Date: 2025.3.18

Data sheet

Title: FIXED THICK FILM CHIP RESISTORS;

RECTANGULAR TYPE AND Pb<100ppm

Style: RMPC04,06,10,16,20,32,35

RoHS COMPLIANCE ITEM Halogen and Antimony Free

Note: •Stock conditions

Temperature: $+5^{\circ}\text{C} \sim +35^{\circ}\text{C}$ Relative humidity: $25\% \sim 75\%$

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.



Hokkaido Research Center Approval by: T. Sannomiya Drawing by: M. Shibuya

Drawing No: RMPC-K-HTS-0001 /5

Style

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 1/14

1. Scope

1.1 This specification covers the detail requirements for fixed thick film chip resistors; rectangular type, style of RMPC04, 06, 10, 16, 20, 32, 35.

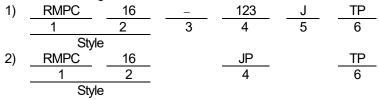
1.2 Applicable documents

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-2134C-2010

2. Classification

Type designation shall be the following form.

(Example)



- 1 Fixed thick film chip resistors; rectangular type & Pb<100ppm
- 2 Dimension
- 3 Temperature coefficient of resistance

–(Dash) Standard

4 Rated resistance

123	E24 Series, 3 digit,	Ex. 123> 12kΩ,
1000	E96 Series, 4 digit,	Ex. 1000>100Ω
	_	1022> 10.2kΩ
JP	Chip jumper	

5 Tolerance on rated resistance

F	±1%
J	±5%

6 Packaging form

PA	Press pocket taping		
TH	Denertoning		
TP	Paper taping		
TE	Embossed taping		

Drawing No: RMPC-K-HTS-0001 /5

FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm RMPC04,06,10,16,20,32,35 Page: 2/14

3. Rating

The ratings shall be in accordance with Table–1.

3.1 Resistor

Table-1(1)

Style	Rated dissipation (W)	re	ture coefficient of esistance 10 ⁻⁶ / °C)	Rated resistance range (Ω)	Preferred number series for resistors	Tolerance on rated resistance	
			±200	100~1M	E24, 96	F(+10/)	
			+600~0	10~97.6	⊏24, 90	F(±1%)	
RMPC04	0.03	Standard	±200	100~1M	E24		
			+600~0	10~91		J(±5%)	
			+800~-100	1~9.1			
			±200	100~10M			
			+600~0	10~97.6	E24, 96	F(±1%)	
RMPC06	0.05	Standard	+800~-100	1~9.76			
RIVIPCUO	0.05	Staridard	±200	100~10M			
			+600~0	10~91	E24	J(±5%)	
			+800~-100	1~9.1			
			±200	100~10M			
			+500~-200	10~97.6	E24, 96	F(±1%)	
RMPC10	0.063	Standard	+800~-100	1~9.76			
RIVIECTO	0.003	Stariuaru	±200	100~10M		J(±5%)	
			+500~-200	10~91	E24		
			+800~-100	1~9.1			
		Standard	±200	100~10M	E24, 96		
			+500~-200	10~97.6		F(±1%)	
RMPC16	0.1		+800~-100	1~9.76			
TAMECTO	0.1		±200	100~10M	E24	J(±5%)	
			+500~-200	10~91			
			+800~-100	1~9.1			
			±200	100~10M	E24, 96 E24	F(±1%)	
			+500~-200	10~97.6			
RMPC20	0.125	Standard	+800~-100	1~9.76			
TAIVIF G20	0.123	Staridard	±200	100~10M			
			+500~-200	10~91		J(±5%)	
			+800~-100	1~9.1			
			±200	100~10M			
			+500~-200	10~97.6	E24, 96	F(±1%)	
RMPC32	0.25	Standard	+800~-100	1~9.76			
TAIVII OOZ	0.23	Otalidaid	±200	100~10M			
			+500~-200	10~91	E24	J(±5%)	
			+800~-100	1~9.1			
			±200	100~10M	E24, 96 E24		
			+500~-200	10~97.6		F(±1%)	
RMPC35	0.33	Standard	+800~-100	1~9.76			
TAIVII COO	0.00	0.33 Standard	±200	100~10M		J(±5%)	
			+500~-200	10~91			
			+800~-100	1~9.1			

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 3/14

Style	Limiting element voltage (V)	Insulation voltage (V)	Category temperature range (°C)
RMPC04	15	50	
RMPC06	25	30	
RMPC10	50	100	
RMPC16	50	100	<i>–</i> 55∼+125
RMPC20	150		
RMPC32	200	500	
RMPC35	200		

3.2 Chip Jumper

Table-1(2)

		` '	
Style	Chip jumper symbol	Resistance value of chip jumper	Rated current of chip jumper(A)
RMPC04			0.5
RMPC06			1
RMPC10			1
RMPC16	JP	50mΩmax.	1
RMPC20			2
RMPC32			2
RMPC35			2

3.3 Climatic category

55/125/56 Lower category temperature $-55\,^{\circ}\text{C}$ Upper category temperature $+125\,^{\circ}\text{C}$

Duration of the damp heat, steady state test 56days

3.4 Stability class

5% Limits for change of resistance:

-for long–term tests \pm (5%+0.1Ω) Chip jumper: 50 mΩ max. -for short–term tests \pm (1%+0.05Ω) Chip jumper: 50 mΩ max.

3.5 Derating

The derated values of dissipation (or current rating in case of chip jumper) at temperature in excess of 70 °C shall be as indicated by the following curve.

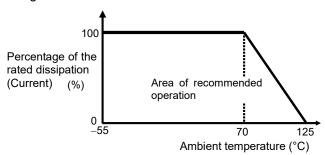


Figure-1 Derating curve

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm RMPC04,06,10,16,20,32,35 Page: 4/14

3.6 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 : Rated voltage (V)

E =
$$\bigvee$$
 P · R

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.

4. Packaging form

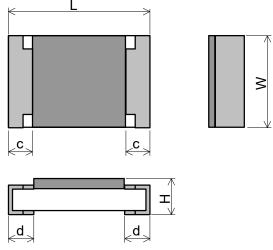
The standard packaging form shall be in accordance with Table-2.

Table-2

Symbol	Pad	ckaging form	Standard packaging quantity / units	Application
PA	Press pocket taping	g Orana width Orana nitahaa	20,000 pcs.	RMPC04
PA	(paper taping)	per taping) 8mm width, 2mm pitches		RMPC06
TH	Paper taping	8mm width, 2mm pitches	10,000 pcs.	RMPC10
TP Paper taping		8mm width, 4mm pitches	5,000 pcs.	RMPC16,20,32
TE	Embossed taping	8mm width, 4mm pitches	4,000 pcs.	RMPC35

5. Dimensions

5.1 The resistor shall be of the design and physical dimensions in accordance with Figure-2 and Table-3.



Figure–2 Table–3

Unit: mm W Style С RMPC04 0.4±0.02 0.2±0.02 0.13±0.02 0.08±0.03 0.1±0.03 RMPC06 0.6±0.03 0.3±0.03 0.23±0.03 0.1±0.05 0.15±0.05 $0.25^{+0.05}_{-0.10}$ RMPC10 1.0±0.05 0.5±0.05 0.35±0.05 0.2 ± 0.1 $0.8^{+0.15}_{-0.05}$ RMPC16 1.6±0.1 0.45±0.10 0.3 ± 0.1 0.3 ± 0.1 RMPC20 2.0±0.1 1.25±0.10 0.55±0.10 0.4 ± 0.2 0.4 ± 0.2 RMPC32 0.5±0.25 3.1±0.1 1.6±0.15 0.55±0.10 0.5±0.25 0.55±0.15 RMPC35 3.1±0.15 2.5±0.15 0.5±0.25 0.5±0.25



AMAYA UHM Drawing No: RMPC-K-HTS-0001 /5

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 5/14

5.2 Net weight (Reference)

Style	Net weight(mg)
RMPC04	0.035
RMPC06	0.16
RMPC10	0.6
RMPC16	2
RMPC20	5
RMPC32	9
RMPC35	16

6. Marking

The Rated resistance of RMPC04,06,10 should not be marked.

6.1 RMPC16,20,32,35

The nominal resistance shall be marked in 3 digits or 4 digits and marked on over coat side.

• RMPC20,32,35: E24 series: 3 digits, E96 series: 4 digits

In case of the resistance value that E96 overlaps with E24, It is marked by either.

• The Rated resistance of RMPC16 should not be marked in 4 digits.

Marking example	Contents	Application
123	12×10 ³ $[\Omega] \rightarrow$ 12 $[k\Omega]$	RMPC16,20,32,35
2R2	2.2 [Ω]	Less than 10Ω of RMPC16,20,32,35
5623	$562\times10^3 [\Omega] \rightarrow 562[k\Omega]$	RMPC20,32,35
12R7	12.7 [Ω]	RMPC20,32,.35

6.2 Marking example of Jumper Chip

Marking example	Contents	Application
0	ID	RMPC16,20,32
000	000 JP	

Drawing No: RMPC-K-HTS-0001

FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 6/14

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-4.

Table-4(1)

No.	Test items	Condition of test (JIS C 5201–1)	Performance requirements
1	Cab clades !!!!!		As in 4.4.1 The marking shall be legible, as
		,	checked by visual examination.
2			As specified in Table–3 of this specification.
	Resistance	Sub-clause 4.5	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	Chip jumper: 50mΩ max.
٦	Voltage proof	Method: 4.6.1.4(See Figure–3)	No breakdown or flash over
		Test voltage: Alternating voltage with a peak	The breakdown of mach ever
		value of 1.42 times the	
		insulation voltage.	
		Duration: 60 s ± 5 s	
		Insulation resistance	R≥1GΩ
		Test voltage: Insulation voltage	
		Duration: 1 min.	
4	Solderability	Sub-clause 4.17	As in 4.17.4.5
		Without ageing	The terminations shall be covered
		Flux: The resistors shall be immersed in a	with a smooth and bright solder
			coating.
		Bath temperature: 235 °C ± 5 °C Immersion time: 2 s ± 0.5 s	

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 7/14

Table-4(2)

1able-4(2)					
No	Test items	Condition of test (JIS C 5201–1)	Performance requirements		
5	Mounting	Sub-clause 4.31			
		Substrate material: Epoxide woven glass			
	Overload	Sub-clause 4.13			
	(in the mounted state)	The applied voltage shall be 2.5 times the			
		rated voltage or twice the limiting element			
		voltage, whichever is the less severe.			
		Duration: 2 s			
		Visual examination	No visible damage		
		Resistance	$\Delta R \le \pm (1\% + 0.05\Omega)$		
			Chip jumper: $50 \text{m}\Omega$ max.		
	Solvent resistance of the	Sub-clause 4.30	Legible marking		
	marking	Solvent: 2-propanol			
		Solvent temperature: 23 °C ± 5 °C			
		Method 1			
		Rubbing material: cotton wool			
		Without recovery			
6	Mounting	Sub-clause 4.31			
		Substrate material: Epoxide woven glass			
	Bound strength of the end face	Sub-clause 4.33			
	plating	Bent value: 3 mm			
		Resistance	$\Delta R \le \pm (1\% + 0.05\Omega)$		
	_ ,		Chip jumper: $50 \text{m}\Omega$ max.		
	Final measurements	Sub-clause 4.33.6	No visible damage		
		Visual examination			
7	Resistance to soldering heat	Sub-clause 4.18			
		Solder temperature: 260 °C ± 5 °C			
		Immersion time: $10 \text{ s} \pm 0.5 \text{ s}$			
		Visual examination	As in 4.18.3.4		
			No sign of damage such as cracks.		
		Resistance	$\Delta R \leq \pm (1\% + 0.05\Omega)$		
	Common and and and an electric		Chip jumper: $50 \text{m}\Omega$ max.		
	Component solvent resistance	Sub-clause 4.29			
		Solvent: 2-propanol			
		Solvent temperature: 23 °C ± 5 °C			
		Method 2			
		Recovery: 48 h	No established and and		
		Visual examination	No visible damage		
		Resistance	$\Delta R \leq \pm (1\% + 0.05\Omega)$		
			Chip jumper: $50 \text{m}\Omega$ max.		

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 8/14

Table-4(3)

No	Test items	Condition of test (JIS C 5201–1)	Performance requirements
8	Mounting	Sub-clause 4.31	
		Substrate material: Epoxide woven glass	
	Adhesion	Sub-clause 4.32	
		Force: 3N	
		(RMPC04: 2N, RMPC06: 3N)	
		Duration: 10 s ± 1 s	No visible damage
	Rapid change temperature	Visual examination	
		Sub-clause 4.19	
		Lower category temperature: –55 °C	
		Upper category temperature: +125 °C	
		Duration of exposure at each temperature: 30	
		min.	No visible damage
		Number of cycles: 5 cycles.	$\Delta R \le \pm (1\% + 0.05\Omega)$
		Visual examination	Chip jumper: $50m\Omega$ max.
	Resistance		Only jumper, Johns 2 Max.
9	Climatic sequence	Sub-clause 4.23	
	-Dry heat	Sub-clause 4.23.2	
		Test temperature: +125 °C	
	Daniel Land	Duration: 16 h	
	-Damp heat, cycle	Sub-clause 4.23.3	
	(12+12hour cycle)	Test method: 2	
	First cycle	Test temperature: 55 °C	
	-Cold	[Severity(2)]	
	-Cold	Sub-clause 4.23.4	
		Test temperature –55 °C Duration: 2h	
	–Damp heat, cycle	Sub-clause 4.23.6	
	(12+12hour cycle)	Sub-dause 4.23.6 Test method: 2	
	Remaining cycle	Test temperature: 55 °C	
	Torridining by old	Severity (2)]	
		Number of cycles: 5 cycles	
	–D.C. load	Sub-clause 4.23.7	
	2.5.1544	The applied voltage shall be the rated voltage	
		or the limiting element voltage whichever is the	
		smaller.	
		Duration: 1 min.	
		Visual examination	No visible damage
		Resistance	$\Delta R \le \pm (5\% + 0.1\Omega)$
			Chip jumper: $50 \text{m}\Omega$ max.

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 9/14

Table-4(4)

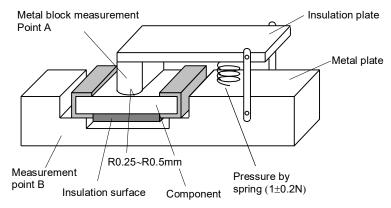
NI-	Took its was	Iable—4(4)	Dorformonas vasuvinas auta
No	Test items	Condition of test (JIS C 5201–1)	Performance requirements
10	Mounting	Sub-clause 4.31	
		Substrate material: Epoxide woven glass	
	Endurance at 70 °C	0.1.1.4054	
	Endurance at 70 °C	Sub-clause 4.25.1	
		Ambient temperature: 70 °C ± 2 °C	
		Duration: 1000 h	
		The voltage shall be applied in cycles of 1.5 h	
		on and 0.5 h.	
		The applied voltage shall be the rated voltage	
		or the limiting element voltage whichever is the	
		smaller. Examination at 48 h , 500 h and	
		1000 h:	
		Visual examination	No visible damage
		Resistance	$\Delta R \le \pm (5\% + 0.1\Omega)$
		i vesistalite	Chip jumper: $50m\Omega$ max.
11	Mounting	Sub-clause 4.31	Originiper. Johnsonax.
''	Wiodriang	Substrate material: Epoxide woven glass	
		Test substrate: Figure–3	
		100t ouboilate. I iguie 0	
	Variation of resistance with	Sub-clause 4.8	As in Table–1
	temperature	_55 °C / +20 °C	
	·	+20 °C / +125 °C	
12	Mounting	Sub-clause 4.31	
		Substrate material: Epoxide woven glass	
		- 2 2 2 dd Thaterian Eponido Woveri glado	
	Damp heat, steady state	Sub-clause 4.24	
	<u> </u>	Ambient temperature: 40 °C ± 2 °C	
		Relative humidity: 93 +2/3 %	
		a) 1st group: without voltage applied.	
		b) 2nd group: The d. c. voltage shall be applied	
		continuously.	
		The voltage shall be accordance with	
		Sub-clause 4.24.2.1 b). without polarizing	
		voltage	
		[4.24.2.1, c)]	No visible demose
		Visual examination	No visible damage
			Legible marking
		Resistance	$\Delta R \le \pm (5\% + 0.1\Omega)$
13	Dimensions (detail)	Sub-clause 4.4.3	Chip jumper: 50mΩ max. As in Table–3
13	Mounting		Main iadie-3
	IVIOURIURY	Sub-clause 4.31	
	Endurance at upper category temperature	Substrate material: Epoxide woven glass TSub–clause 4.25.3	
		Ambient temperature:125 °C ± 2 °C	
	,00,000,0	Duration: 1000 h	
		Examination at 48 h, 500 h and	
		1000 h:	
		Visual examination	No visible damage
		Resistance	$\Delta R \le \pm (5\% + 0.1\Omega)$
		1 tolotal loo	Chip jumper: $50m\Omega$ max.
<u> </u>			omp jumpor, ooms max.

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 10/14

- RMPC10,16,20,32,35

· RMPC04,06



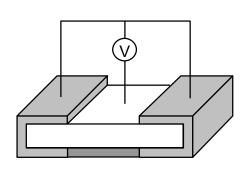


Figure-3

8. Taping

- 8.1 Applicable documents JIS C 0806-3: 2014, EIAJ ET-7200C: 2010
- 8.2 Taping dimensions
- 8.2.1 Press pocket taping (Paper taping, 8mm width, 2mm pitches)

Taping dimensions shall be in accordance with Figure-4 and Table-5.

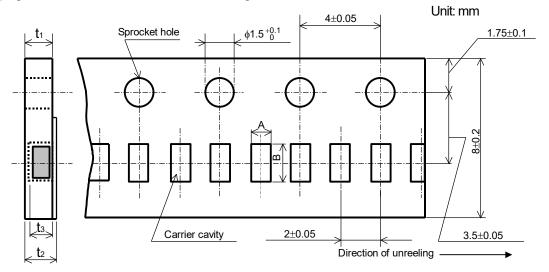


Figure-4

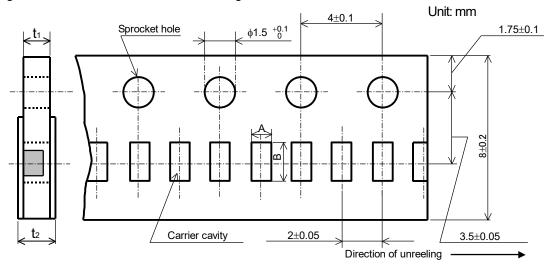
Table-5				Unit: mm	
Style	Α	В	t 1	t ₂	t ₃
RMPC04	0.24±0.03	0.45±0.03	0.31±0.03	0.36±0.03	0.15±0.02
RMPC06	0.37±0.05	0.67±0.05	0.42±0.03	0.45±0.05	0.27±0.02

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 11/14

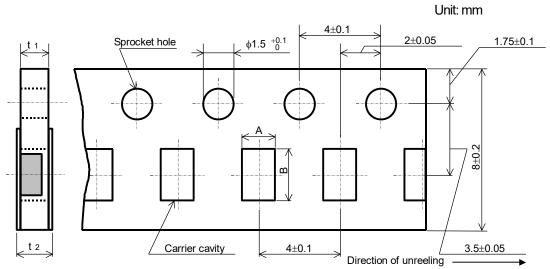
8.2.2 Paper taping (8mm width, 2mm pitches)

Taping dimensions shall be in accordance with Figure-5 and Table-6.



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

Taping dimensions shall be in accordance with Figure-6 and Table-7.



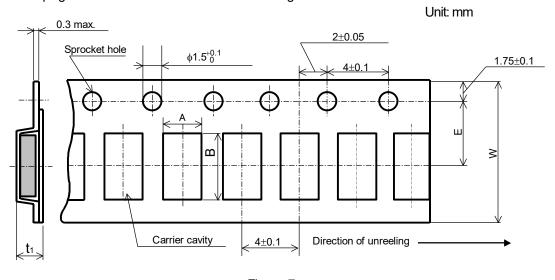
Figure–6

	Unit: mm			
Style	Α	В	t 1	t 2
RMPC16	1.15±0.15	1.9±0.2	0.6±0.1	0.8max.
RMPC20	1.65±0.15	2.5±0.2	0.8±0.1	1.0max.
RMPC32	2.00±0.15	3.6±0.2	U.O±U. I	1.UITIAX.

12/14

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm RMPC04,06,10,16,20,32,35 Page:

8.2.4 Embossed taping dimensions shall be in accordance with Figure-7 and Table-8.



 Figure–7

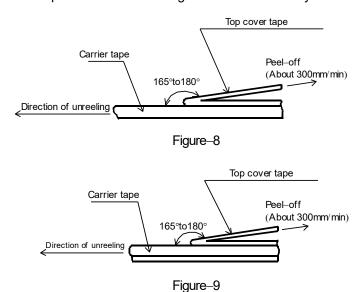
 Table–8
 Unit: mm

 Style
 A
 B
 W
 E
 t 1

 RMPC35
 2.85±0.20
 3.5±0.2
 8.0±0.2
 3.5±0.05
 1.0±0.2

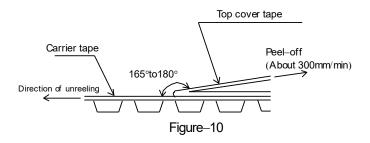
- 1). The cover tapes shall not cover the sprocket holes.
- 2). Tapes in adjacent layers shall not stick together in the packing.
- 3). Components shall not stick to the carrier tape or to the cover tape.
- 4). Pitch tolerance over any 10 pitches ±0.2mm.
- 5). The peel strength of the top cover tape shall be with in 0.1N to 0.5N on the test method as shown in the following RMPC04,06: Figure–8, RMPC10,16,20,32: Figure–9, RMPC35: Figure–10.
- 6). When the tape is bent with the minimum radius for 25 mm 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.



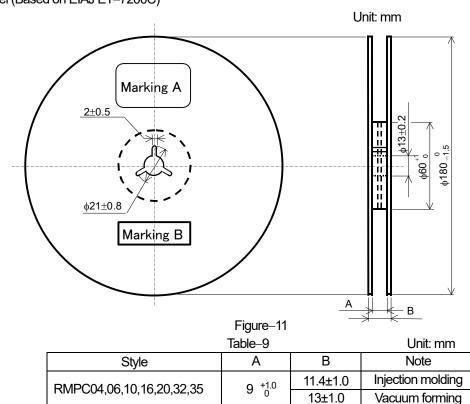
FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 13/14



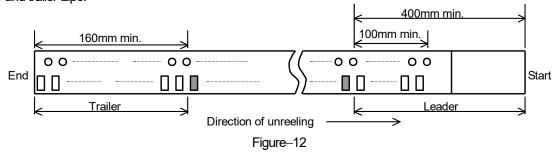
8.3 Reel dimension

Reel dimensions shall be in accordance with the following Figure-11 and Table-9. Plastic reel (Based on EIAJ ET-7200C)



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

8.4 Leader and trailer tape.



Drawing No: RMPC-K-HTS-0001 /5

Title: FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE AND Pb<100ppm

RMPC04,06,10,16,20,32,35 Page: 14/14

9. Marking on package

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

9.1 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

9.2 Marking B (KAMAYA Control label)