

## Surface Mount Resistor Kits

- Ring binder surface mount resistor kits
- 0603, 0805 and 1206 case sizes
- 5% and 1% tolerance options
- Available in E6, E12 and E24 series values
- Kits contain 100 pieces of each ohmic value from 10R to 1M plus 0R
- All resistors are individually marked and supplied on 8mm tapes
- Kits can be restocked when required

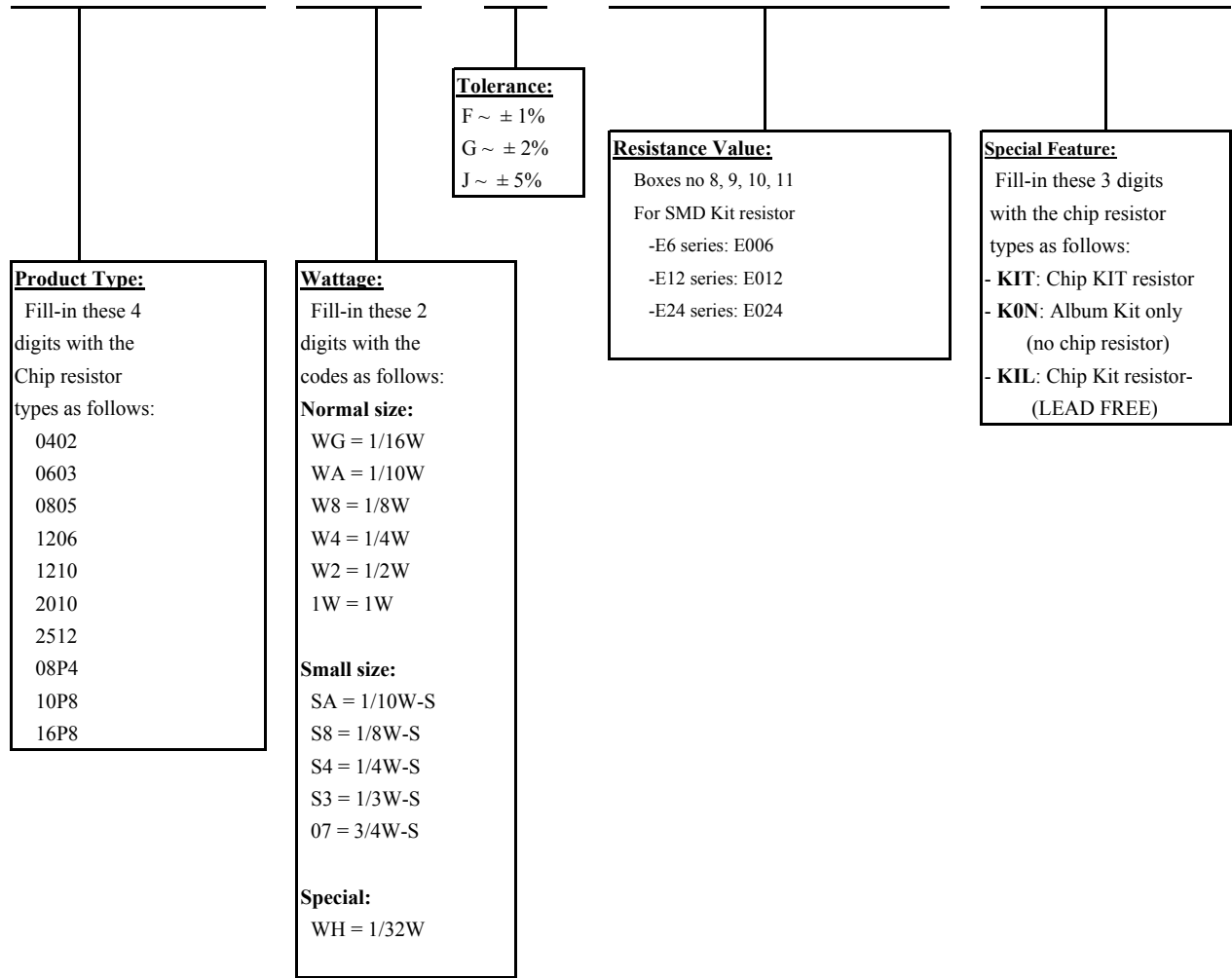
E6 Series Kits	0, 10, 15, 22, 33, 47, 68 (100 of each value)
E12 Series Kits	0, 10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68, 82 (100 of each value)
E24 Series Kits	0, 10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91 (100 of each value)
Contents:	E6 kits 32 values, E12 kits 62 values, E24 kits 121 values

Case				Price Each		
Size	Contents	Tolerance	Order Code			
0603	E24	1 %	933-1654			
0603	E6	5 %	933-2359			
0603	E12	5 %	933-2367			
0805	E24	1 %	933-3673			
0805	E12	5 %	933-4980			
0805	E24	5 %	933-4998			
1206	E24	1 %	933-6966			
1206	E12	5 %	933-7644			
				Price Per Pack		
Insert Sheets						
Pack of 5			438-1154			

## Part Number System

### Explanation of Part Number System ( Chip Kit Resistors (Lead Free) )

1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	8	0	5	W	A	F	E	0	2	4	K	I	L



Sample :      SMD Kit 1/10W (0805) +/- 1% E24 series    →    0805WAFE024KIT  
                   Album Kit 1/16W (0603) +/- 1% E6 series    →    0603WGFE006K0N (no chip resistor)

**Special for Insert Chip Kit** → INSERT-CHIPKIT

                  SMD Kit (LEAD FREE) 1/10W (0805) +/- 1% E24 series    →    0805WAFE024KIL



## 1. Scope:

This specification for approval relates to Chip Kit Resistors (Lead Free) manufactured by ROYAL OHM 's specifications.

## 2. Type designation:

The type designation shall be in the following form:

Type	Power Rating	Resistance tolerance	Nominal Resistance
RMC 0805	1/10 W	F	1K $\Omega$

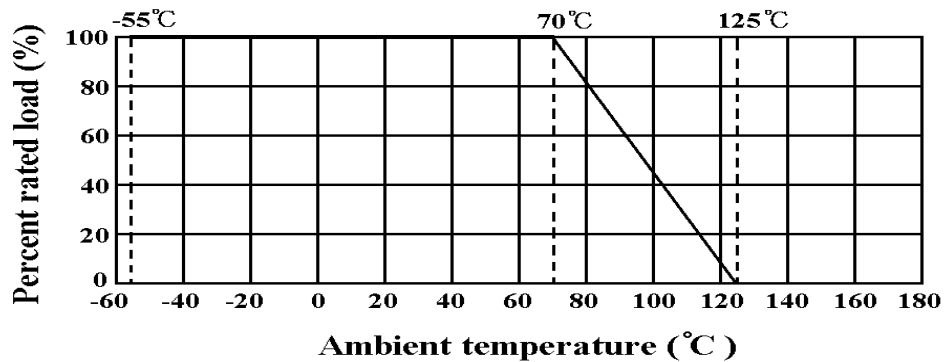
## 3. Ratings:

Type	RMC 0805
Power Rating	0.10 W
Max. Working Voltage	150 V
Max. Overload Voltage	300 V
Temperature Range	-55 $\square$ +125 $\square$
Ambient Temperature	70 $\square$

## 3.1 Power rating:

Resistors shall have a power rating based on continuous load operation at an ambient temperature of 70  $\square$  . For temperature in excess of 70  $\square$  , The load shall be derate as shown in figure 1.

Figure 1

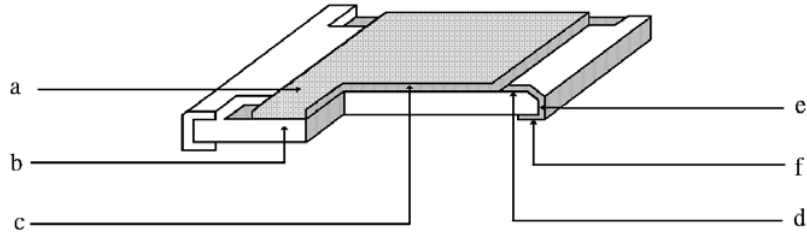


## 3.2 Nominal Resistance

Effective figures of nominal resistance shall be in accordance with E-24 and E-96 series for 1 % and E-24 series for 2 % and 5 %

## Chip Kit Resistors (Lead Free)

### 4. Construction :



a. Protective coating : Epoxy

b. Al<sub>2</sub>O<sub>3</sub> high purity alumina substrate : Al 96 %

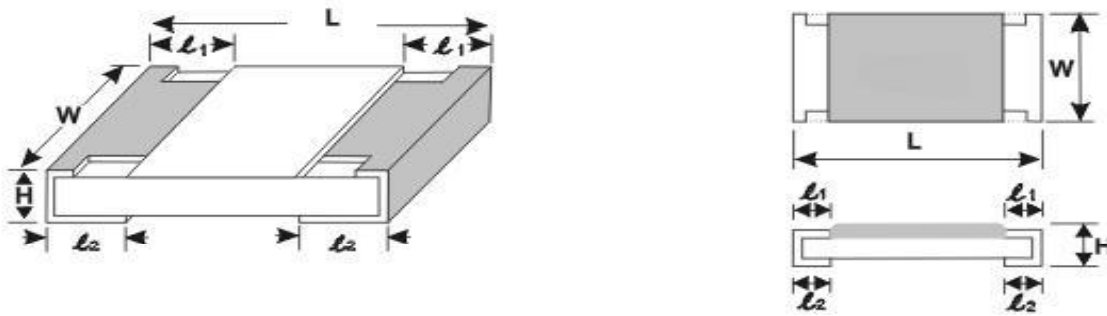
c. Resistive element : metal film

d. Termination (Inner) : Ag/Pd

e. Termination (Between) : Ni plating film

f. Termination (Outer) : Sn/Pb plating film

### 5. Power rating and dimensions



Dimension :

Type	Dimension (mm)				
	$L \pm 0.15$	$W + 0.15$ $- 0.10$	$H \pm 0.10$	$\lambda_1 \pm 0.2$	$\lambda_2 \pm 0.2$
RMC 0805	2.00	1.25	0.55	0.40	0.40

Power Rating :

Type	Power Rating at 70 °C	Tolerance %	Standard Series
RMC 0805	0.10 W	± 1	E-24

## Chip Kit Resistors (Lead Free)

### 7. Performance specification :

Characteristics	Limits	Test Methods ( JIS C 5201-1 )															
Temperature coefficient	$10\Omega \square 100\Omega \square \pm 200 \text{ PPM}/\square$ $101\Omega \square 1M\Omega \square \pm 100 \text{ PPM}/\square$	5.2 Natural resistance change per temp. degree centigrade. $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \quad (\text{PPM}/\square)$ R1: Resistance value at room temperature (t1) R2: Resistance value at room temp. plus 100 $\square$ (t2)															
Short time overload	Resistance change rate is $\pm (1.0\% + 0.1\Omega)$ Max.	5.5 Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds															
Insulation resistance	1,000 M $\Omega$ or more	5.6 Apply 500V DC between protective coating and termination for 1 min, then measure															
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down	5.7 Apply 500V AC between protective coating and termination for 1 minute															
Terminal bending	$\pm (1.0\% + 0.05\Omega)$ Max.	6.1.4 Twist of Test Board : Y/X = 5/90 mm for 10 seconds															
Temperature cycling	$\pm (0.5\% + 0.05\Omega)$ Max.	7.4 Resistance change after continuous 5 cycles for duty cycle specified below :															
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Step</th> <th style="text-align: center;">Temperature</th> <th style="text-align: center;">Time</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">-55<math>\square</math> <math>\pm</math> 3<math>\square</math></td> <td style="text-align: center;">30 mins</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">Room temp.</td> <td style="text-align: center;">10<math>\square</math> 15 mins</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">+125<math>\square</math> <math>\pm</math> 2<math>\square</math></td> <td style="text-align: center;">30 mins</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">Room temp.</td> <td style="text-align: center;">10<math>\square</math> 15 mins</td> </tr> </tbody> </table>	Step	Temperature	Time	1	-55 $\square$ $\pm$ 3 $\square$	30 mins	2	Room temp.	10 $\square$ 15 mins	3	+125 $\square$ $\pm$ 2 $\square$	30 mins	4	Room temp.	10 $\square$ 15 mins
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3	+125 $\square$ $\pm$ 2 $\square$	30 mins															
4	Room temp.	10 $\square$ 15 mins															
Load life in humidity	Resistance change rate is $\pm (1.0\% + 0.1\Omega)$ Max.	7.9 Resistance change after 1,000 hours (1.5 hours "on", 0.5 hour "off" ) at RCWV in a humidity chamber controlled at 40 $\square$ $\pm$ 2 $\square$ and 90 to 95 % relative humidity															
Load Life	Resistance change rate is $\pm (1.0\% + 0.1\Omega)$ Max.	7.10 Permanent resistance change after 1,000 hours operating at RCWV, with duty cycle of (1.5 hours "on", 0.5 hour "off") at 70 $\square$ $\pm$ 2 $\square$ ambient															

Chip Kit Resistors (Lead Free)

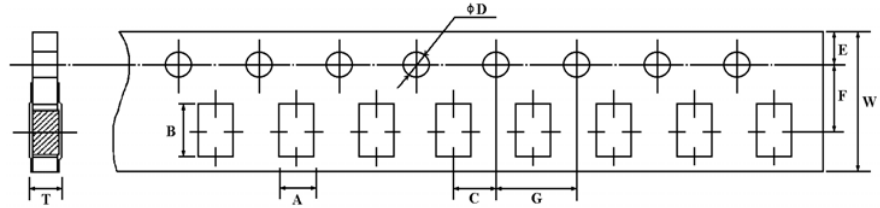
7. Performance specification :

Characteristics	Limits	Test Methods ( JIS C 5201-1 )
Soldering Heat	Electrical characteristics shall be satisfied. Without distinct deformation in appearance.	<u>Solder bath method</u> Pre-heat : 100 to 105 □, 30 ± 5 sec. Temperature : 265 ± 3□, 5 +1/-0 sec.  <u>Reflow soldering method</u> Peak :        250 +5/-0□ 230□or higher                    30 ± 10Sec.  <u>Soldering iron method</u> Bit temperature : 350 ± 10□ Application time of soldering iron : 3 +1/-0sec.
Solderability	95 % coverage Min.	6.5 Test temperature of solder : 245 ± 3□ Dipping them solder : 2~3 seconds

## Chip Kit Resistors (Lead Free)

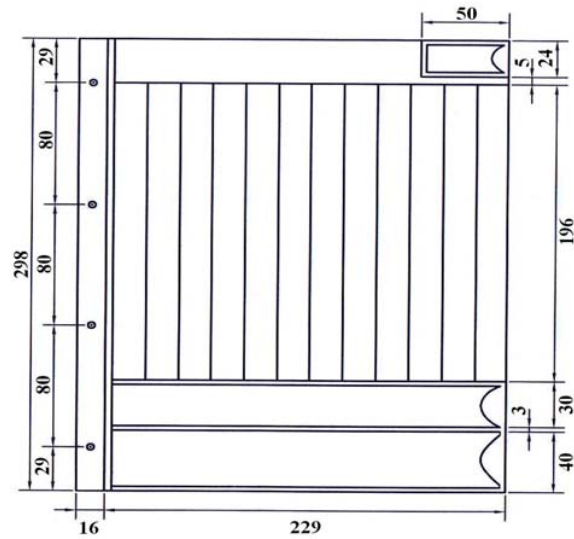
### 8. Packing specification :

\* Taping Dimension (mm)

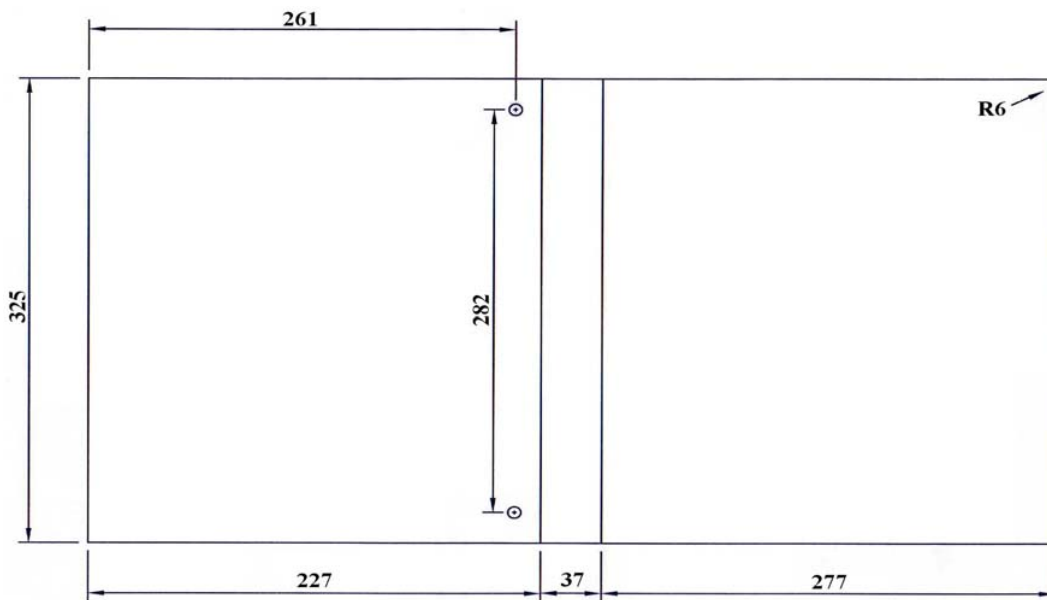


Type	A $\pm 0.2$	B $\pm 0.2$	C $\pm 0.05$	$\psi D +0.1$ - 0	E $\pm 0.1$	F $\pm 0.05$	G $\pm 0.1$	W $\pm 0.2$	T $\pm 0.1$
0805	1.65	2.40	2.0	1.5	1.75	3.5	4.0	8.0	0.81

\* Insert Chip Kit Dimension (mm)



\* Chip Kit Album Dimension (mm)

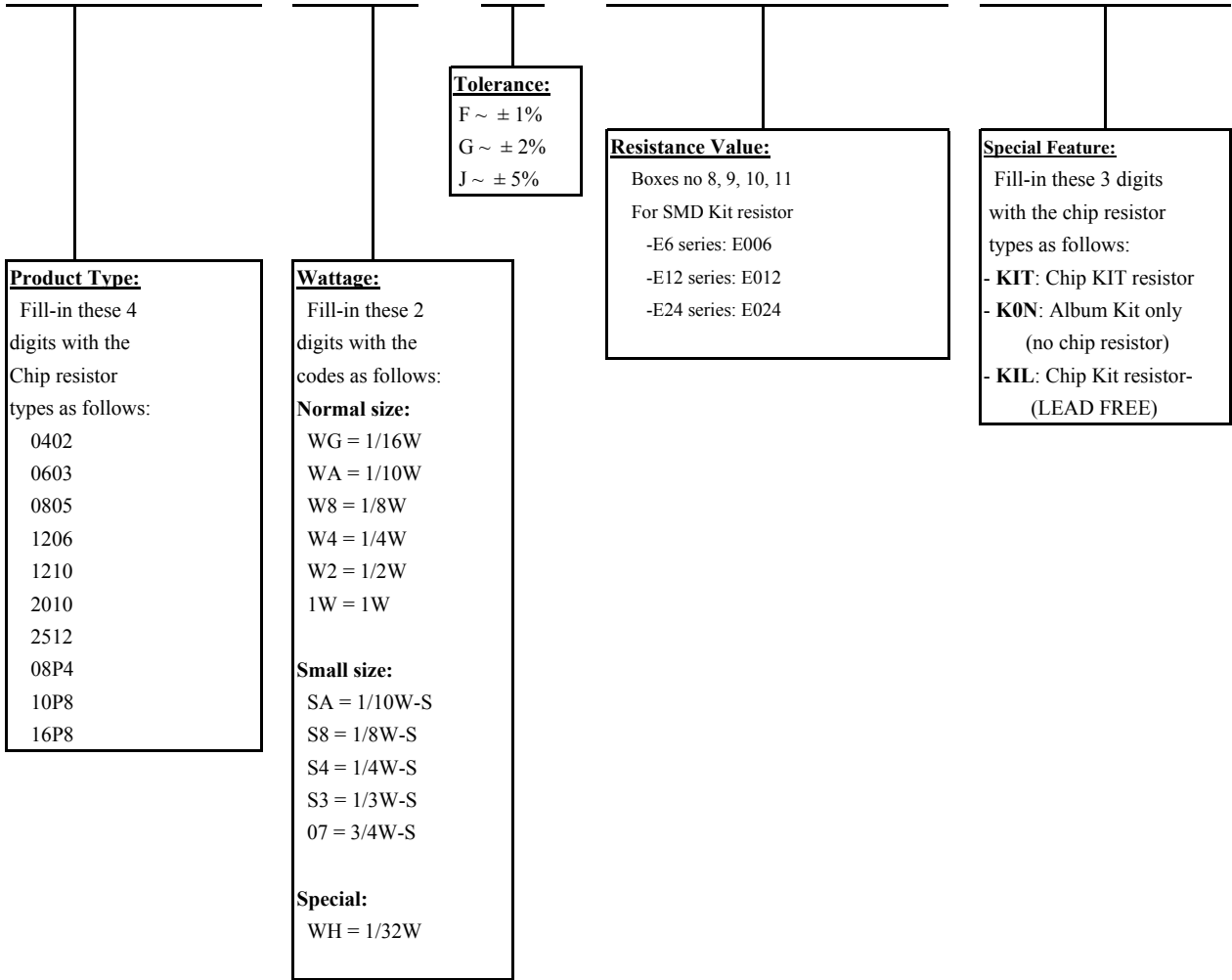




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**Special for Insert Chip Kit**    →  INSERT-CHIPKIT

                  SMD Kit (LEAD FREE) 1/10W (0805) +/- 1% E24 series    →  0805WAFE024KIL