No.:	RLC-K-HTS-0001 /17
Date:	2022. 12. 31

Data sheet

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE & LOW OHM

Style: RLC10, 16, 20, 32, 35, 50, 63

RoHS COMPLIANCE ITEM

Halogen and Antimony Free

Note: ･Stock conditions
Temperature: +5°C ~ +35°C
Relative humidity: 25% ~ 75%
The period of guarantee: Within 2 year from shipment by the company.
Solderability shall be satisfied.

･Product specification contained in this data sheet are subject to change at any time without notice

･If you have any questions or a Purchasing Specification for any quality agreement is necessary, please contact our sales staff.

釜屋電機株式會社
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1. Scope

1.1 This data sheet covers the detail requirements for fixed thick film chip resistors; rectangular type and low ohm, style of RLC10, 16, 20, 32, 35, 50, 63.

1.2 Applicable documents

JIS C 5201–1: 2011, JIS C 5201–8: 2014, JIS C 5201–8–1: 2014
IEC60115–1: 2008, IEC60115–8: 2009, IEC60115–8–1: 2014
EIAJ RC–2144–2010

2. Classification

Type designation shall be the following form.

(Example)	RLC	20	K	R470	J	TP
	1	2	3	4	5	6
	Style					

1 Fixed thick film chip resistors; rectangular type and low ohm — Style
2 Size
3 Temperature coefficient of resistance

K	±100×10^{-6}/ °C
–(Dash)	Standard
L	See Paragraph 3.2

4 Rated resistance Rated resistance and symbol shall be in accordance with Sub-clause 3.3.

5 Tolerance on rated resistance

F	±1%
G	±2%
J	±5%

6 Packaging form

B	Bulk (loose package)
TH	Paper taping
TP	
TE	Embossed taping

3. Rating

The ratings shall be in accordance with Table–1.

3.1 Temperature coefficient of resistance: K & –(Dash) code

Table–1(1)

Style	Rated dissipation (W)	Rated current range (A)	Temperature coefficient of resistance (10^{-6}/ °C)		Rated resistance range(Ω)	Tolerance on rated resistance
RLC10	0.125	0.11~1.11	K	±100	3.6~10	F(±1%), J(±5%)
			–(Dash)	0~+200	0.47~3.3	F(±1%), G(±2%), J(±5%)
				0~+300	0.1~0.43	F(±1%), J(±5%)
RLC16	0.25	0.14~1.58	K	±100	3.6~10	F(±1%), J(±5%)
					0.47~3.3	F(±1%) G(±2%) J(±5%)
			–(Dash)	0~+200	0.2~0.43	
				0~+250	0.1~0.18	
RLC20	0.33	0.15~2.56	K	±100	3.6~10	F(±1%), J(±5%)
					0.47~3.3	F(±1%) G(±2%) J(±5%)
			–(Dash)	0~+200	0.2~0.43	
				0~+250	0.05~0.18	
RLC32	0.5	0.18~3.16	K	±100	3.6~10	F(±1%), J(±5%)
					0.47~3.3	F(±1%) G(±2%) J(±5%)
			–(Dash)	0~+200	0.2~0.43	
				0~+250	0.05~0.18	
RLC35	0.66	0.44~3.63	K	±100	0.47~3.3	F(±1%) G(±2%) J(±5%)
			–(Dash)	0~+200	0.2~0.43	
				0~+250	0.05~0.18	
RLC50	0.75	0.47~3.87	K	±100	0.47~3.3	F(±1%) G(±2%) J(±5%)
			–(Dash)	0~+200	0.2~0.43	
				0~+250	0.05~0.18	
RLC63	1.0	0.55~4.47	K	±100	0.47~3.3	F(±1%) G(±2%) J(±5%)
			–(Dash)	0~+200	0.2~0.43	
				0~+250	0.05~0.18	

Style	Limiting element voltage(V)	Insulation voltage (V)	Category temperature range (°C)
RLC10	1.11	100	–55~+155
RLC16	1.41		
RLC20	1.58	500	
RLC32	1.81		
RLC35	1.47		
RLC50	1.56		
RLC63	1.82		

3.2 Temperature coefficient of resistance: L code

Table–1(2)

Style	Rated dissipation (W)	Rated current range (A)	Temperature coefficient of resistance (10^{-6}/ °C)		Rated resistance range(Ω)	Tolerance on rated resistance
RLC10	0.063	0.26~1.12	L	±300	0.51~0.91	F(±1%), J(±5%)
				±800	0.10~0.50	
				±1500	0.05~0.091	
RLC16	0.1	0.33~3.16	L	±300	0.51~0.91	F(±1%), J(±5%)
				±800	0.10~0.50	
				±1200	0.05~0.091	
RLC20	0.25	0.52~5.0	L	±200	0.51~0.91	F(±1%), J(±5%)
				±300	0.39~0.50	
				±600	0.10~0.36	
				±1000	0.05~0.091	
RLC32	0.5	0.74~7.07	L	±200	0.51~0.91	F(±1%), J(±5%)
				±300	0.39~0.50	
				±600	0.10~0.36	
				±1000	0.05~0.091	
RLC35	0.66	0.85~8.12	L	±200	0.51~0.91	F(±1%), J(±5%)
				±300	0.39~0.50	
				±600	0.10~0.36	
				±1000	0.05~0.091	
RLC50	0.75	0.90~8.66	L	±200	0.51~0.91	F(±1%), J(±5%)
				±300	0.39~0.50	
				±600	0.10~0.36	
				±1000	0.05~0.091	
RLC63	1.0	1.04~10	L	±200	0.51~0.91	F(±1%), J(±5%)
				±300	0.39~0.50	
				±600	0.10~0.36	
				±1000	0.05~0.091	

Style	Limiting element voltage (V)	Insulation voltage (V)	Category temperature range (°C)
RLC10	0.23	100	–55~+155
RLC16	0.30		
RLC20	0.47	500	
RLC32	0.67		
RLC35	0.77		
RLC50	0.82		
RLC63	0.95		

3.3 Rated resistance

The rated resistance shall be in accordance with Table–2

Table–2

Rated resistance		Rated resistance		Rated resistance	
Rated resistance [mΩ]	Symbol	Rated resistance [mΩ]	Symbol	Rated resistance [Ω]	Symbol
50	R050	250	R250	1.0	1R00
51	R051	270	R270	1.1	1R10
56	R056	300	R300	1.2	1R20
60	R060	330	R330	1.3	1R30
62	R062	360	R360	1.5	1R50
65	R065	390	R390	1.6	1R60
68	R068	400	R400	1.8	1R80
70	R070	430	R430	2.0	2R00
75	R075	470	R470	2.2	2R20
80	R080	500	R500	2.4	2R40
82	R082	510	R510	2.7	2R70
90	R090	560	R560	3.0	3R00
91	R091	600	R600	3.3	3R30
100	R100	620	R620	3.6	3R60
110	R110	650	R650	3.9	3R90
120	R120	680	R680	4.3	4R30
130	R130	700	R700	4.7	4R70
150	R150	750	R750	5.1	5R10
160	R160	800	R800	5.6	5R60
180	R180	820	R820	6.2	6R20
200	R200	900	R900	6.8	6R80
220	R220	910	R910	7.5	7R50
240	R240			8.2	8R20
				9.1	9R10
				10	100

3.4 Climatic category

55/155/56	Lower category temperature	–55 °C
	Upper category temperature	+155 °C
	Duration of the damp heat, steady state test	56days

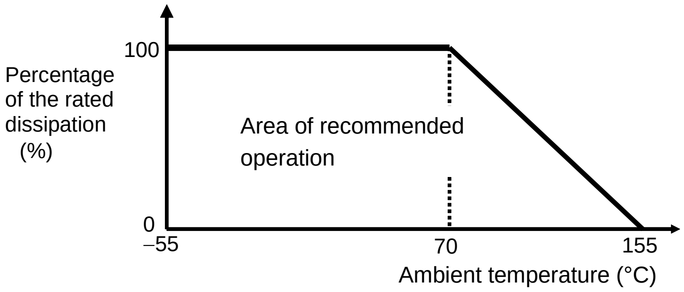
3.5 Stability class

5% Limits for change of resistance:

–for long–term tests	±5%
–for short–term tests	±1%

3.6 Derating

The derated values of dissipation at temperature in excess of 70 °C shall be as indicated by the following curve.



Figure–1 Derating curve

3.7 Rated voltage

d.c. or a.c. r.m.s. voltage calculated from the square root of the product of the rated resistance and the rated dissipation.

$$E = \sqrt{P \cdot R}$$

E: Rated voltage (V)
P: Rated dissipation (W)
R: Rated resistance (Ω)

Limiting element voltage can only be applied to resistors when the resistance value is equal to or higher than the critical resistance value.

At high value of resistance, the rated voltage may not be applicable.

3.8 Rated current

The rated current calculated from the square root of the quotient of the rated resistance and the rated dissipation.

$$I = \sqrt{P / R}$$

I: Rated current (A)
P: Rated dissipation (W)
R: Rated resistance (Ω)

The rated current shall be corresponding to rated voltage.

4. Packaging form

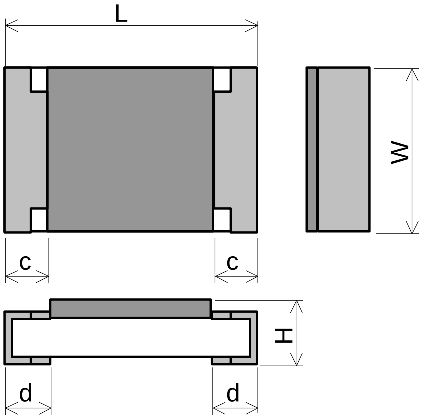
The standard packaging form shall be in accordance with Table–3.

Table–3

Symbol	Packaging form		Standard packaging quantity / units	Application
B	Bulk (loose package)		1,000 pcs.	RLC10, 16, 20, 32, 35, 50, 63
TH	Paper taping	8mm width, 2mm pitches	10,000 pcs.	RLC10
TP	Paper taping	8mm width, 4mm pitches	5,000 pcs.	RLC16, 20, 32
TE	Embossed taping	8mm width, 4mm pitches	4,000 pcs.	RLC35
		12mm width, 4mm pitches		RLC50, 63

5. Dimensions

5.1 The resistor shall be of the design and physical dimensions in accordance with Figure–2 and Table–4.



Figure–2

5.1.1 Temperature coefficient of resistance: K & –(Dash) code

Table–4(1) Unit: mm

Style	L	W	H	c	d
RLC10	1.0 ± 0.05	0.5 ± 0.05	0.35 ± 0.05	0.2 ± 0.1	$0.25^{+0.05}_{-0.10}$
RLC16	1.6±0.1	$0.8^{+0.15}_{-0.05}$	0.45±0.1	0.3±0.1	0.3±0.1
RLC20	2.0±0.1	1.25±0.10	0.6±0.1	0.4±0.2	0.4±0.2
RLC32	3.1±0.2	1.6±0.15	0.6±0.1	0.5±0.25	$0.3^{+0.2}_{-0.1}$
RLC35	3.1±0.2	2.5±0.15	0.6±0.15	0.5±0.25	$0.3^{+0.2}_{-0.1}$
RLC50	5.0±0.2	2.5±0.15	0.6±0.15	0.6±0.2	0.6±0.2
RLC63	6.3±0.2	3.2±0.15	0.6±0.15	0.6±0.2	0.6±0.2

5.1.2 Temperature coefficient of resistance: L code

Table–4(2) Unit: mm

Style	L	W	H	c	d
RLC10	1.0±0.05	0.5±0.05	0.35±0.05	0.2±0.1	$0.25^{+0.05}_{-0.10}$
RLC16	1.6±0.1	0.8±0.1	0.45±0.15	0.3±0.1	0.3±0.2
RLC20	2.0±0.1	1.25±0.10	0.5±0.15	0.4±0.2	0.4±0.2
RLC32	3.1±0.1	1.6±0.1	0.6±0.15	0.5±0.2	0.45±0.20
RLC35	3.1±0.1	2.6±0.1	0.55±0.10	0.5±0.2	0.5±0.2
RLC50	5.0±0.2	2.5±0.2	0.55±0.10	0.65±0.25	0.6±0.25
RLC63	6.4±0.2	3.2±0.2	0.6±0.1	0.65±0.25	0.9±0.25

5.2 Net weight (Reference)

Style	Net weight (mg)
RLC10	0.6
RLC16	2
RLC20	5
RLC32	9
RLC35	16
RLC50	25
RLC63	40

6. Marking

The rated resistance of RLC10,16 should not be marked.

6.1 RLC20,32,35,50,63

The rated resistance shall be marked in 4 characters consisting of 3 figures or 3 figures and a letter and marked on over coat side.

(Example) “R050” → 0.05 [Ω] (R<1Ω)
“100” → 10 [Ω] (R≥1Ω)

6.2 RLC16（L code only）

The nominal resistance shall be marked in 3 digits (E24 and/or E96) and marked on over coat side.

- 100mΩ~910mΩ, E24 series: “R” followed by 2 significant digits if the 4th digit is “0”

  (Example) “R22” → 220 [mΩ] → 0.22 [Ω]

- 100mΩ~976mΩ, E96 series: The 1st two digit codes are referring to the code on the table, the 3rd code is the index of resistance value: “Z”(10^{-3})

  (Example) “25Z” → 178 [mΩ] → 0.178[Ω]
  “34Z” → 221 [mΩ] → 0.221[Ω]

- 1mΩ~99mΩ: The 3rd code is the index of resistance value: “M”.

  “M” = “m”, means1/1000

  (Example) “75M” → 75 [mΩ] → 0.075[Ω]

6.2.1 Symbol for E96 series of resistance value

E96	Symbol	E96	Symbol	E96	Symbol	E96	Symbol	E96	Symbol
100	01	162	21	261	41	422	61	681	81
102	02	165	22	267	42	432	62	698	82
105	03	169	23	274	43	442	63	715	83
107	04	174	24	280	44	453	64	732	84
110	05	178	25	287	45	464	65	750	85
113	06	182	26	294	46	475	66	768	86
115	07	187	27	301	47	487	67	787	87
118	08	191	28	309	48	499	68	806	88
121	09	196	29	316	49	511	69	825	89
124	10	200	30	324	50	523	70	845	90
127	11	205	31	332	51	536	71	866	91
130	12	210	32	340	52	549	72	887	92
133	13	215	33	348	53	562	73	909	93
137	14	221	34	357	54	576	74	931	94
140	15	226	35	365	55	590	75	953	95
143	16	232	36	374	56	604	76	976	96
147	17	237	37	388	57	619	77		
150	18	243	38	392	58	634	78		
154	19	249	39	402	59	649	79		
158	20	255	40	412	60	665	80		

7. Performance

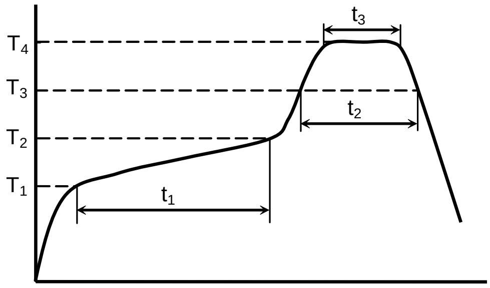
7.1 The standard condition for tests shall be in accordance with Sub–clause 4.2, JIS C 5201–1: 2011

7.2 The performance shall be satisfied in Table–5.

Table– 5(1)

No.	Test items	Condition of test (JIS C 5201–1)	Performance requirements
1	Visual examination	Sub–clause 4.4.1 Checked by visual examination.	As in 4.4.1 The marking shall be legible, as checked by visual examination.
2	Dimension	Sub–clause 4.4.2	As specified in Table–4 of this specification.
	Resistance	Sub–clause 4.5 Measurement current: 10(mA) Note: The measuring apparatus corresponding to Digital multimeter of TR6878 for Advantest Corp..	As in 4.5.2 The resistance value shall correspond with the rated resistance taking into account the specified tolerance.
3	Voltage proof	Sub–clause 4.7 Method: 4.6.1.4(See Figure–5) Test voltage: Alternating voltage with a peak value of 1.42 times the insulation voltage. Duration: 60 s±5 s	No breakdown or flash over
		Insulation resistance Test voltage: Insulation voltage Duration: 1 min.	R ≥ 1 GΩ
4	Solderability	Sub–clause 4.17 Without aging Flux: The resistors shall be immersed in a non–activated soldering flux for 2 s. Bath temperature: 235 °C±5 °C Immersion time: 2 s±0.5 s	As in 4.17.4.5 The terminations shall be covered with a smooth and bright solder coating.
5	Mounting	Sub–clause 4.31 Substrate material: Epoxide woven glass Test substrate: Figure–3	
	Overload (in the mounted state)	Sub–clause 4.13 The applied voltage shall be 2.5 times the rated voltage or the current corresponding to. Duration: 2 s Visual examination Resistance	No visible damage ΔR ≤ ±1%
	Solvent resistance of the marking	Sub–clause 4.30 Solvent: 2–propanol Solvent temperature: 23 °C±5 °C Method 1 Rubbing material: cotton wool Without recovery	Legible marking

Table–5(2)

No	Test items	Condition of test (JIS C 5201–1)	Performance requirements
6	Mounting	Sub–clause 4.31 Substrate material: Epoxide woven glass Test substrate: Figure–4	
	Bound strength of the end face plating	Sub–clause 4.33 Bent value: 3 mm (3225 size max.) 1 mm (5025 size min.) Resistance	ΔR ≤ ±1%
	Final measurements	Sub–clause 4.33.6 Visual examination	No visible damage
7	Resistance to soldering heat	Sub–clause 4.18 (JEITA RC-2144 2.3.2) T_1:Pre-heat minimum temp.:150±5 °C T_2:Pre-heat maximum temp.:180±5 °C T_3:Soldering temp.:220 °C T_4:Peak temp.:250 °C t_1:Pre-heat duration:120±5 s t_2:Soldering duration:60 to 90 s t_3:Peak duration(T_4-5°C):20 to 40 s Pre-reflow soldering: 1 time (Initial measurements) Reflow soldering: 3 times 	
		Visual examination Resistance	No visible damage ΔR ≤ ±1%
	Component solvent resistance	Sub–clause 4.29 Solvent: 2–propanol Solvent temperature: 23 °C±5 °C Method 2 Recovery: 48 h Visual examination Resistance	No visible damage ΔR ≤ ±1%

Table–5(3)

No	Test items	Condition of test (JIS C 5201–1)	Performance requirements
8	Mounting Adhesion Rapid change temperature	Sub–clause 4.31 Substrate material: Epoxide woven glass Test substrate: Figure–3 Sub–clause 4.32 Force: 5 N Duration: 10 s±1 s Visual examination Sub–clause 4.19 Lower category temperature: –55 °C Upper category temperature: +155 °C Duration of exposure at each temperature: 30 min. Number of cycles: 5 cycles. Visual examination Resistance	No visible damage No visible damage ΔR ≤ ±1%
9	Climatic sequence –Dry heat –Damp heat, cycle (12+12hour cycle) First cycle –Cold –Damp heat, cycle (12+12hour cycle) Remaining cycle –D.C. load	Sub–clause 4.23 Sub–clause 4.23.2 Test temperature: +155 °C Duration: 16 h Sub–clause 4.23.3 Test method: 2 Test temperature: 55 °C [Severity(2)] Sub–clause 4.23.4 Test temperature –55 °C Duration: 2h Sub–clause 4.23.6 Test method: 2 Test temperature: 55 °C [Severity (2)] Number of cycles: 5 cycles Sub–clause 4.23.7 The applied current shall be the rated current. Duration: 1 min. Visual examination Resistance	No visible damage ΔR ≤ ±5 %
10	Mounting Endurance at 70 °C	Sub–clause 4.31 Substrate material: Epoxide woven glass Test substrate: Figure–3 Sub–clause 4.25.1 Ambient temperature: 70 °C±2 °C Duration: 1000 h The current shall be applied in cycles of 1.5 h on and 0.5 h. The applied current shall be the rated current Examination at 48 h, 500 h and 1000 h: Visual examination Resistance	No visible damage ΔR ≤ ±5 %

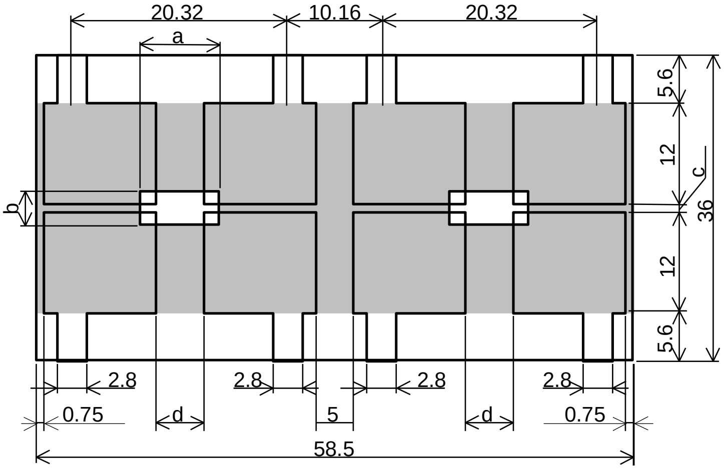
Table–5(4)

No	Test items	Condition of test (JIS C 5201–1)	Performance requirements
11	Mounting	Sub–clause 4.31 Substrate material: Epoxide woven glass Test substrate: Figure–3	
	Variation of resistance with temperature	Sub–clause 4.8 +20 °C / +155 °C	As in Table–1
12	Mounting	Sub–clause 4.31 Substrate material: Epoxide woven glass Test substrate: Figure–3	
	Damp heat, steady state	Sub–clause 4.24 Ambient temperature: 40 °C±2 °C Relative humidity: 93 $^{+2}_{-3}$ % Without current applied.	
		Visual examination	No visible damage Legible marking
		Resistance	ΔR ≤ ±5%
13	Dimensions (detail)	Sub–clause 4.4.3	As in Table–4
	Mounting	Sub–clause 4.31 Substrate material: Epoxide woven glass Test substrate: Figure–3	
	Endurance at upper category temperature	Sub–clause 4.25.3 Ambient temperature:155 °C±2 °C Duration: 1000 h Examination at 48 h, 500 h and 1000 h:	
		Visual examination	No visible damage
		Resistance	ΔR ≤ ±5%

8. Test substrate

*1 Temperature coefficient of resistance: K & –(Dash) code

Unit: mm

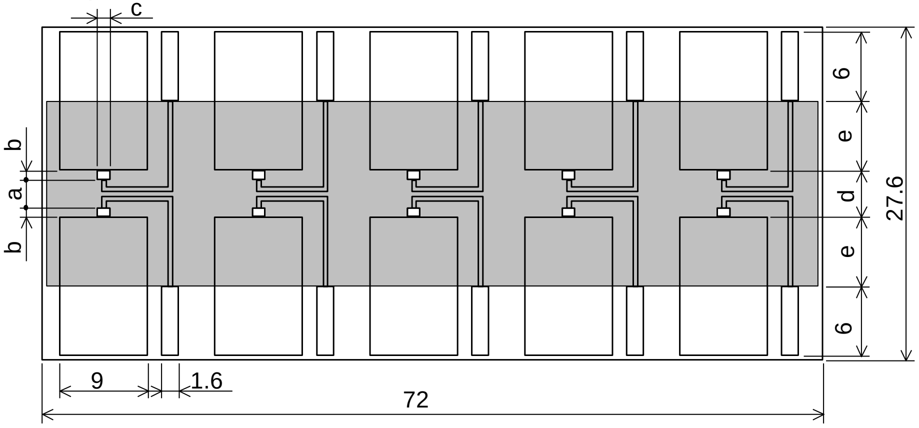


☐ :Copper clad

▨ :Solder resist

Style	a	b	c	d
RLC10	1.9	0.7	0.16	0.6
RLC16	3.0	1.2	0.16	1.0
RLC20	4.0	1.65	0.4	1.2
RLC32	5.0	2.0	0.5	2.2
RLC35	5.0	2.9	0.5	2.2
RLC50	7.5	3.0	0.8	4.0
RLC63	9.0	4.0	0.8	5.0

*2 Temperature coefficient of resistance: L code



Unit: mm

☐ :Copper clad

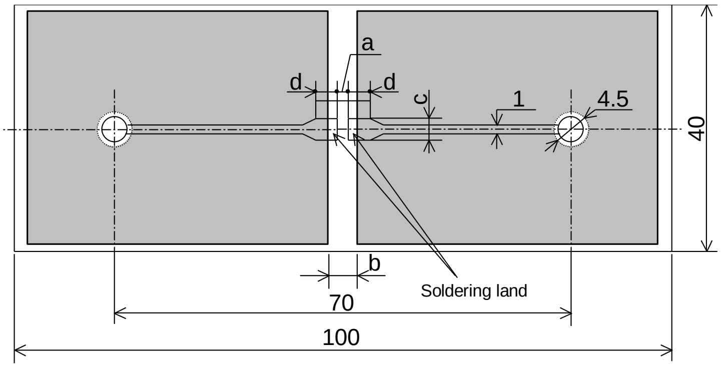
▨ :Solder resist

Style	a	b	c	d	e
RLC10	0.6	0.5	0.7	1.6	6.5
RLC16	1.0	0.6	0.8	2.2	6.2
RLC20	1.3	0.7	1.25	2.7	5.95
RLC32	2.1	0.9	1.7	3.9	5.35
RLC35	2.2	1.4	2.9	5.0	4.8
RLC50	3.76	1.12	2.8	6.0	4.3
RLC63	4.0	1.8	3.5	7.6	3.5

Figure–3 RLC TEST SUBSTRATE

Remark 1). Material: Epoxide woven glass
Thickness: 1.6mm Thickness of copper clad: 0.035mm
2). In the case of connection by connector, the connecting terminals are gold plated.
However, the plating is not necessary when the connection is made by soldering.

*1 Temperature coefficient of resistance: K & –(Dash) code



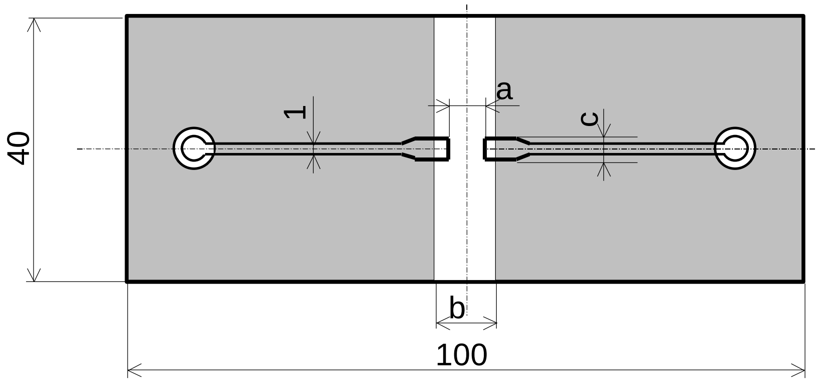
Unit: mm

□ :Copper clad

▨ :Solder resist

Style	a	b	c	d
RLC10	0.6	1.9	0.7	2.0
RLC16	1.0	3.6	1.2	3.0
RLC20	1.2	4.0	1.65	3.0
RLC32	2.5	5.0	2.0	2.5
RLC35	2.2	5.0	2.9	2.5

RLC10,16, 20, 32, 35 BOUND STRENGTH OF THE END FACE PLATING TEST SUBSTRATE



Unit: mm

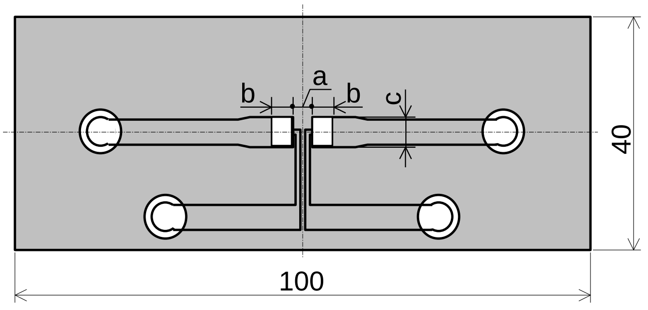
□ :Copper clad

▨ :Solder resist

Style	a	b	c
RLC50	4.0	7.5	3.0
RLC63	5.0	9.0	4.0

RLC50, 63 BOUND STRENGTH OF THE END FACE PLATING TEST SUBSTRATE

*2 Temperature coefficient of resistance: L code



Unit: mm

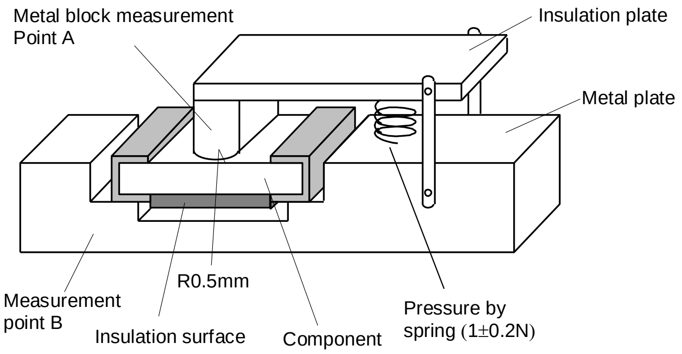
□ :Copper clad

▨ :Solder resist

Style	a	b	c
RLC10	0.6	0.5	0.7
RLC16	1.0	0.6	0.8
RLC20	1.3	0.7	1.25
RLC32	2.1	0.9	1.7
RLC35	2.2	1.4	2.9
RLC50	3.76	1.12	2.8
RLC63	4.0	1.8	3.5

Remark 1). Material: Epoxide woven glass
Thickness: 1.6mm Thickness of copper clad: 0.035mm

Figure–4 RLC BOUND STRENGTH OF THE END FACE PLATING TEST SUBSTRATE


Metal block measurement
Point A
Insulation plate
Metal plate
R0.5mm
Measurement
point B
Insulation surface
Component
Pressure by
spring (1±0.2N)

Figure–5

9. Taping

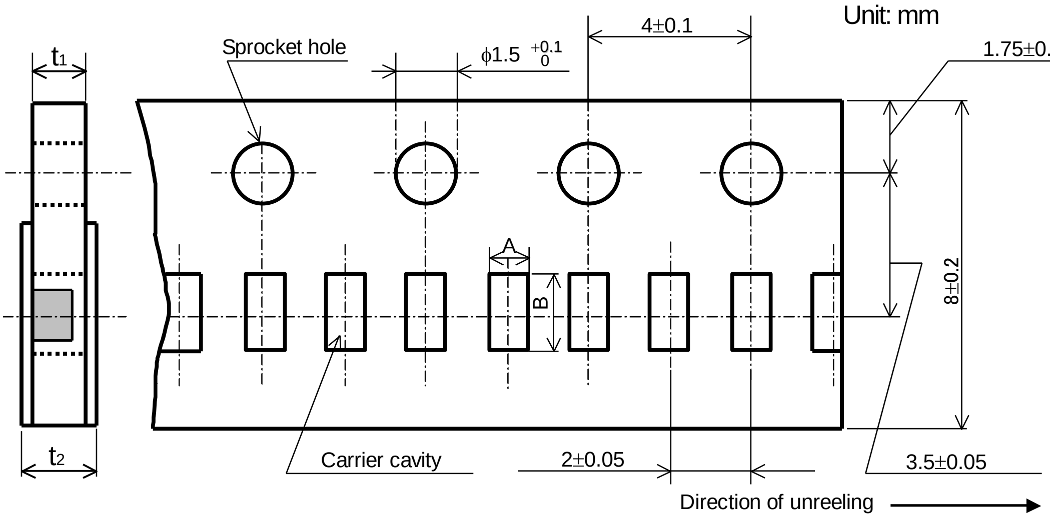
9.1 Applicable documents JIS C 0806–3: 2014, EIAJ ET–7200C: 2010

9.2 Taping dimensions

9.2.1 Paper taping (8mm width, 2mm pitches)

Taping dimensions shall be in accordance with Figure–6 and Table–6.

Unit: mm



Figure–6

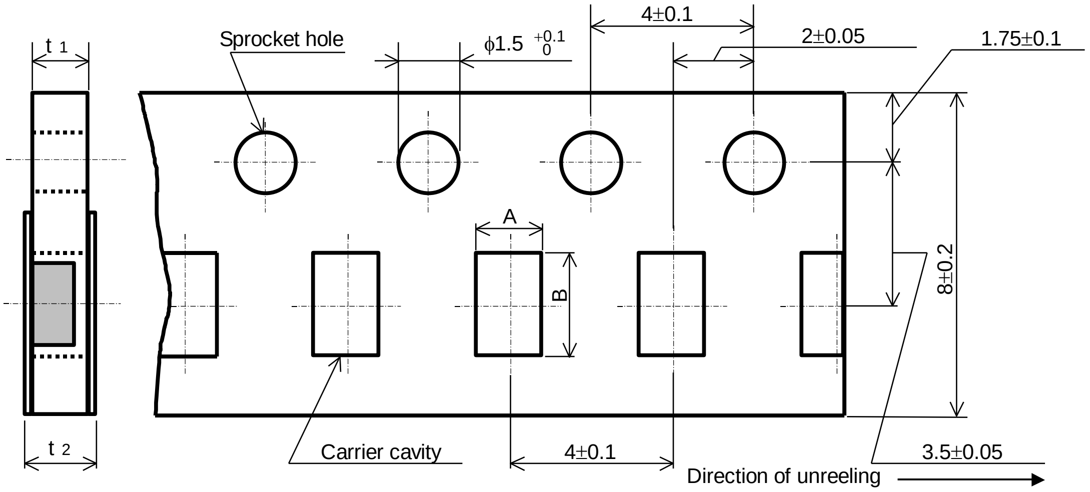
Table–6 Unit: mm

Style	A	B	t1	t2
RLC10	0.65 $^{+0.05}_{-0.10}$	1.15 $^{+0.05}_{-0.10}$	0.4 ± 0.05	0.5max.

9.2.2 Paper taping (8mm width, 4mm pitches)

Taping dimensions shall be in accordance with Figure–7 and Table–7.

Unit: mm



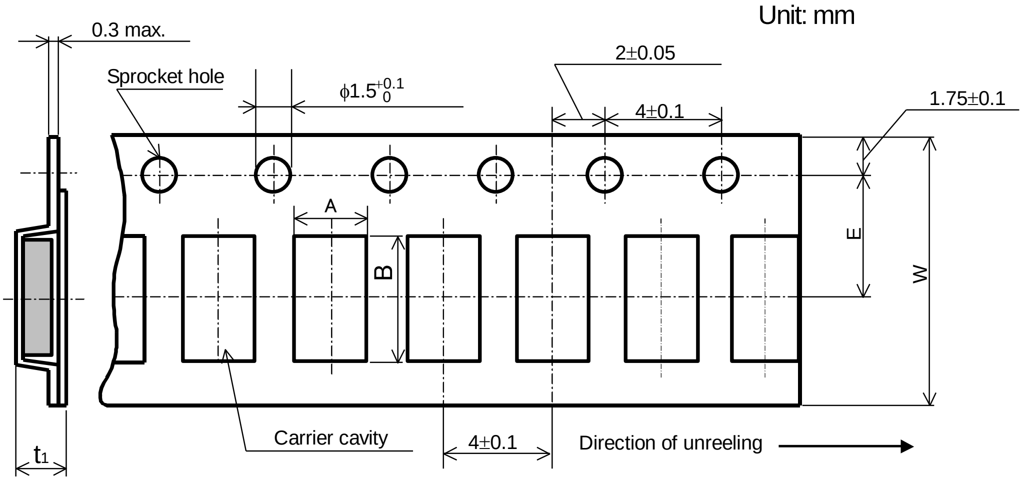
Figure–7

Table–7 Unit: mm

Style	A	B	t1	t2
RLC16	1.15±0.15	1.9 ± 0.2	0.6 ± 0.1	0.8max.
RLC20	1.65±0.15	2.5 ± 0.2	0.8 ± 0.1	1.0max.
RLC32	2.00±0.15	3.6 ± 0.2		

9.2.3 Embossed taping dimensions shall be in accordance with Figure–8 and Table–8.

Unit: mm

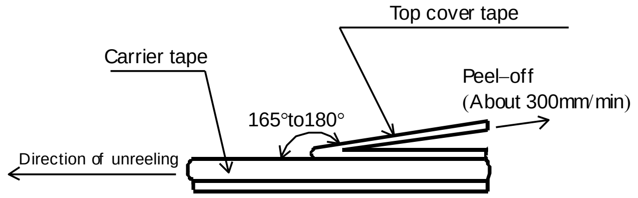


Figure–8

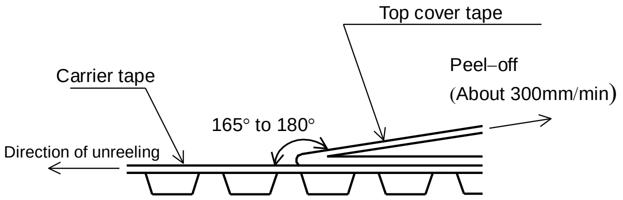
Table–8 Unit: mm

Style	A	B	W	E	t_1
RLC35	2.85±0.2	3.5±0.2	8±0.3	3.5±0.05	1.0±0.2
RLC50	3.1±0.2	5.5±0.2	12±0.3	5.5±0.05	1.1±0.15
RLC63	3.6±0.2	6.9±0.2			

1). The cover tapes shall not cover the sprocket holes.
2). Tapes in adjacent layers shall not stick together in the packing.
3). Components shall not stick to the carrier tape or to the cover tape.
4). Pitch tolerance over any 10 pitches ±0.2mm.
5). The peel strength of the top cover tape shall be with in 0.1N to 0.5N on the test method as shown in the following RLC10, 16, 20, 32: Figure–9, RLC35, 50, 63: Figure–10.
6). When the tape is bent with the minimum radius for (RLC10, 16, 20, 32, 35: 25mm, RLC50, 63: 30mm) the tape shall not be damaged and the components shall maintain their position and orientation in the tape.
7). In no case shall there be two or more consecutive components missing.
The maximum number of missing components shall be one or 0.1%, whichever is greater.
8). The resistors shall be faced to upward at the over coating side in the carrier cavity.



Figure–9

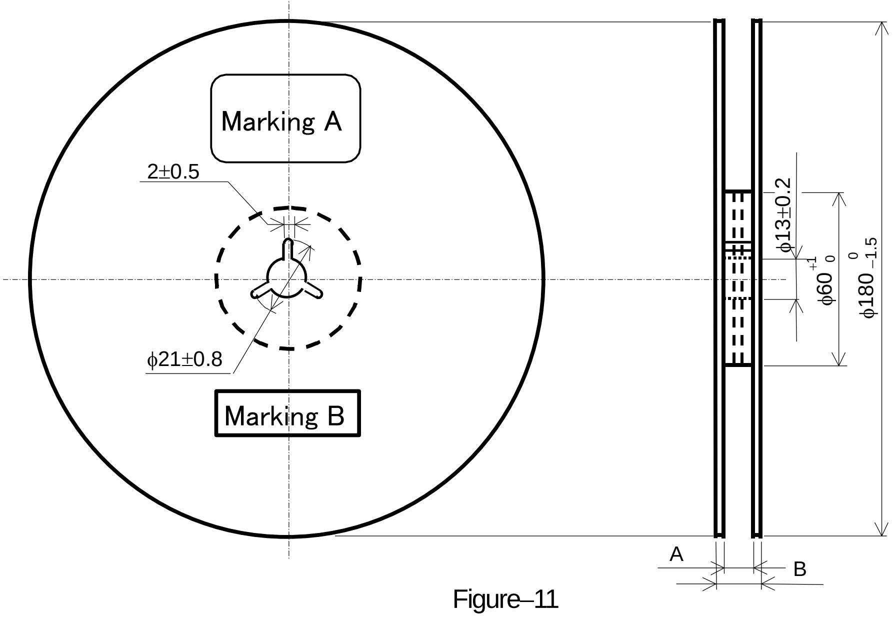


Figure–10

9.3 Reel dimension

Reel dimensions shall be in accordance with the following Figure–11 and Table–9.

Plastic reel (Based on EIAJ ET–7200C) Unit: mm



Figure–11

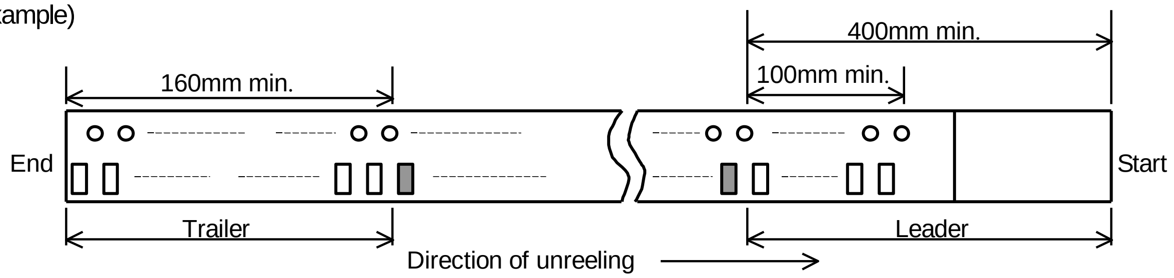
Table–9 Unit: mm

Style	A	B	Note
RLC10, 16, 20, 32, 35	$9\ ^{+1.0}_{0}$	11.4±1.0	Injection molding
		13±1.0	Vacuum forming
RLC50, 63	$13\ ^{+1.0}_{0}$	17±1.0	Vacuum forming

Note: Marking label shall be marked on a place of Marking A or two place of marking A and B.

9.4 Leader and trailer tape.

(Example)



Figure–12

10. Marking on package

The label of a minimum package shall be legibly marked with follows.

10.1 Marking A

(1) Classification

(Style, Temperature coefficient of resistance, Rated resistance, Tolerance on rated resistance, Packaging form)

(2) Quantity (3) Lot number (4) Manufacturer’s name or trade mark (5) Others

10.2 Marking B (KAMAYA control label)