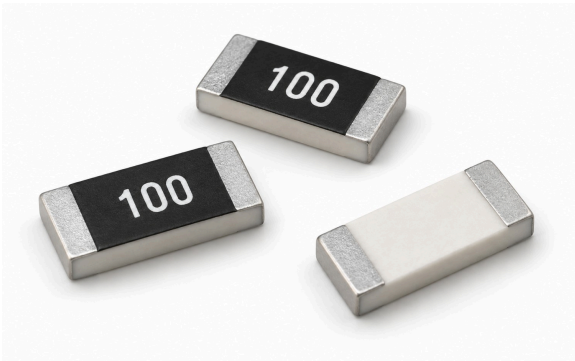


General Thick Film Chip Resistors

General-purpose thick film chip fixed resistors · sizes 01005 to 2512

Features

- Small size and light weight
- Suitable for reflow and wave soldering
- Stable electrical performance and high reliability
- Low assembly cost; suitable for automatic SMT placement equipment
- High mechanical strength and good high-frequency characteristics
- RoHS compliant
- Meets halogen-free requirements



Illustration; not a photograph of a specific part.

CASE SIZES 01005 – 2512	RATED POWER AT 70 °C 1/32 – 1 W	RESISTANCE RANGE 1 Ω – 10 MΩ	TOLERANCE ±0.25% – ±10%
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Applications

Home appliances, computers, communications, industrial automation and consumer electronics.

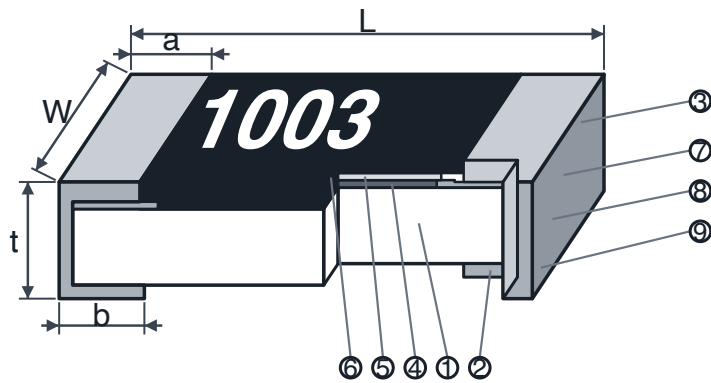
How to order

RC Product code Chip resistor	05 Type (size) 0805	K TCR code Based on spec.	5 Total characters No. of characters ②	103 Resistance value 10KΩ (E-24)	J Tolerance ±5%	T Packaging Tape & reel	LF Other Lead free
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Ordering example as given on the original sheet; the positions are explained in the tables below.

Product code		TCR code (ppm/°C) ③		Resistance value		Tolerance ③	
RC	Chip resistor	W	±200	E-24	Significant figures + number of zeros	F	±1%
Type (size) ①		L	±250	E-96	No. of characters + significant figures + number of zeros	G	±2%
01	0201	B	±300	Examples		J	±5%
02	0402	U	±400			0	Jumper
03	0603	c	±50	E-24	1R0 = 1.0Ω, 103 = 10KΩ	Packaging	
05	0805	K	Based on spec.	E-96	5 1002 = 10KΩ	T	Tape & reel
12	1206	Total characters ②		E-96	5 1003 = 100KΩ	B	Bulk case ⑨
18	1218	Number of total characters (103=10000=5)		Letter R = decimal point		Other	
20	2010					LF	Lead free
25	2512						

Construction



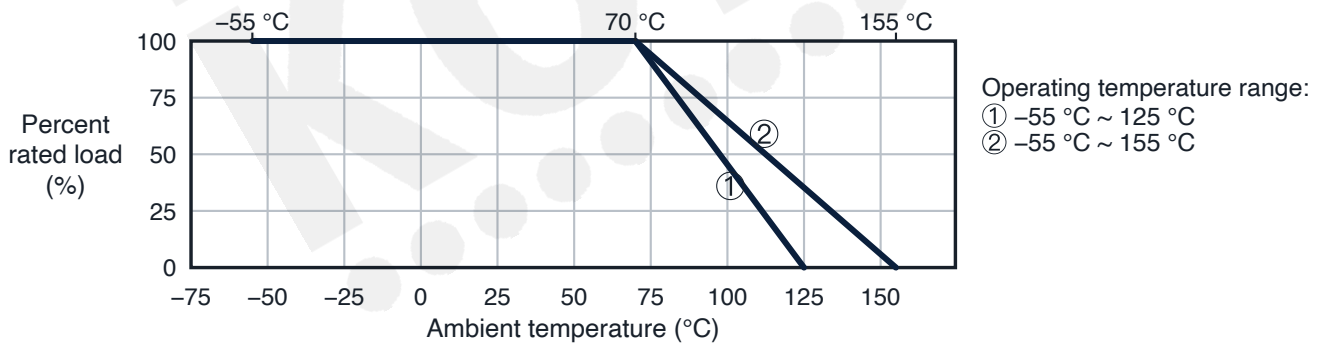
Layers	
1	Ceramic substrate
2	Bottom electrode
3	Top electrode
4	Resistor layer
5	Primary overcoat
6	Secondary overcoat
7	Edge electrode
8	Barrier layer
9	External electrode

Callout numbers 1–9 as printed in the source ④; see Layers. Dimension letters: see Dimensions.

Dimensions

Type	Dimensions (mm)				
	L	W	t	a	b
01005	0.40±0.02	0.20±0.02	0.13±0.03	0.10±0.03	0.10±0.03
0201	0.60±0.03	0.30±0.03	0.23±0.03	0.15±0.05	0.15±0.05
0402	1.00±0.05	0.50±0.05	0.30±0.05	0.20±0.10	0.25±0.10
0603	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20
0805	2.00±0.10	1.25±0.15	0.50±0.10	0.30±0.20	0.40±0.20
1206	3.20±0.20	1.60±0.15	0.55±0.10	0.50±0.20	0.50±0.20
1210	3.20±0.20	2.50±0.20	0.55±0.10	0.50±0.20	0.50±0.20
2010	5.00±0.20	2.50±0.20	0.55±0.10	0.60±0.20	0.60±0.20
2512	6.30±0.20	3.20±0.20	0.55±0.10	0.60±0.20	0.60±0.20

Derating curve



Note 1: Curve ① applies to 01005; curve ② applies to 0201, 0402, 0603, 0805, 1206, 1210, 2010 and 2512.

Note 2: For resistors operated at ambient temperatures above 70 °C, the rated load (rated power) shall be derated in accordance with the curve above.

Ratings ⑤

Type	Rated power at 70 °C (W)		Limiting element voltage (V)		Max. overload voltage (V)	
	Normal power series	Upgraded power series	Normal power series	Upgraded power series	Normal power series	Upgraded power series
01005	1/32	—	15	—	30	—
0201	1/20	—	25	—	50	—
0402	1/16	—	50	—	100	—
0603	—	1/10	—	75	—	150
0805	—	1/8	—	150	—	300
1206	—	1/4	—	200	—	400
1210	—	1/3	—	200	—	500
2010	—	3/4	—	200	—	500
2512	1	—	200	—	500	—

— : no value given.

Note 1: Voltages are DC or AC RMS values.

Note 2: Rated voltage $E = \sqrt{P \times R}$ or the limiting element voltage, whichever is lower. E: rated voltage (V); P: rated power (W); R: nominal resistance (Ω).

Temperature coefficient of resistance (TCR)

Standard TCR values

Type	Resistance range	TCR (ppm/°C) by resistance tolerance					
		±0.25%	±0.5%	±1%	±2%	±5%	±10%
01005	$1 \Omega \leq R < 10 \Omega$	—	—	±400	±400	±400	±400
	$10 \Omega \leq R < 100 \Omega$	—	—	±250 or ±300	±250 or ±300	±250 or ±300	±250 or ±300
	$100 \Omega \leq R \leq 1 \text{ M}\Omega$	—	—	±200 or ±250	±200 or ±250	±200 or ±250	±200 or ±250
0201	$1 \Omega \leq R < 10 \Omega$	—	—	±300 or ±400	±300 or ±400	±300 or ±400	±300 or ±400
	$10 \Omega \leq R \leq 1 \text{ M}\Omega$	—	±200	±200	±200	±200	±200
	$1 \text{ M}\Omega < R \leq 10 \text{ M}\Omega$	—	—	±200 or ±400	±200 or ±400	±200 or ±400	±200 or ±400
0402	$1 \Omega \leq R < 10 \Omega$	—	—	±200 or ±400	±200 or ±400	±200 or ±400	±200 or ±400
	$10 \Omega \leq R \leq 1 \text{ M}\Omega$	—	±100 or ±200	±100 or ±200	±100 or ±200	±100 or ±200	±100 or ±200
	$1 \text{ M}\Omega < R \leq 10 \text{ M}\Omega$	—	—	±100 or ±400	±100 or ±400	±100 or ±400	±100 or ±400
0603, 0805, 1206, 1210, 2010, 2512	$1 \Omega \leq R < 10 \Omega$	—	±200 or ±250	±200 or ±250	±200 or ±250	±200 or ±250	±200 or ±250
	$10 \Omega \leq R \leq 1 \text{ M}\Omega$	±100	±100	±100	±100	±100	±100
	$1 \text{ M}\Omega < R \leq 10 \text{ M}\Omega$	±100 or ±250	±100 or ±250	±100 or ±250	±100 or ±250	±100 or ±250	±100 or ±250

— : not available. Blank cells are printed blank in the source ⑥.

High-precision TCR ±50

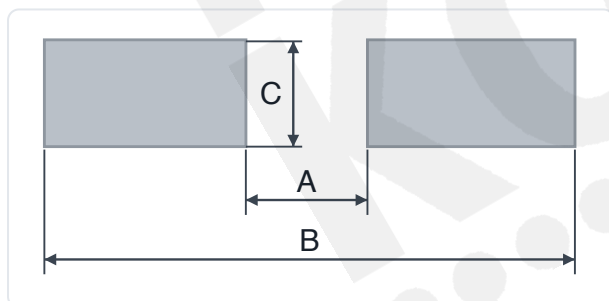
Type	Resistance range	TCR (ppm/°C) by resistance tolerance		
		±0.25%	±0.5%	±1%
0402, 0603, 0805, 1206	$100 \Omega \leq R \leq 100 \text{ K}\Omega$	HTCR: ±50	HTCR: ±50	HTCR: ±50

Characteristics

Item	Requirement	Test method (IEC 60115-1 clause)
Solderability	95% coverage min.	4.17 — Lead-free solder bath at 245 °C ±5 °C for 3 s ±0.3 s.
Resistance to soldering heat	No mechanical damage $\Delta R \leq \pm(1.0\%R + 0.05\Omega)$	4.18 — Lead-free solder bath at 270 °C ±5 °C for 10 s ±1 s.
Substrate bending test	No mechanical damage $\Delta R \leq \pm(1.0\%R + 0.05\Omega)$	4.33 — Bending distance: 01005: 3 mm; 0201, 0402, 0603, 0805: 5 mm; 1206, 1210: 4 mm; 2010, 2512: 2 mm. Duration: 60 s ±5 s.
Shear test	No mechanical damage	4.32 — Applied force: 0201: 2 N; 0402, 0603: 5 N; 0805: 9 N; 1206, 1210: 25 N; 2010, 2512: 45 N ⑦. Duration: 10 s ±1 s.
Rapid change of temperature	No mechanical damage 01005: $\Delta R \leq \pm(1.0\%R + 0.05\Omega)$ Others: 0.25%, 0.5%, 1%: $\Delta R \leq \pm(0.5\%R + 0.05\Omega)$ 2%, 5%, 10%: $\Delta R \leq \pm(1.0\%R + 0.05\Omega)$	4.19 — 01005: -55 °C (30 min) ~ room temperature (5 min) ~ 125 °C (30 min), 300 cycles. 0201, 0402, 0603, 0805, 1206, 1210, 2010, 2512: -55 °C (30 min) ~ room temperature (5 min) ~ 155 °C (30 min), 300 cycles.
Temperature coefficient of resistance (TCR)	Within the specified TCR	4.8 — +20 °C / -55 °C / +20 °C / +125 °C / +20 °C

Item	Requirement	Test method (IEC 60115-1 clause)
Short-time overload	No mechanical damage 01005: $\Delta R \leq \pm(2.0\%R+0.05\Omega)$ Others: 0.25%, 0.5%, 1%: $\Delta R \leq \pm(1.0\%R+0.05\Omega)$ 2%, 5%, 10%: $\Delta R \leq \pm(2.0\%R+0.05\Omega)$	4.13 — 2.5 × rated voltage or max. overload voltage, whichever is lower, for 5 s.
Intermittent overload	No mechanical damage $\Delta R \leq \pm(5.0\%R+0.05\Omega)$	4.39 — 2.5 × rated voltage or max. overload voltage, whichever is lower; 1 s ON / 25 s OFF, 10000 cycles.
Damp heat, steady state	No mechanical damage 01005: $\Delta R \leq \pm(3.0\%R+0.05\Omega)$ Others: 0.25%, 0.5%, 1%: $\Delta R \leq \pm(1.0\%R+0.05\Omega)$ 2%, 5%, 10%: $\Delta R \leq \pm(2.0\%R+0.05\Omega)$	4.24 — 40 °C ± 2 °C, 93% $\pm 3\%$ RH, 1000 h; rated voltage or limiting element voltage, whichever is lower, 1.5 h ON / 0.5 h OFF.
Endurance at 70 °C	No mechanical damage 01005: $\Delta R \leq \pm(3.0\%R+0.05\Omega)$ Others: 0.25%, 0.5%, 1%: $\Delta R \leq \pm(1.0\%R+0.05\Omega)$ 2%, 5%, 10%: $\Delta R \leq \pm(2.0\%R+0.05\Omega)$	4.25.1 — 70 °C ± 2 °C, 1000 h; rated voltage or limiting element voltage, whichever is lower, 1.5 h ON / 0.5 h OFF.
Endurance at upper category temperature	No mechanical damage 01005: $\Delta R \leq \pm(3.0\%R+0.05\Omega)$ Others: 0.25%, 0.5%, 1%: $\Delta R \leq \pm(1.0\%R+0.05\Omega)$ 2%, 5%, 10%: $\Delta R \leq \pm(2.0\%R+0.05\Omega)$	4.25.3 — 01005: 125 °C ± 2 °C, 1000 h. 0201, 0402, 0603, 0805, 1206, 1210, 2010, 2512: 155 °C ± 2 °C, 1000 h.
Operation at low temperature	No mechanical damage 01005: $\Delta R \leq \pm(2.0\%R+0.05\Omega)$ Others: 0.25%, 0.5%, 1%: $\Delta R \leq \pm(1.0\%R+0.05\Omega)$ 2%, 5%, 10%: $\Delta R \leq \pm(2.0\%R+0.05\Omega)$	4.36 — -55 °C ± 5 °C: 1 h without load; rated voltage or limiting element voltage, whichever is lower, for 45 min; 15 min without load.
Insulation resistance	1000 MΩ min.	4.6 — Apply 100 V ± 15 V DC between substrate and terminations for 1 min, then measure the insulation resistance.
Voltage proof	No breakdown or flashover	4.7 — Apply the max. overload voltage (AC RMS) between substrate and terminations, at a rate of approx. 100 V/s, for 60 s ± 5 s.
Solvent resistance	No mechanical damage $\Delta R \leq \pm(1.0\%R+0.05\Omega)$	4.29 — Isopropyl alcohol (IPA), 23 °C ± 5 °C, 10 h.

Recommended solder pad dimensions

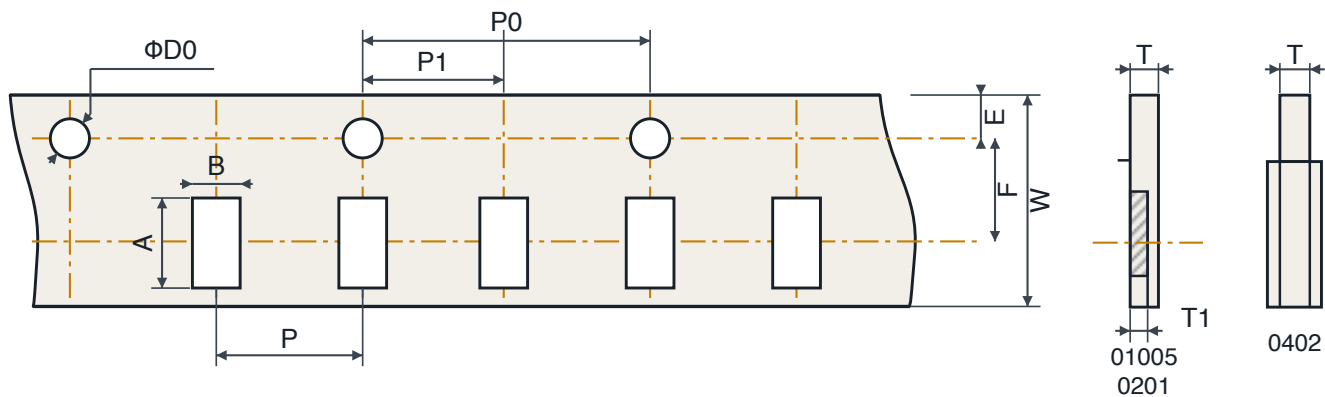


Chip fixed resistor: pad layout.

Type	Pad dimensions (mm)		
	A	B	C
01005	0.17 $\pm$ 0.03	0.60 $\pm$ 0.03	0.22 $\pm$ 0.03
0201	0.23 $\pm$ 0.05	0.84 $\pm$ 0.05	0.38 $\pm$ 0.05
0402	0.45 $\pm$ 0.05	1.45 $\pm$ 0.05	0.60 $\pm$ 0.05
0603	0.80 $\pm$ 0.05	2.50 $\pm$ 0.05	0.95 $\pm$ 0.05
0805	1.05 $\pm$ 0.1	3.25 $\pm$ 0.1	1.40 $\pm$ 0.1
1206	1.90 $\pm$ 0.1	4.50 $\pm$ 0.1	1.75 $\pm$ 0.1
1210	2.00 $\pm$ 0.1	4.60 $\pm$ 0.1	2.70 $\pm$ 0.1
2010	3.50 $\pm$ 0.1	6.50 $\pm$ 0.1	2.70 $\pm$ 0.1
2512	4.80 $\pm$ 0.1	7.80 $\pm$ 0.1	3.40 $\pm$ 0.1
2512 (2W) ⑤	2.70 $\pm$ 0.1	7.80 $\pm$ 0.1	3.60 $\pm$ 0.1

Packaging

Paper taping for 01005, 0201, 0402

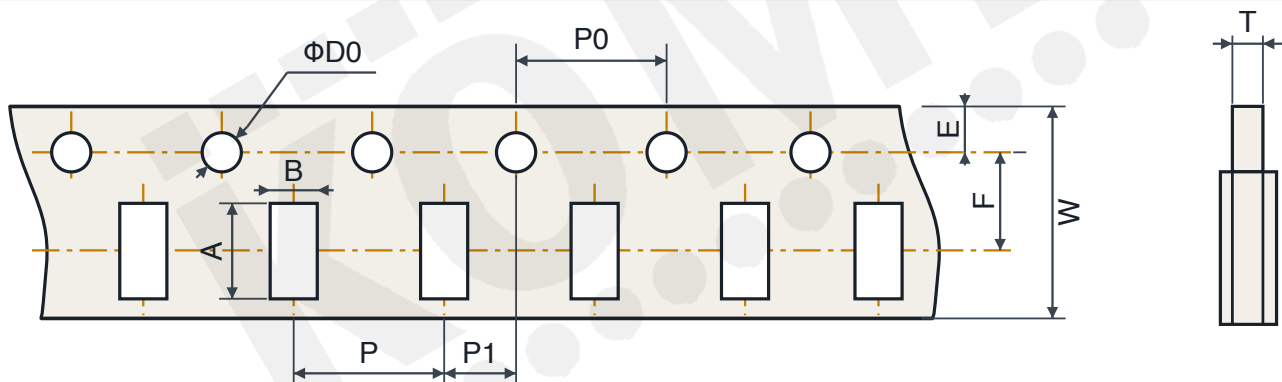


Type	A	B	W	F	E
01005	0.45±0.02	0.25±0.02	8.00±0.02 ⑧	3.50±0.05	1.75±0.05
0201	0.70±0.10	0.40±0.10	8.00±0.20	3.50±0.05	1.75±0.10
0402	1.20±0.10	0.70±0.10	8.00±0.20	3.50±0.05	1.75±0.10

Type	P	P0	P1	ΦD0	T1	T
01005	2.00±0.05	4.00±0.10	2.00±0.05	1.55±0.02	0.17±0.02	0.31±0.02
0201	2.00±0.05	4.00±0.10	2.00±0.05	1.50±0.10	0.28±0.04	0.42±0.05
0402	2.00±0.05	4.00±0.10	2.00±0.05	1.50±0.10	—	0.42±0.05

Unit: mm. — : not applicable.

Paper taping for 0603, 0805, 1206, 1210

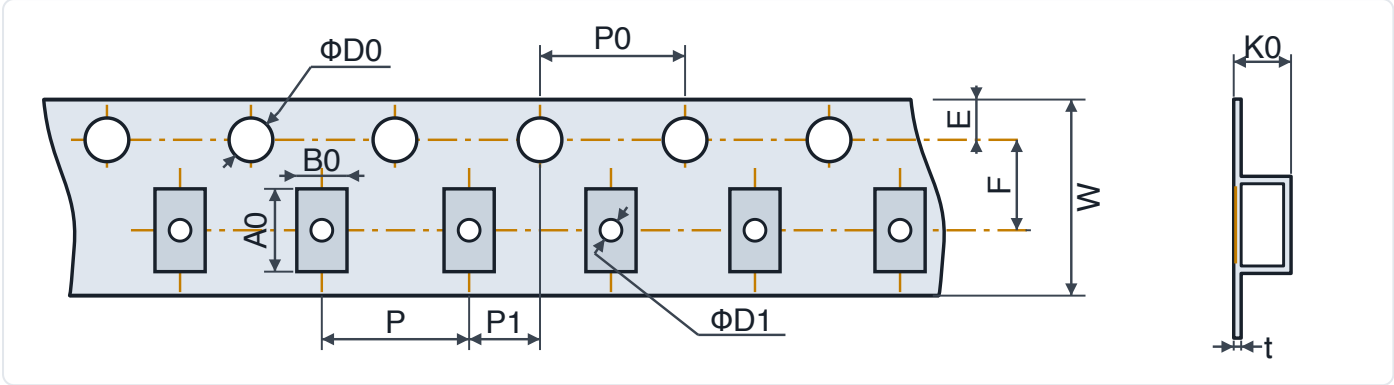


Type	A	B	W	F	E
0603	1.85±0.10	1.10±0.10	8.00±0.20	3.50±0.05	1.75±0.10
0805	2.35±0.10	1.65±0.10	8.00±0.20	3.50±0.05	1.75±0.10
1206	3.50±0.20	1.90±0.20	8.00±0.20	3.50±0.05	1.75±0.10
1210	3.50±0.20	2.80±0.20	8.00±0.20	3.50±0.05	1.75±0.10

Type	P	P0	P1	ΦD0	T
0603	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.60±0.10
0805	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.75±0.10
1206	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.75±0.10
1210	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	0.75±0.10

Unit: mm.

Embossed taping for 2010, 2512

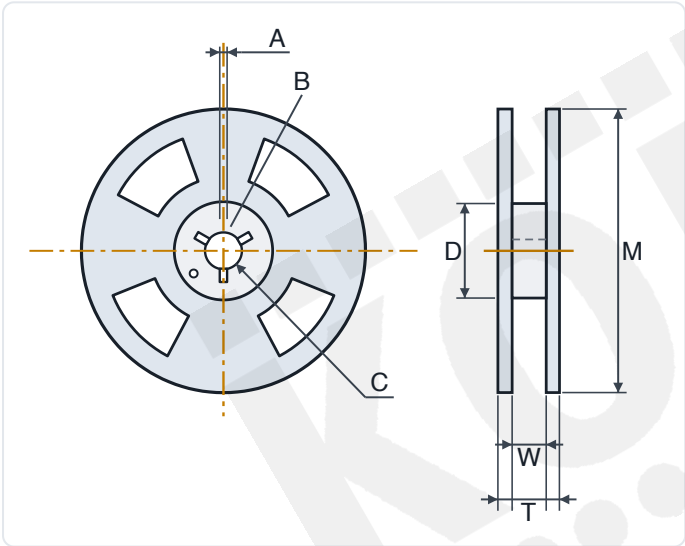


Type	A0	B0	W	F	E	t
2010	5.50±0.15	2.82±0.15	12.00±0.10	5.50±0.10	1.75±0.10	0.25±0.05
2512	6.78±0.15	3.45±0.15	12.00±0.10	5.50±0.10	1.75±0.10	0.25±0.05

Type	P	P0	P1	ΦD0	ΦD1	K0
2010	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.10/-0	1.50±0.10	0.84±0.10
2512	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.10/-0	1.50±0.10	0.81±0.10

Unit: mm.

Reel

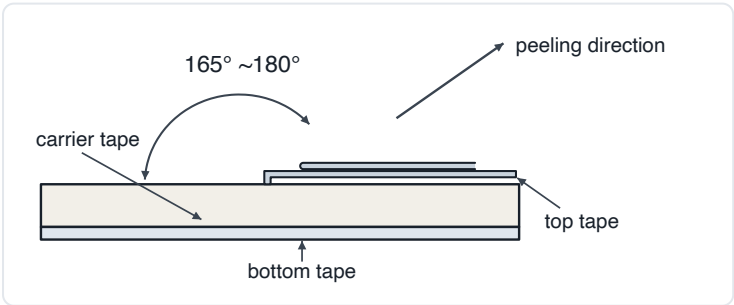


	01005, 0201, 0402, 0603, 0805, 1206, 1210	2010, 2512
M	178±2.0	178±2.0
W	9.5±1.0	13.0±0.5
T	12.5±1.5	15.5±1.5
A	2.0±0.5	2.0±0.5
B	13.0±0.5	13.0±0.5
C	21.0±0.5	21.0±0.5
D	58.0±2.0	57.0±2.0

Unit: mm.

Taping ability

Top tape peel strength: 11~70g (0.1N~0.7N) at a peeling speed of 300mm/min. The tape shall not break or tear in the test below.



Test method.

- After the test the resistor moves freely and does not stick to the top tape or the bottom tape.
- The resistor is easy to take out of the carrier tape, and the chip cavity shows no mechanical damage.

Packaging quantity

Tape & reel	
Type	Quantity (pcs)
01005	20000
0201	15000
0402	10000
0603, 0805, 1206, 1210	5000
2010, 2512	4000

Bulk case ⑨	
Type	Quantity (pcs)
01005, 0201, 0402	≤50000
0603, 0805, 1206	≤10000
1210, 2010, 2512	≤4000

IEC E-24 and E-96 series resistance values

Table 1 — E-24 series ($\times 10^n \Omega$)

1.0	1.5	2.2	3.3	4.7	6.8
1.1	1.6	2.4	3.6	5.1	7.5
1.2	1.8	2.7	3.9	5.6	8.2
1.3	2.0	3.0	4.3	6.2	9.1

Unit: 0.001 Ω , 0.01 Ω , 0.1 Ω , 1 Ω , 10 Ω , 100 Ω , 1k Ω , 10k Ω , 100k Ω , 1M Ω , 10M Ω , 100M Ω , 1000M Ω .

Table 2 — E-96 series ($\times 10^n \Omega$)

1.00	1.33	1.78	2.37	3.16	4.22	5.62	7.50
1.02	1.37	1.82	2.43	3.24	4.32	5.76	7.68
1.05	1.40	1.87	2.49	3.32	4.42	5.90	7.87
1.07	1.43	1.91	2.55	3.40	4.53	6.04	8.06
1.10	1.47	1.96	2.61	3.48	4.64	6.19	8.25
1.13	1.50	2.00	2.67	3.57	4.75	6.34	8.45
1.15	1.54	2.05	2.74	3.65	4.87	6.49	8.66
1.18	1.58	2.10	2.80	3.74	4.99	6.65	8.87
1.21	1.62	2.15	2.87	3.83	5.11	6.81	9.09
1.24	1.65	2.21	2.94	3.92	5.23	6.98	9.31
1.27	1.69	2.26	3.01	4.02	5.36	7.15	9.53
1.30	1.74	2.32	3.09	4.12	5.49	7.32	9.76

Unit: 0.001 Ω , 0.01 Ω , 0.1 Ω , 1 Ω , 10 Ω , 100 Ω , 1k Ω , 10k Ω , 100k Ω , 1M Ω , 10M Ω , 100M Ω , 1000M Ω .

E-96 series, size 0603: Table 3 — multiplier codes

Multiplier	$\times 10^0$	$\times 10^1$	$\times 10^2$	$\times 10^3$	$\times 10^4$	$\times 10^5$	$\times 10^6$	$\times 10^7$	$\times 10^{-1}$	$\times 10^{-2}$	$\times 10^{-3}$
Code	A	B	C	D	E	F	G	H	X	Y	Z

Table 4 — E-96 resistance codes

Code	E-96 resistance	Code	E-96 resistance	Code	E-96 resistance	Code	E-96 resistance
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

Resistance value code and marking

The resistance value code of all thick film chip resistors corresponds to the marking.

Series / size / tolerance	Marking	Example
E-24 (≥ 0603 , $\geq \pm 5\%$)	Three digits: the first two are significant figures, the third is the number of zeros (power of ten).	303 = 30K Ω
E-24 (0603, $\leq \pm 1\%$)	Three digits with a short bar under the marking.	5R6 (with bar)
E-96 and E-24 (≥ 0805 , $\leq \pm 1\%$)	Four digits: the first three are significant figures, the fourth is the number of zeros (power of ten).	1003 = 100K Ω
E-96 (0603, $\leq \pm 1\%$)	Three characters: the first two digits are the E-96 resistance code (Table 4), the letter is the multiplier code (Table 3).	30E = 2M Ω
Decimal point	Expressed by the letter "R".	5R6 = 5.6 Ω
Jumper	Expressed by "0".	0 = 0 Ω
≤ 0402	No marking on the glass side.	—

No marking rule is given for $\pm 2\%$ tolerance ⑩.

E-24 (≥ 0603 , $\geq \pm 5\%$) 303 → 30K Ω	E-24 (0603, $\leq \pm 1\%$) 5R6 → 5.6 Ω	E-96 & E-24 (≥ 0805 , $\leq \pm 1\%$) 1003 → 100K Ω	E-96 (0603, $\leq \pm 1\%$) 30E → 2M Ω
Decimal point "R" 5R6 → 5.6 Ω	Jumper "0" 0 → 0 Ω	≤ 0402 : no marking	

Marking examples, in the order of the table above.

- Resistance values outside the IEC series are generally marked with the marking of the nearest IEC E-24 nominal value ⑩.
- Where the customer has special marking requirements, the marking is printed as agreed by both parties.

Instructions for use

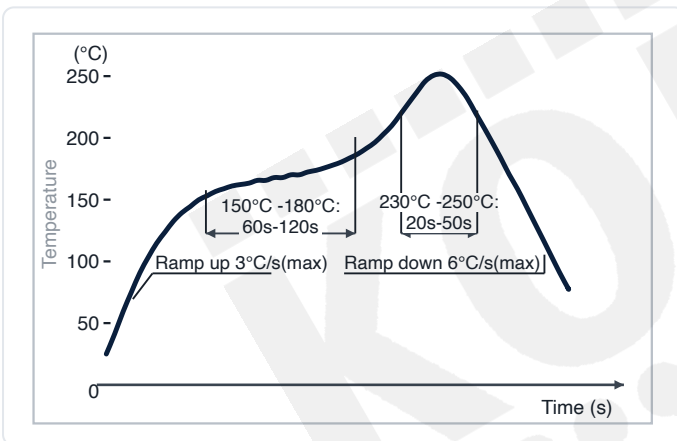
Use of the products in the following special environments may affect product performance:

- In any type of liquid, including water, oils, chemicals and organic solvents.
- Outdoors where the products are exposed to direct sunlight, or in dusty places.
- Where the products are exposed to sea wind or corrosive gases, including Cl_2 , H_2S , NH_3 , SO_2 and NO_2 .
- Where the products are exposed to static electricity or electromagnetic waves.
- Close to heat-generating components, plastic cords or other flammable items.
- With the products sealed or coated with resin or other coating materials.
- With unclean solder, or with cleaning by water or water-soluble cleaning agents after soldering.
- The substrate of chip resistors is alumina. Because its coefficient of thermal expansion differs from that of the mounting board, cracks may occur in the solder joint (solder fillet) when thermal stress such as heat cycling is applied repeatedly. Pay attention to possible cracking where the ambient temperature changes repeatedly or the load is repeatedly switched ON/OFF. Cracking caused by thermal stress depends on the pad size, the solder volume and the heat dissipation of the mounting board; pay careful attention to the design where large changes in ambient temperature or ON/OFF switching of the load are expected.

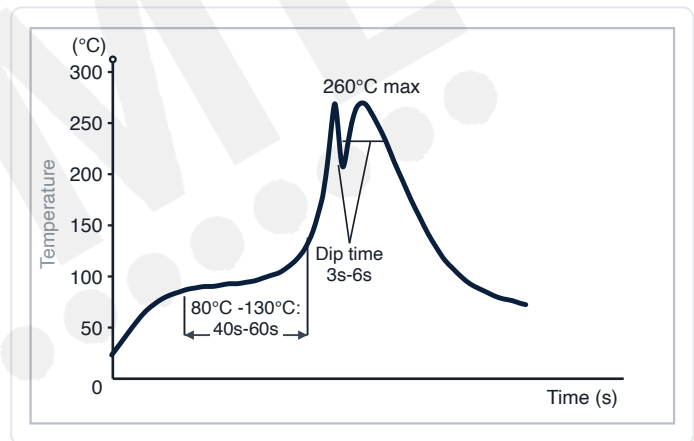
Precautions for use

- Do not apply power exceeding the rated power; steady-state loading above the rated power may adversely affect product performance and reliability.
- Take care when picking up the products with tweezers: the overcoat and/or the resistor body may be chipped.
- When mounting by hand, the soldering-iron tip shall not touch the product.
- Storage conditions: 5 °C ~ 30 °C, RH 30% ~ 70%. The products should be used within six months of receipt, stored under these conditions.
- Contact our sales representatives before using the products in automotive, medical or aerospace equipment. Malfunction or failure of the products in such applications may cause loss of human life or serious damage ⑪.

Soldering



Recommended reflow profile.



Recommended wave soldering profile.

Recommended solder alloy: 96.5Sn/3.0Ag/0.5Cu

① How to order, Type: sizes 01005 and 1210 are not listed and 1218 is listed, while the dimension, rating, TCR and packaging tables cover 01005 and 1210 and give no data for 1218 — subject to manufacturer confirmation.

② How to order, Total characters: printed as “(103=10000=5)” — value code 103 = 10000 Ω , five characters; the ordering example uses 5.

③ How to order: TCR codes are given only for ± 200 , ± 250 , ± 300 , ± 400 and ± 50 ppm/°C (the ± 50 code is printed as lower-case “c”), and tolerance codes only for $\pm 1\%$, $\pm 2\%$, $\pm 5\%$ and jumper, while the TCR tables also list ± 100 ppm/°C and the tolerances $\pm 0.25\%$, $\pm 0.5\%$ and $\pm 10\%$ — subject to manufacturer confirmation.

④ Construction: callout numbers as printed in the source (right, top to bottom: 3, 7, 8, 9; bottom, left to right: 6, 5, 4, 1, 2), numbered as the layers 1–9 (①–⑨ in the source).

⑤ Ratings: values for 01005, 0201, 0402 and 2512 are printed only under the normal power series, and for 0603 to 2010 only under the upgraded power series. The pad table has an additional row “2512 (2W)”, although the ratings give 1 W for 2512 — subject to manufacturer confirmation.

⑥ TCR table: for 01005, $100 \Omega \leq R \leq 1 \text{ M}\Omega$ the $\pm 0.25\%$ and $\pm 0.5\%$ cells are printed blank, while the other unavailable combinations are marked “/” (shown as —) — subject to manufacturer confirmation.

⑦ Shear test: no applied force is given for 01005 — subject to manufacturer confirmation.

⑧ Paper taping: W for 01005 is printed as 8.00 ± 0.02 , for all other types as 8.00 ± 0.20 — subject to manufacturer confirmation.

⑨ Bulk packaging is called “Bulk case” (How to order) and “Case” (Packaging quantity) in the English text, and “bulk in plastic bags” in the Chinese text; the English is printed — subject to manufacturer confirmation.

⑩ Marking: no rule is given for $\pm 2\%$ tolerance (the E-24 rules cover $\geq \pm 5\%$ and $\leq \pm 1\%$). For values outside the IEC series the Chinese text refers to the nearest IEC E-24 value and the English text to the nearest IEC series value; the Chinese is printed — subject to manufacturer confirmation.

⑪ Precaution: the Chinese text also lists other equipment involving personal safety or that may cause major loss; the English text is printed — subject to manufacturer confirmation.