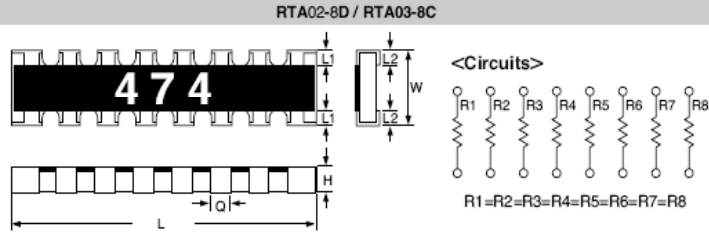
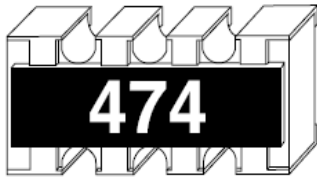
Code	R Value	Code	R Value	Code	R Value	Code	R Value	Code	R Value	Code	R Value	Code	R Value	Code	R Value
1	100	13	133	25	178	37	237	49	316	61	422	73	562	85	750
2	102	14	137	26	182	38	243	50	324	62	432	74	576	86	768
3	105	15	140	27	187	39	249	51	332	63	442	75	590	87	787
4	107	16	143	28	191	40	255	52	340	64	453	76	604	88	806
5	110	17	147	29	196	41	261	53	348	65	464	77	619	89	825
6	113	18	150	30	200	42	267	54	357	66	475	78	634	90	845
7	115	19	154	31	205	43	274	55	365	67	487	79	649	91	866
8	118	20	158	32	210	44	280	56	374	68	499	80	665	92	887
9	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

Y=10⁻² X=10⁻¹ A=10⁰ B=10¹ C=10² D=10³ E=10⁴ F=10⁵

Type Designation



■ DIMENSIONS

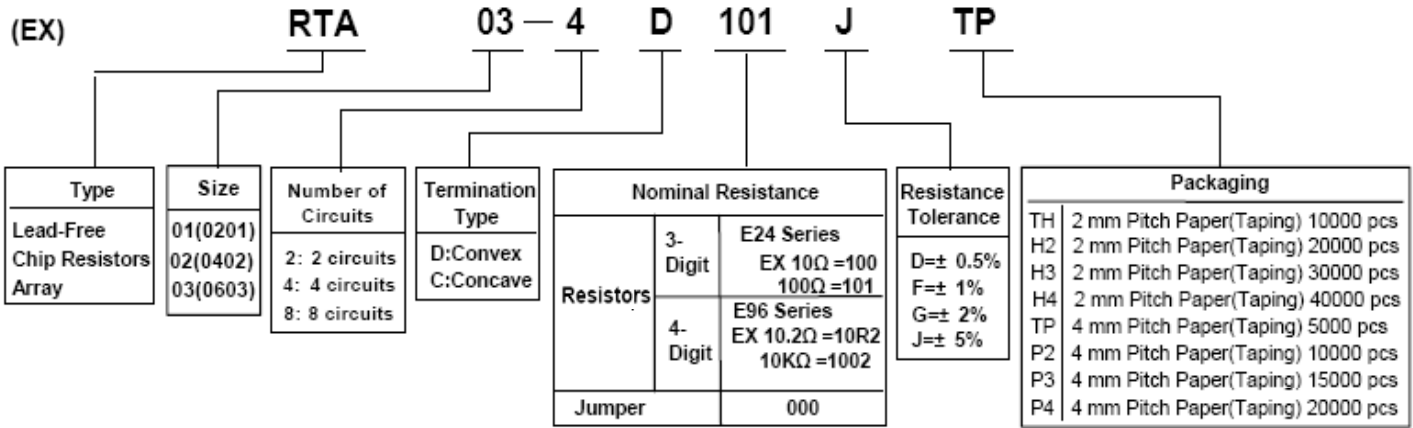


型式	尺寸	L	W	H	L1	L2	P	Q
RTA01-2D (0201)		0.80± 0.10	0.60± 0.10	0.30± 0.05	0.15± 0.10	0.15± 0.05	(0.50)	0.35± 0.10
RTA02-2D (0402)		1.00± 0.10	1.00± 0.10	0.30± 0.05	0.15± 0.10	0.25± 0.10	(0.67)	0.33± 0.10
RTA03-2D (0603)		1.60± 0.15	1.60± 0.15	0.45± 0.10	0.30± 0.15	0.30± 0.15	(0.80)	0.60± 0.10
RTA02-4D (0402)		2.00± 0.10	1.00± 0.10	0.40± 0.10	0.20± 0.10	0.25± 0.10	(0.50)	0.30± 0.10
RTA02-4C (0402)		2.00± 0.10	1.00± 0.10	0.40± 0.10	0.15± 0.10	0.25± 0.10	(0.50)	0.30± 0.10
RTA03-4D (0603)		3.20± 0.20	1.60± 0.15	0.50± 0.10	0.30± 0.15	0.30± 0.15	(0.80)	0.50± 0.10
RTA03-4C (0603)		3.20± 0.15	1.60± 0.15	0.55± 0.10	0.35± 0.15	0.45± 0.15	(0.80)	0.50± 0.10
RTA02-8D (0402)		4.00± 0.20	1.60± 0.10	0.40± 0.10	0.30± 0.15	0.30± 0.10	(0.50)	0.25± 0.10
RTA03-8C (0603)		6.40± 0.20	1.60± 0.20	0.55± 0.10	0.30± 0.15	0.40± 0.15	(0.80)	0.50± 0.10
RTA03-2C (0603)		1.60± 0.15	1.60± 0.15	0.55± 0.10	0.30± 0.15	0.40± 0.15	(0.80)	0.50± 0.10
RTA02-2C (0402)		1.00± 0.10	1.00± 0.10	0.30± 0.10	0.18± 0.10	0.25± 0.10	(0.50)	0.30± 0.10

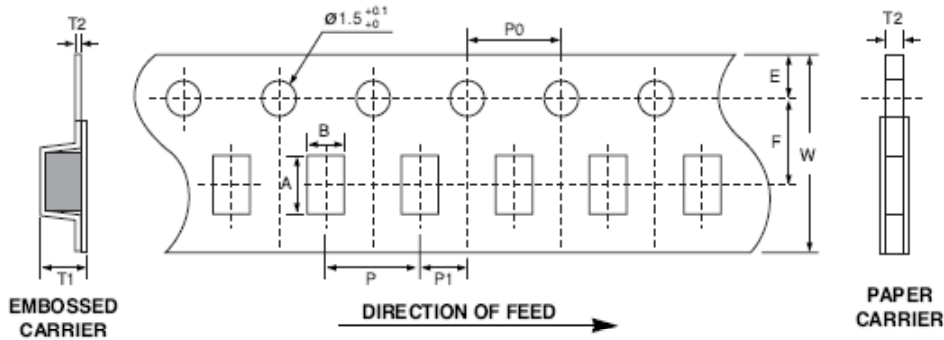
Type	Rated Power at 70°C	Max. Working Voltage	Max. Overload Voltage	T.C.R. (ppm/°C)	Resistance Range			Number of Terminals	Number of Resistors	JUMPER (0Ω) Rated Current	JUMPER (0Ω) Resistance Value
					D(± 0.5%) E-24 · E-96	F(± 1%) E-24 · E-96	G(± 2%) J(± 5%) E-24				
RTA01-2D (0201)	1/32W	12.5V	25V	± 500	----	----	3Ω ≤ R < 10Ω	4	2	0.5A	50mΩ Max.
					± 300	----	10Ω ≤ R < 1K Ω				
					± 200	----	1KΩ ≤ R ≤ 1MΩ				
RTA02-2D (0402)	1/16W	25V	50V	± 300	----	1Ω ≤ R < 10Ω	1Ω ≤ R < 10Ω	4	2	1A	50mΩ Max.
				± 200	----	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 1MΩ				
RTA03-2D (0603)	1/16W	50V	100V	± 200	----	10Ω ≤ R ≤ 1MΩ	1Ω ≤ R ≤ 10MΩ	4	2	1A	50mΩ Max.
RTA02-4D (0402)	1/16W	25V	50V	± 300	----	1Ω ≤ R < 10Ω	1Ω ≤ R < 10Ω	8	4	1A	50mΩ Max.
				± 200	----	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 1MΩ				
RTA02-4C (0402)	1/16W	25V	50V	± 400	----	1Ω ≤ R < 10Ω	1Ω ≤ R < 10Ω	8	4	1A	50mΩ Max.
				± 200	----	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 1MΩ				
RTA03-4D (0603)	1/16W	50V	100V	± 200	22Ω ≤ R ≤ 470KΩ	1Ω ≤ R ≤ 10MΩ	1Ω ≤ R ≤ 10MΩ	8	4	1A	50mΩ Max.
RTA03-4C (0603)	1/16W	50V	100V	± 200	----	1Ω ≤ R ≤ 1MΩ	1Ω ≤ R ≤ 10MΩ	8	4	1A	50mΩ Max.
RTA02-8D (0402)	1/16W	25V	50V	± 250	----	10Ω ≤ R ≤ 1MΩ	1Ω ≤ R ≤ 1MΩ	16	8	1A	50mΩ Max.
RTA03-8C (0603)	1/16W	50V	100V	± 200	----	1Ω ≤ R ≤ 1MΩ	1Ω ≤ R ≤ 10MΩ	16	8	1A	50mΩ Max.
RTA03-2C (0603)	1/16W	50V	100V	± 200	----	1Ω ≤ R ≤ 1MΩ	1Ω ≤ R ≤ 10MΩ	4	2	1A	50mΩ Max.
RTA02-2C (0402)	1/16W	25V	50V	± 650	----	3Ω ≤ R < 10Ω	3Ω ≤ R < 10Ω	4	2	1A	50mΩ Max.
				± 250	----	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 1MΩ				
Operating Temperature Range					-55°C ~ +155°C						

THICK FILM CHIP RESISTORS ARRAY

Type Designation



Carrier Tape

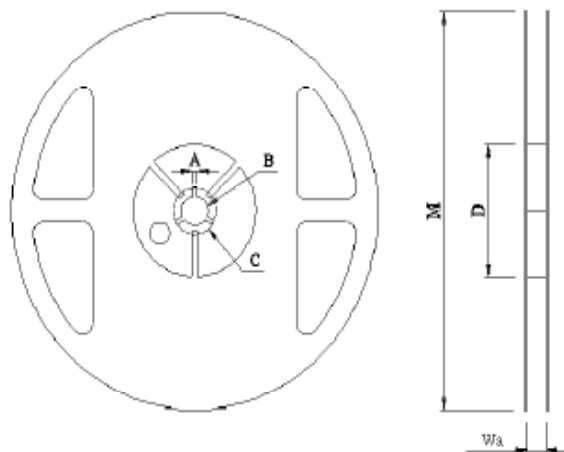


ACR Series										Unit: mm	
TYPE	A	B	W	E	F	T1	T2	P	P0	P1	
0201	0.68± 0.05	0.38± 0.05	8.0± 0.30	1.75± 0.10	3.5± 0.05	0.45+0.2/-0	0.42± 0.05	2.0± 0.05	4.0± 0.10	1.0± 0.05	
0402	1.15± 0.05	0.65± 0.05	8.0± 0.20	1.75± 0.10	3.5± 0.05	0.45+0.2/-0	0.45± 0.05	2.0± 0.10	4.0± 0.05	2.0± 0.05	
0603	1.70± 0.10	1.00+0.1/-0.05	8.0± 0.20	1.75± 0.10	3.5± 0.05	0.60+0.2/-0	0.60± 0.10	4.0± 0.10	4.0± 0.05	2.0± 0.05	
0805	2.30± 0.10	1.55± 0.10	8.0± 0.20	1.75± 0.10	3.5± 0.05	0.75+0.2/-0	0.75± 0.10	4.0± 0.10	4.0± 0.05	2.0± 0.05	
1206	3.50± 0.20	1.90± 0.20	8.0± 0.20	1.75± 0.10	3.5± 0.05	0.75+0.2/-0	0.75± 0.10	4.0± 0.10	4.0± 0.05	2.0± 0.05	
1210	3.50± 0.20	2.80± 0.20	8.0± 0.20	1.75± 0.10	3.5± 0.05	0.75+0.2/-0	0.75± 0.10	4.0± 0.10	4.0± 0.05	2.0± 0.05	

RTA / RTN Series												Unit: mm	
Packaging	DIM Type	A	B	W	E	F	T1	T2	P	P0	10x P0	P1	
		Paper Tape	RTA01-2D	0.90± 0.1	0.70± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.45+0.2/-0	0.43± 0.1	2.0± 0.1	4.0± 0.05	40.0± 0.20
RTA02-2D	1.20± 0.1		1.20± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.45+0.2/-0	0.43± 0.1	2.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05	
RTA03-2D	1.90± 0.1		1.90± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.60+0.2/-0	0.60± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05	
RTA02-4D	2.20± 0.1		1.20± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.60+0.2/-0	0.60± 0.1	2.0± 0.1	4.0± 0.10	40.0± 0.20	2.0± 0.05	
RTA02-4C	2.20± 0.1		1.20± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.60+0.2/-0	0.60± 0.1	2.0± 0.1	4.0± 0.10	40.0± 0.20	2.0± 0.05	
RTA03-4D	3.45± 0.1		1.90± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.75+0.2/-0	0.75± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05	
RTA03-4C	3.45± 0.1		1.90± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.75+0.2/-0	0.75± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05	
RTA02-8D	4.30± 0.2		1.90± 0.2	12.0± 0.2	1.75± 0.1	5.5± 0.05	0.60+0.2/-0	0.60± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05	
RTA03-8C	6.90± 0.2		2.00± 0.2	12.0± 0.2	1.75± 0.1	5.5± 0.05	0.75+0.2/-0	0.75± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05	
RTA03-2C	1.90± 0.1		1.90± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.75+0.2/-0	0.75± 0.1	4.0± 0.1	4.0± 0.05	40.0± 0.20	2.0± 0.05	
RTA02-2C	1.20± 0.1		1.20± 0.1	8.0± 0.2	1.75± 0.1	3.5± 0.05	0.45+0.2/-0	0.43± 0.1	2.0± 0.05	4.0± 0.05	40.0± 0.20	2.0± 0.05	

THICK FILM CHIP RESISTORS &

■ Reel Specification

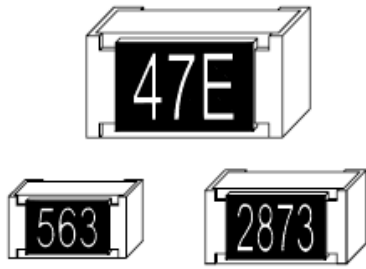


Reel Type / Tape	Wa	M	A	B	C	D
7" reel for 8 mm tape	9.0 ± 0.5	178 ± 2.0	2.0 ± 0.5	13.5 ± 0.5	21.0 ± 0.5	60.0 ± 1.0
7" reel for 12 mm tape	13.8 ± 0.5	178 ± 2.0				80.0 ± 1.0
10" reel for 8 mm tape	10.0 ± 0.5	254 ± 2.0				100.0 ± 1.0
13" reel for 8 mm tape	10.0 ± 0.5	330 ± 2.0				100.0 ± 1.0

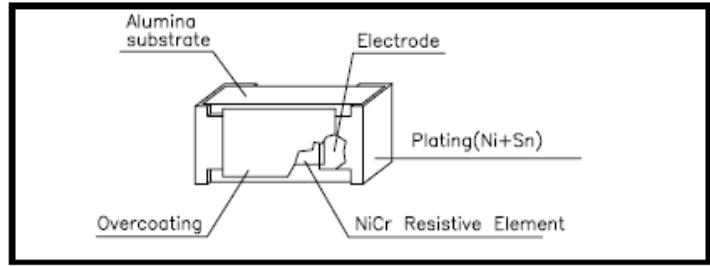
■ Packaging Quantities

TYPE	Taping Packing (pcs/reel)							
	Paper Tape							Plastic tape
	2mm Pitch			4mm Pitch				4mm Pitch
	TH	TH3	TH5	TP	P2	P3	P4	TE
0201	10,000							
0402	10,000		50,000					
0603				5,000	10,000	15,000	20,000	
0805				5,000	10,000	15,000	20,000	
1206				5,000	10,000	15,000	20,000	
1210				5,000	10,000	15,000	20,000	
2010								4,000
2512								4,000
01-2D	10,000							
02-2D	10,000							
02-4D	10,000							
02-4C	10,000	30,000						
02-8D				5,000	10,000	15,000	20,000	
03-2D				5,000	10,000	15,000	20,000	
03-4D				5,000	10,000	15,000	20,000	
03-4C				5,000	10,000	15,000	20,000	
03-8C				5,000	10,000	15,000	20,000	
02-10T				5,000	10,000			
Reel diameter	7"	13"	13"	7"	10"	13"	13"	7"

THIN FILM CHIP RESISTORS



Construction



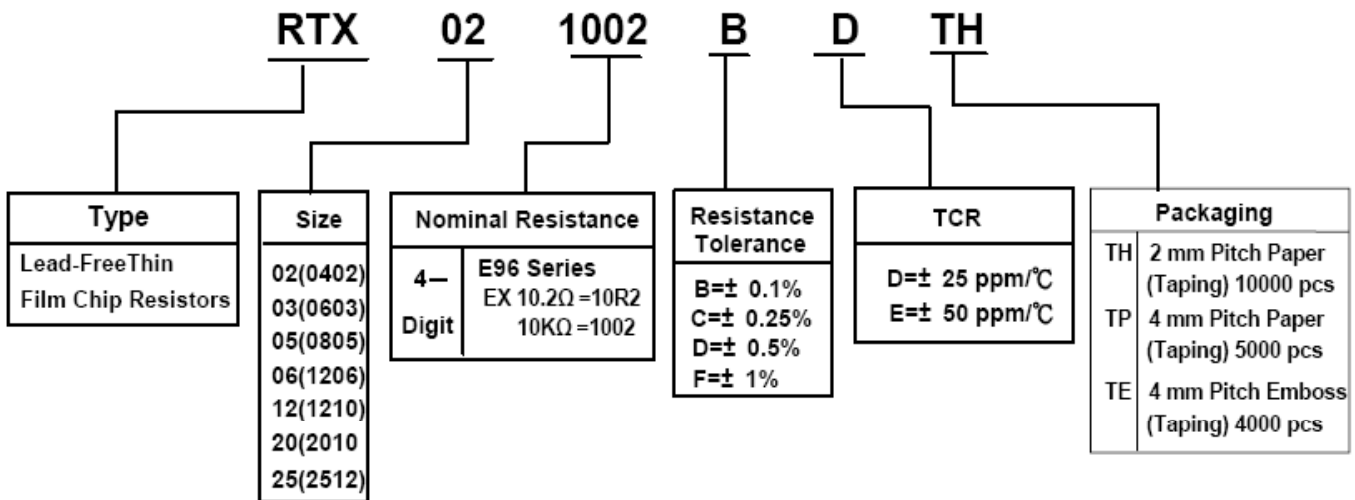
Feature

1. Small size and light weight.
2. High reliability and stability.
3. Lower assembly cost.
4. Apply to all kinds of SMT process.
5. Apply to Pb & Pb-Free Wave Solder & Reflow Solder.
6. Comply with RoHS.

Application

1. Computer application, NB, MB, add-on card harddisk....
2. Mobile phone, Telecom....
3. Consumer electrical equipment, PDA, Digital Camera....
4. Battery changer, DC-DC power converter
5. Automotive

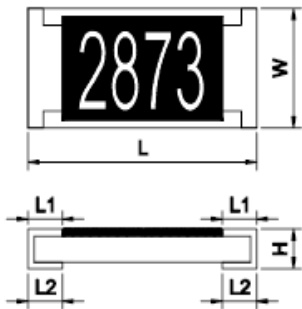
Type Designation



Dimensions

Unit:mm

Type	Dimensions					
	L	W	H	L1	L2	
RTX02 (0402)	1.00± 0.10	0.50± 0.05	0.35± 0.05	0.20± 0.10	0.25± 0.10	
RTX03 (0603)	1.60± 0.10	0.80± 0.10	0.45± 0.10	0.25± 0.15	0.25± 0.15	
RTX05 (0805)	2.00± 0.10	1.25± 0.10	0.50± 0.10	0.35± 0.20	0.35± 0.20	
RTX06 (1206)	3.10± 0.10	1.60± 0.10	0.55± 0.10	0.45± 0.20	0.40± 0.20	
RTX12 (1210)	3.10± 0.10	2.60± 0.15	0.55± 0.10	0.50± 0.20	0.50± 0.20	
RTX20 (2010)	5.00± 0.10	2.50± 0.15	0.55± 0.10	0.60± 0.20	0.50± 0.20	
RTX25 (2512)	6.35± 0.10	3.20± 0.15	0.55± 0.10	0.60± 0.20	0.60± 0.20	



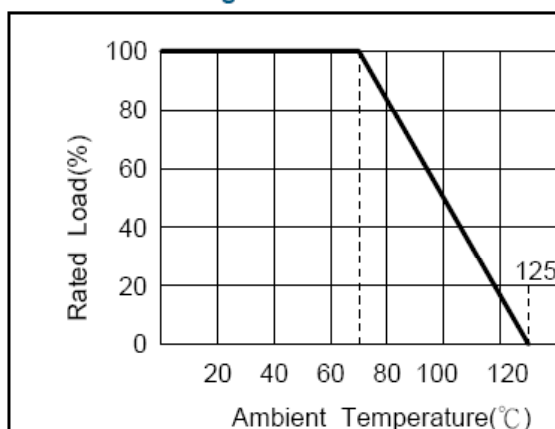
Standard Electrical Specifications

Type	Rated Power at 70°C	Max. Working Voltage	Max. Overload Voltage	T.C.R. (ppm/°C)	Resistance Range			
					B(± 0.1%) E-24, E-96	C(± 0.25%) E-24, E-96	D(± 0.5%) E-24, E-96	F(± 1%) E-24, E-96
RTX02 (0402)	$\frac{1}{16}$ W	50V	100V	± 25 ± 50	10Ω~121KΩ			
RTX03 (0603)	$\frac{1}{10}$ W	75V	150V	± 25 ± 50	1Ω~681KΩ			
RTX05 (0805)	$\frac{1}{8}$ W	150V	300V	± 25 ± 50	1Ω~1.5MΩ			
RTX06 (1206)	$\frac{1}{8}$ W	200V	400V	± 25 ± 50	1Ω~2MΩ			
RTX12 (1210)	$\frac{1}{4}$ W	200V	400V	± 25 ± 50	1Ω~1MΩ			
RTX20 (2010)	$\frac{1}{2}$ W	200V	400V	± 25 ± 50	1Ω~1MΩ			
RTX25 (2512)	$\frac{3}{4}$ W	200V	400V	± 25 ± 50	1Ω~1MΩ			
Operating Temperature Range					-55°C ~ +125°C			

Taping Package

TYPE	Tape Width	Taping Package(pcs/reel)		
		Paper Tape		Plastic Tape
		2mm Pitch	4mm Pitch	4mm Pitch
		TH	TP	TE
0402	8 mm	10,000	-----	-----
0603	8 mm	-----	5,000	-----
0805	8 mm	-----	5,000	-----
1206	8 mm	-----	5,000	-----
1210	8 mm	-----	5,000	-----
2010	12 mm	-----	-----	4,000
2512	12 mm	-----	-----	4,000

Power Derating Curve



Marking



RTX05、06、12、20、25(E-24/E-96)

◎4 digits indication
first 3 digits are significant figures 4th digit is multiplier(10^x)
EX. Marking --> 3922
 $392 \times 10^2 = 39200\Omega = 39.2K\Omega$

RTX03 (E-24)

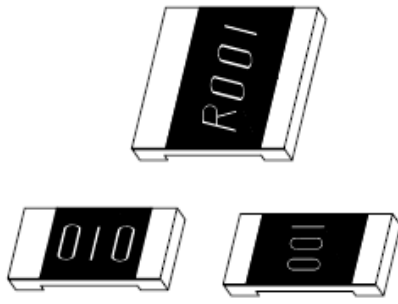
◎3 digit indication
first 3 digits are significant figures 4th digit is multiplier(10^x)
EX. Marking --> 392
 $39 \times 10^2 = 3900\Omega = 3.9K\Omega$

RTX03 (E-96)

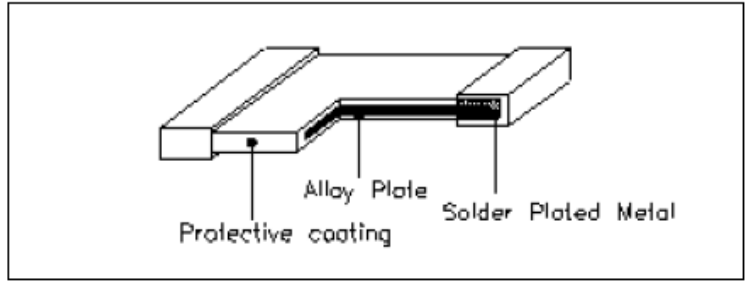
◎3 digit indication
first 2 digits are significant for E-96 Part marking scheme.
3rd digit is multiplier:
Y= 10^{-2} X= 10^{-1} A= 10^0 B= 10^1
C= 10^2 D= 10^3 E= 10^4 F= 10^5

Type RTX02: No marking Code

ULTRA LOW RESISTANCE METAL STRIP RESISTORS



Construction



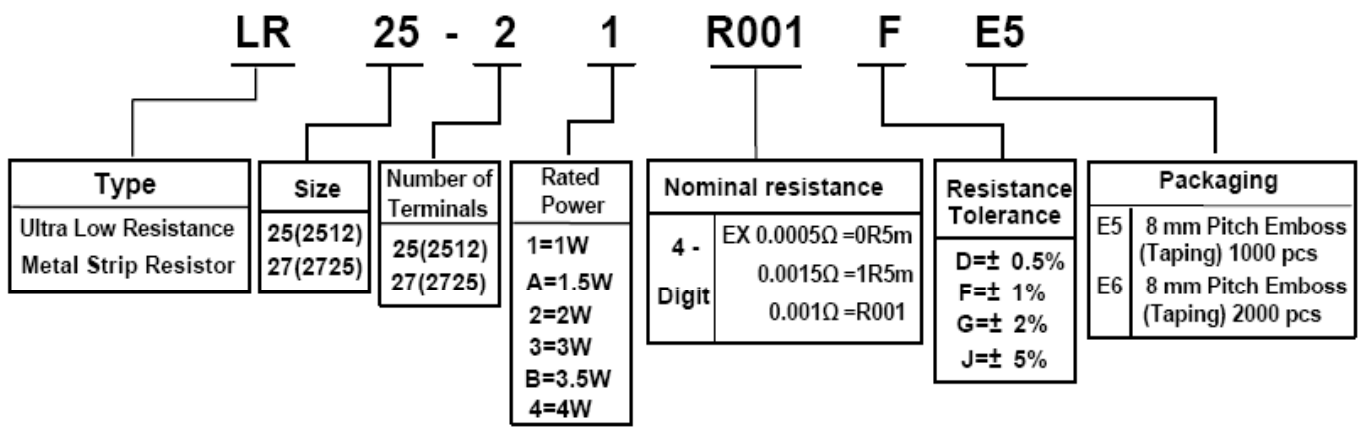
Feature

1. Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies.
2. Excellent frequency characteristics.
3. Low TCR and Low current noise.
4. Apply to all kinds of SMT process.
5. Comply with RoHS.

Application

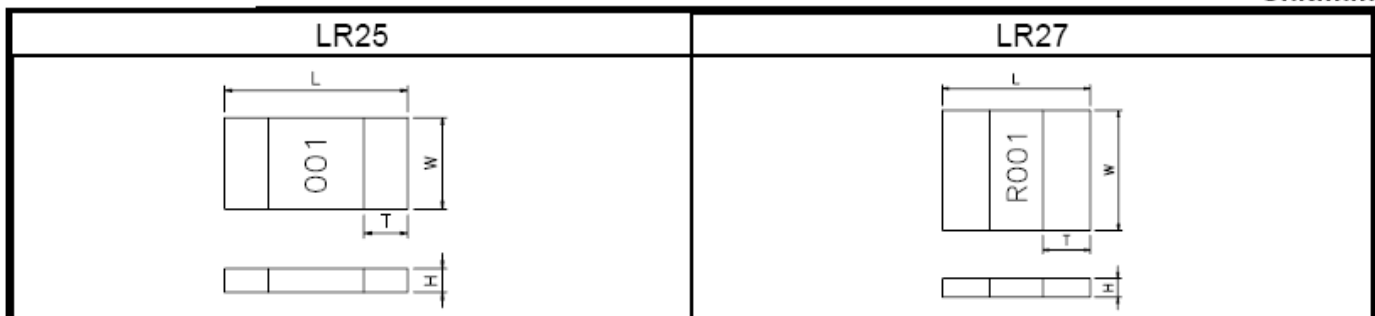
1. Current detection for CPU
2. Inverter power supplies
3. DC/DC converters

Type Designation



Dimensions

Unit:mm



Type	Resistance Range (Ω)	Dimensions			
		L	W	H	T
LR25	0.001~0.005	6.25 ± 0.254	3.30 ± 0.254	0.80 ± 0.254	2.00 ± 0.254
	0.006~0.100			1.19 ± 0.254	
LR27	0.0005	6.80 ± 0.254	6.40 ± 0.254	1.00 ± 0.254	2.50 ± 0.254
	0.001			1.40 ± 0.254	2.50 ± 0.254
	0.0015			1.08 ± 0.254	2.50 ± 0.254
	0.002~0.003			1.00 ± 0.254	1.50 ± 0.254

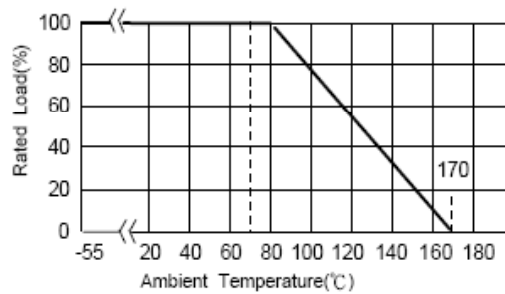
Standard Electrical Specifications

Type	Number of Terminals	Rated Power at 70°C	Max. Rated Current	Max. Overload Current	T.C.R. (ppm/°C)	Resistance Range (Ω)		
						D(± 0.5%)	F(± 3%)	G(± 2%) · J(± 5%)
LR25	2	1W	31.6A	79A	0.001~0.003=± 75 0.004~0.006=± 40 0.007~0.100=± 25	0.007Ω ~ 0.100 Ω	0.003Ω ~ 0.100 Ω	0.001Ω ~ 0.100 Ω
		1.5W	38.7A	96.8A				
		2W	44.7A	111.8A				
LR27	2	3W	77.4A	193.5A	0.0005~0.0009=± 60 0.001~0.003=± 25	--	0.0005 Ω ~ 0.003 Ω	
		3.5W	83.6A	209A				
		4W	89.4A	223.6A				
Operating Temperature Range						-55°C ~ +170°C		

Taping Package

TYPE	Tape Width	Taping Package(pcs/reel)	
		Plastic Tape	
		8mm Pitch	
		E5	E6
LR25	12 mm	1,000	2,000
LR27			

Power Derating Curve



Marking

<p>1.LR25 ± 0.5%、± 1%、± 2%、± 5% 1.1 Resistance Range : 0.001Ω~0.004 《EX》 Marking → 001 = $1 \times 10^{-3} = 0.001\Omega$</p> <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center; vertical-align: middle;">001</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> </div> <p>1.2. Resistance Range : 0.005Ω~0.100Ω 《EX》 Marking → 010 = $10 \times 10^{-3} = 0.01\Omega$</p> <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center; vertical-align: middle;">010</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> </div>		001			010		<p>2.LR27 ± 1%、± 2%、± 5% 《EX》 Marking → 0005 = $5 \times 10^{-4} = 0.0005\Omega$ → R001 = $1 \times 10^{-3} = 0.001\Omega$ → 0015 = $15 \times 10^{-4} = 0.0015\Omega$ → R010 = $10 \times 10^{-3} = 0.01\Omega$</p> <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center; vertical-align: middle;">R001</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> </div>		R001	
	001									
	010									
	R001									