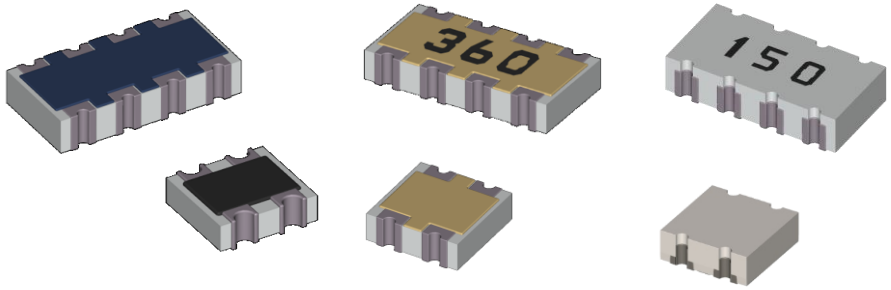
Concave Type Array Resistors
(RN, RM, RK series)

■ Features

- Reducing SMD surface area (40% reduced)
- Reducing SMD cost (75% reduced)
- Applicable both flow and reflow soldering
- RoHS Compliant.



■ Part Number System

RK	10	4P	J	150	CS
Type	Size	# of Resistors	Tolerance	Resistance Value	Packing Type

RN	Normal Concave
RM	Inverted Concave
RK	Short-Free & Inverted Concave

10	1005

2P	2 pieces
4P	4 pieces

F	±1%
J	±5%

* Jumper : 'J'

3-digit coding System
(E-24 series)

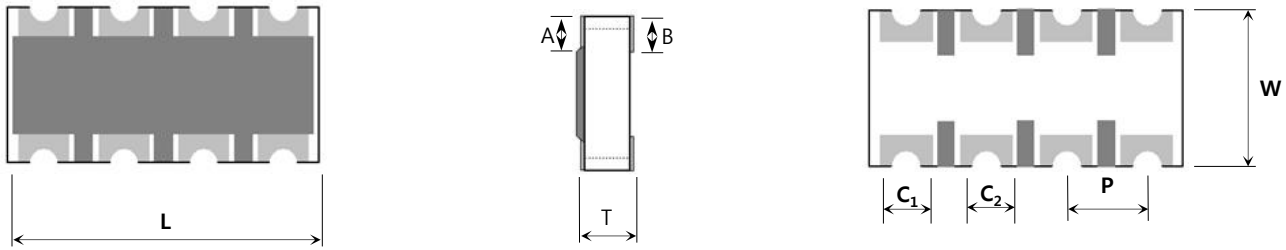
* Jumper : '000'

CS	7" reel
ES	10" reel
AS	13" reel

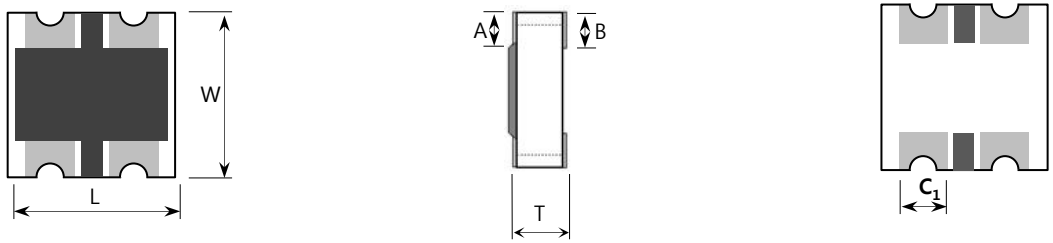
■ Structure and Dimensions

[Top View] [Side View] [Bottom View]

RN104P



RN102P



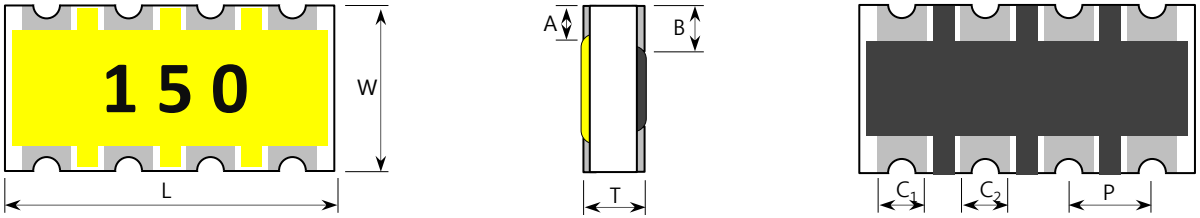
[Unit : mm]

Size(mil)	L	W	T	A	B	C1	C2	P	Unit Weight
RN102P(0404)	1.00±0.10	1.00±0.10	0.35±0.10	0.15±0.10	0.25±0.15	0.33±0.10	-	0.50±0.10	1.2mg
RN104P(0804)	2.00±0.10	1.00±0.10	0.40±0.10	0.15±0.10	0.25±0.15	0.30±0.10	0.30±0.10	0.50±0.10	2.8mg

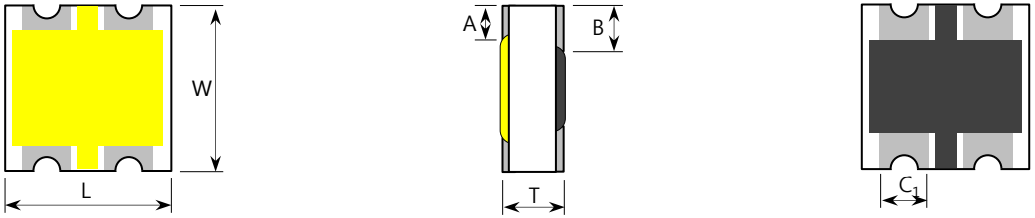
■ Structure and Dimensions

[Top View] [Side View] [Bottom View]

RM104P



RM102P



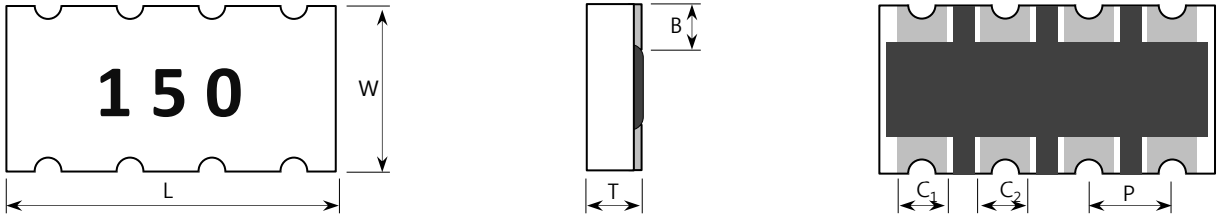
[Unit : mm]

Size(mil)	L	W	T	A	B	C_1	C_2	P	Unit Weight
RM102P(0404)	1.00±0.10	1.00±0.10	0.35±0.10	0.15±0.10	0.25±0.15	0.33±0.10	-	0.50±0.10	1.2mg
RM104P(0804)	2.00±0.10	1.00±0.10	0.45±0.10	0.15±0.10	0.25±0.15	0.30±0.10	0.30±0.10	0.50±0.10	2.8mg

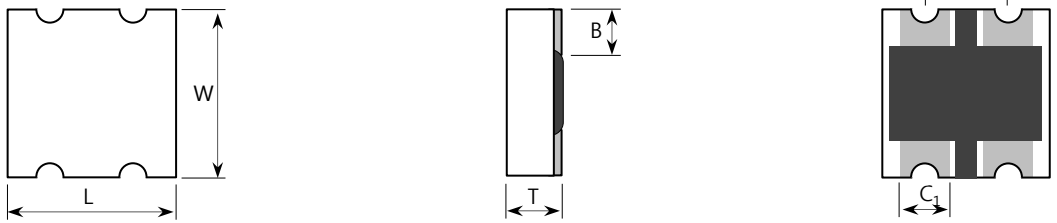
■ Structure and Dimensions

[Top View] [Side View] [Bottom View]

RK104P



RK102P



[Unit : mm]

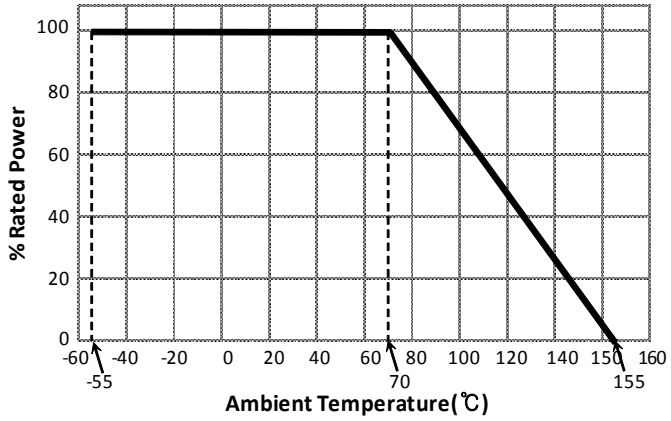
Size(mil)	L	W	T	B	C_1	C_2	P	Unit Weight
RK102P(0404)	1.00±0.10	1.00±0.10	0.35±0.10	0.25±0.15	0.33±0.10	-	0.50±0.10	1.2mg
RK104P(0804)	2.00±0.10	1.00±0.10	0.45±0.10	0.25±0.15	0.30±0.10	0.30±0.10	0.50±0.10	2.8mg

■ Application Characteristics

Type	Size (inch)	Rated Power [W]	Rated Voltage [V]	Max Working Voltage [V]	Tolerance [%]	Resistance Range [Ω]	T.C.R [ppm/℃]	Working Temp. [℃]	Moisture Level
102P	0404	1/16	$\sqrt{P \times R}$ P : Rated Power(W) R : Resistance(Ω)	25	±1(F) ±2(G) ±5(J)	1.0 ~ 9.9 10 ~ 1M	±300 ±200	-55 ~ 155	Level 1
104P	0804	1/16		25					

• Please contact our sales representatives or engineers for other specifications

■ Power Derating Curve



■ Jumper Ratings

TYPE	Rated Current (A)	Max Overload Current (A)
102P, 104P	1	2
164P	1	2

■ Rated Voltage

$$V = \sqrt{P \times R}$$

V : Rated Voltage (V)
P : Rated Power (W)
R : Resistance Value (Ω)

■ Rated Voltage

1. The rated voltage for resistor can be a DC continuous working voltage or AC(rms) voltage in commercial line frequency wave form at rated power. It can be expressed as below.

   $E = \sqrt{P \times R}$ E : Rated Voltage(V) P : Rated Power(W) R : Nominal Resistance(Ω)

   If the value calculated by the equation exceeds Max working Voltage, the rated voltage is limited to max working voltage. In other words, the lower value is the rated voltage.

ex) For RC1608 Series [P=0.1(W), Max working voltage = 50(V)]

1) The rated voltage, when R=1KΩ

$E = \sqrt{0.1 \times 1000} = 10(V)$

Value is lower than Max working voltage, therefore $E = 10(V)$

2) The rated voltage, when R=100KΩ

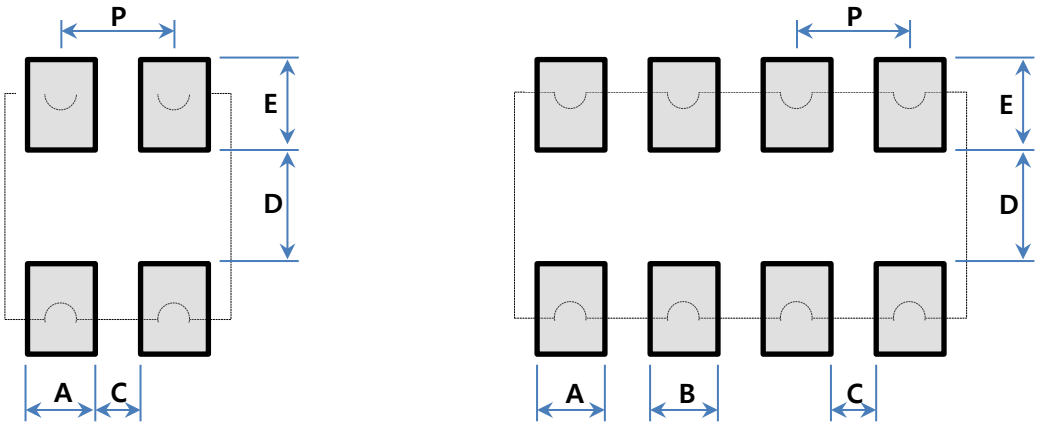
$E = \sqrt{0.1 \times 100000} = 100(V)$

Value is higher than Max working voltage, therefore $E = 50(V)$

2. When the rated voltage is applied to the resistor, check the ambient temperature and decrease the lower according to the power derating curve.
3. If higher voltage than rated voltage, the reliability condition and performance cannot be guaranteed.

* If pulse wave is applied, the maximum pulse power should be below the rated voltage.

■ Standard Soldering Pad Dimensions



[Unit : mm]

Size(mil)	A	B	C	D	E	P
102P(0404)	0.3	-	0.2	0.5	0.4	0.5
104P(0804)	0.3	0.3	0.2	0.5	0.4	0.5

■ Performance Characteristics

ITEM	Requirements Specification		Test Conditions (JIS C 5201-1)
	Resistors	Jumpers	
Resistance	Within the specified tolerance	Max 50mΩ	JIS C 5201-1 4.5
Temperature Characteristic	Within the specified T.C.R	Max 50mΩ	JIS C 5201-1 4.8 +20℃ → -55℃ / +20℃ → +125℃
Short time Overload	ΔR < ±1%+0.1Ω	Max 50mΩ	JIS C 5201-1 4.13 Rated Voltage×2.5, 5sec
Solderability	Immersed over 95%		JIS C 5201-1 4.17 Rosin Ethanol (25%WT) 245+5/-0℃, 2±0.5 sec
Resistance to Solder Heat	ΔR < ±1%+0.1Ω	Max 50mΩ	JIS C 5201-1 4.18 260±5℃, 10±1 sec
Temperature Cycle	ΔR < ±1%+0.1Ω	Max 50mΩ	JIS C 5201-1 4.19 -55℃ ↔ +155℃, 100 cycle
Moisture Resistance	ΔR < ±3%+0.1Ω	Max 50mΩ	JIS C 5201-1 4.24 40±2℃, 90~95%RH, 1000^{+48}hours
Load Life	ΔR < ±3%+0.1Ω	Max 50mΩ	JIS C 5201-1 4.25 Rated Voltage, 70±2℃, 1000^{+48}hours 90mins ON, 30mins OFF
High Temp. Exposure	ΔR < ±3%+0.1Ω	Max 50mΩ	JIS C 5201-1 4.23 155±2℃, 1000^{+48}hours

※ The reliability test condition can be replaced by the corresponding accelerated test condition.

Product specifications included in the specifications are effective as of January 04, 2019.

Please be advised that they are standard product specifications for reference only.

We may change, modify or discontinue the product specifications without notice at any time.

So, you need to approve the product specifications before placing an order.

Should you have any question regarding the product specifications,

please contact our sales personnel or application engineers.