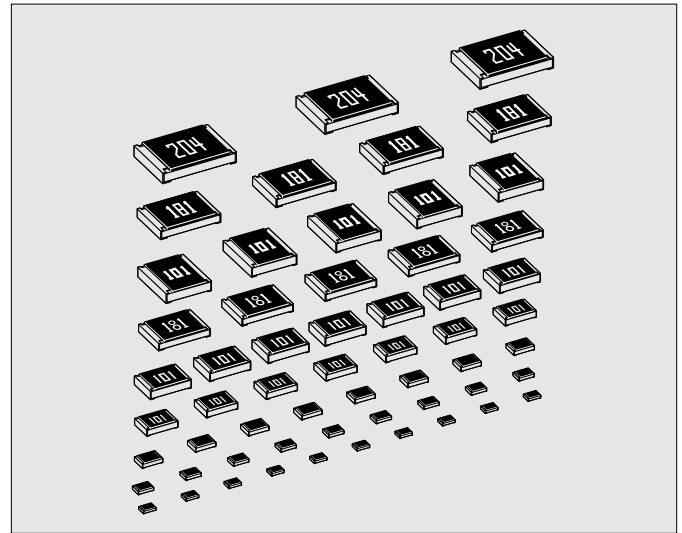


# RMC

## ●Features

- 01005 to 2512 inch size and Jumper chip available.
- 0.1W is available for 0402 inch (RMC1/16S).
- Precise dimension by Laser-scriber method (RMC1/20, RMC1/32).
- Press Pocket Taping package (RMC1/20, RMC1/32).
- Walsin Technology Corporation OEM products (1206 to 0402 inch) are also available.
- Halogen\*<sup>1</sup> and Antimony\*<sup>2</sup> free product  
\*<sup>1</sup> Cl or Br ≤ 900ppm, Cl+Br ≤ 1500ppm  
\*<sup>2</sup> Sb<sub>2</sub>O<sub>3</sub> ≤ 900ppm
- Stability Class : 5%



## ●Dimensions



Rated resistance value marking is 3-digit on the over coating except RMC1/16S & RMC1/20 & RMC1/32.  
4-digit marking is available for F & G tolerance except RMC1/16, RMC1/16S & RMC1/20 & RMC1/32 type.

Unit : mm

| Style    | Metric | Inch  | Product | L          | W                                     | H           | c           | d                                      | *Unit weight/pc. |
|----------|--------|-------|---------|------------|---------------------------------------|-------------|-------------|----------------------------------------|------------------|
| RMC1/32  | 0402   | 01005 | KAMAYA  | 0.4 ± 0.02 | 0.2 ± 0.02                            | 0.13 ± 0.02 | 0.08 ± 0.03 | 0.1 ± 0.03                             | 0.035mg          |
| RMC1/20  | 0603   | 0201  | KAMAYA  | 0.6 ± 0.03 | 0.3 ± 0.03                            | 0.23 ± 0.03 | 0.1 ± 0.05  | 0.15 ± 0.05                            | 0.16mg           |
| RMC1/16S | 1005   | 0402  | KAMAYA  | 1.0 ± 0.05 | 0.5 ± 0.05                            | 0.35 ± 0.05 | 0.2 ± 0.1   | 0.25 <sup>+0.05</sup> <sub>-0.10</sub> | 0.6mg            |
|          |        |       | WALSIN  |            |                                       |             |             |                                        |                  |
| RMC1/16  | 1608   | 0603  | KAMAYA  | 1.6 ± 0.1  | 0.8 <sup>+0.15</sup> <sub>-0.05</sub> | 0.45 ± 0.10 | 0.3 ± 0.1   | 0.3 ± 0.1                              | 2mg              |
|          |        |       | WALSIN  |            |                                       |             |             |                                        |                  |
| RMC1/10  | 2012   | 0805  | KAMAYA  | 2.0 ± 0.1  | 1.25 ± 0.10                           | 0.55 ± 0.10 | 0.4 ± 0.2   | 0.4 ± 0.2                              | 5mg              |
|          |        |       | WALSIN  |            |                                       |             |             |                                        |                  |
| RMC1/8   | 3216   | 1206  | KAMAYA  | 3.2 ± 0.15 | 1.6 ± 0.15                            | 0.55 ± 0.10 | 0.5 ± 0.25  | 0.5 ± 0.25                             | 9mg              |
|          |        |       | WALSIN  |            |                                       |             |             |                                        |                  |
| RMC1/4   | 3225   | 1210  | KAMAYA  | 3.2 ± 0.15 | 2.5 ± 0.15                            | 0.55 ± 0.15 | 0.5 ± 0.25  | 0.5 ± 0.25                             | 16mg             |
| RMC1/2   | 5025   | 2010  | KAMAYA  | 5.0 ± 0.15 | 2.5 ± 0.15                            | 0.55 ± 0.15 | 0.6 ± 0.2   | 0.6 ± 0.2                              | 25mg             |
| RMC1     | 6332   | 2512  | KAMAYA  | 6.3 ± 0.15 | 3.2 ± 0.15                            | 0.55 ± 0.15 | 0.6 ± 0.2   | 0.6 ± 0.2                              | 40mg             |

\*Values for reference

## ●Part Number Description

Example

Style

RMC

1/10

Product Type

K

103

F

TP

Temperature Coefficient of Resistance

|      |                                           |          |
|------|-------------------------------------------|----------|
| -    | Standard                                  | Resistor |
| K    | $\pm 100 \times 10^{-6} / ^\circ\text{C}$ |          |
| None | _____                                     | Jumper   |

Tolerance on Rated Resistance

|      |            |          |
|------|------------|----------|
| F    | $\pm 1\%$  | Resistor |
| G    | $\pm 2\%$  |          |
| J    | $\pm 5\%$  |          |
| K    | $\pm 10\%$ |          |
| None | _____      | Jumper   |

Rated Dissipation & Size

| Code  | Rated Dissipation | Metric | Inch  |
|-------|-------------------|--------|-------|
| 1/32  | 0.03W             | 0402   | 01005 |
| 1/20  | 0.05W             | 0603   | 0201  |
| 1/16S | 0.1W              | 1005   | 0402  |
| 1/16  |                   | 1608   | 0603  |
| 1/10  | 0.125W            | 2012   | 0805  |
| 1/8   | 0.25W             | 3216   | 1206  |
| 1/4   | 0.33W             | 3225   | 1210  |
| 1/2   | 0.75W             | 5025   | 2010  |
| 1     | 1.0W              | 6332   | 2512  |

Rated Resistance

|                                                    |         |          |
|----------------------------------------------------|---------|----------|
| E24 Series<br>e.g. : 2R2=2.2 ohm<br>103=10k ohm    | 3-Digit | Resistor |
| E96 Series<br>e.g. : 10R2=10.2 ohm<br>1002=10k ohm | 4-Digit |          |
| JP                                                 |         | Jumper   |

\*Packaging & Standard Qty. (Min.)

|    |                                         |            |                              |
|----|-----------------------------------------|------------|------------------------------|
| B  | Bulk (Loose Package)                    | 1,000pcs.  | All Styles                   |
| PA | Press-Pocket<br>Paper Tape (2 mm pitch) | 20,000pcs. | RMC1/32                      |
|    |                                         | 15,000pcs. | RMC1/20                      |
| TH | Paper Tape<br>(2 mm pitch)              | 10,000pcs. | RMC1/16S<br>RMC1/16          |
| TP | Paper Tape                              | 5,000pcs.  | RMC1/16<br>RMC1/10<br>RMC1/8 |
| TE | Embossed Tape                           | 4,000pcs.  | RMC1/4<br>RMC1/2<br>RMC1     |
| BA | Bulk Case                               | 25,000pcs. | RMC1/16                      |
|    |                                         | 10,000pcs. | RMC1/10                      |
|    |                                         | 5,000pcs.  | RMC1/8                       |

\*Refer to Tape and Packaging information on pages 56 and 57

## FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE

RMC

## ●Ratings

| Style    | Size Metric (Inch) | Rated Dissipation at 70°C W | Rated Resistance Range |             |             |             |           | Tolerance on Rated Resistance | Temperature Coefficient of Resistance |                      | Limiting Element Voltage V | Isolation Voltage V | Category Temperature Range °C |
|----------|--------------------|-----------------------------|------------------------|-------------|-------------|-------------|-----------|-------------------------------|---------------------------------------|----------------------|----------------------------|---------------------|-------------------------------|
|          |                    |                             | 1Ω                     | 10Ω         | 100Ω        | 1MΩ         | 10MΩ      |                               | Code                                  | 10 <sup>-6</sup> /°C |                            |                     |                               |
| RMC1/32  | 0402<br>( 01005 )  | 0.03<br>(0.5A)              |                        | 4.7 ~ 9.1   | 10 ~ 91     |             |           | F, J                          | -                                     | + 600 ~ - 200        | 15                         | 50                  | - 55 ~ + 125                  |
| RMC1/20  | 0603<br>( 0201 )   | 0.05<br>(1.0A)              | 0.47 ~ 0.91            |             |             | 100 ~ 1M    |           | J                             | -                                     | + 1000 ~ + 300       | 25                         |                     |                               |
|          |                    |                             | 1 ~ 3.92               | 4.02 ~ 9.76 |             |             | F, J      | -                             | + 600 ~ - 200                         |                      |                            |                     |                               |
|          |                    |                             |                        |             | 10 ~ 1M     |             | F, G, J   | -                             | + 350 ~ - 100                         |                      |                            |                     |                               |
|          |                    |                             |                        |             |             | 1.1M ~ 10M  | J         | -                             | ± 200                                 |                      |                            |                     |                               |
| RMC1/16S | 1005<br>( 0402 )   | 0.1<br>(1.0A)               |                        | 1 ~ 9.76    |             | 10 ~ 1M     |           | F, J                          | -                                     | + 500 ~ - 200        | 50                         | 100                 | - 55 ~ + 155                  |
| RMC1/16  | 1608<br>( 0603 )   | 0.1<br>(2.0A)               |                        |             |             |             | G, J      | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             | 10 ~ 1M     |             | F         | K                             | ± 100                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             | 1.02M ~ 10M | F, G, J   | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             | 0.47 ~ 0.91            | 1 ~ 9.76    |             |             | K         | -                             | + 1,000 ~ + 300                       |                      |                            |                     |                               |
| RMC1/16  | 1608<br>( 0603 )   | 0.1<br>(2.0A)               |                        | 1 ~ 9.76    |             |             | F, G, J   | -                             | + 500 ~ - 200                         | 50                   |                            |                     |                               |
|          |                    |                             |                        |             | 10 ~ 10M    |             | G, J      | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             |             | F         | K                             | ± 100                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             | 11M ~ 22M   | J         | -                             | ± 200                                 |                      |                            |                     |                               |
| RMC1/10  | 2012<br>( 0805 )   | 0.125<br>(2.0A)             | 0.27 ~ 0.91            | 1 ~ 9.76    |             |             |           | K                             | -                                     | + 1,000 ~ + 300      | 150                        |                     |                               |
|          |                    |                             |                        |             | 10 ~ 2.2M   |             | F, G, J   | -                             | + 500 ~ - 200                         |                      |                            |                     |                               |
|          |                    |                             |                        |             |             |             | G, J      | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             | 221M ~ 10M  | F         | K                             | ± 100                                 |                      |                            |                     |                               |
| RMC1/10  | 2012<br>( 0805 )   | 0.125<br>(2.0A)             |                        |             |             |             | 11M ~ 22M | F, G, J                       | -                                     | ± 200                | 150                        |                     |                               |
|          |                    |                             |                        |             |             |             | J         | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             | 0.22 ~ 0.91            | 1 ~ 9.76    |             |             | K         | -                             | + 1,000 ~ + 300                       |                      |                            |                     |                               |
|          |                    |                             |                        |             | 10 ~ 1M     |             | F, G, J   | -                             | + 500 ~ - 200                         |                      |                            |                     |                               |
| RMC1/8   | 3216<br>( 1206 )   | 0.25<br>(2.0A)              |                        |             |             |             |           | G, J                          | -                                     | ± 200                | 200                        | 500                 | - 55 ~ + 155                  |
|          |                    |                             |                        |             |             |             | F         | K                             | ± 100                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             | 1.02M ~ 10M |             | F, G, J   | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             | 11M ~ 24M   | J         | -                             | ± 200                                 |                      |                            |                     |                               |
| RMC1/4   | 3225<br>( 1210 )   | 0.33<br>(2.0A)              | 0.2 ~ 0.91             | 1 ~ 9.76    |             |             |           | K                             | -                                     | + 1,000 ~ + 300      | 200                        |                     |                               |
|          |                    |                             |                        |             | 10 ~ 1M     |             | F, J      | -                             | + 500 ~ - 200                         |                      |                            |                     |                               |
|          |                    |                             |                        |             |             |             | G, J      | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             | 1.02M ~ 10M | F         | K                             | ± 100                                 |                      |                            |                     |                               |
| RMC1/4   | 3225<br>( 1210 )   | 0.33<br>(2.0A)              |                        |             |             |             |           | F, G, J                       | -                                     | ± 200                | 200                        |                     |                               |
|          |                    |                             |                        |             |             |             | 11M ~ 22M | J                             | -                                     | ± 200                |                            |                     |                               |
|          |                    |                             | 0.33 ~ 0.91            | 1 ~ 9.76    |             |             | K         | -                             | + 1,000 ~ + 300                       |                      |                            |                     |                               |
|          |                    |                             |                        |             | 10 ~ 1M     |             | F, J      | -                             | + 500 ~ - 200                         |                      |                            |                     |                               |
| RMC1/2   | 5025<br>( 2010 )   | 0.75<br>(2.0A)              |                        |             |             |             |           | G, J                          | -                                     | ± 200                | 200                        |                     |                               |
|          |                    |                             |                        |             |             |             | F         | K                             | ± 100                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             | 1.1M ~ 22M  | J         | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             | 0.33 ~ 0.91            | 1 ~ 9.76    |             |             | K         | -                             | + 1,000 ~ + 300                       |                      |                            |                     |                               |
| RMC1     | 6332<br>( 2512 )   | 1.0<br>(2.0A)               |                        |             |             |             |           | F, J                          | -                                     | + 500 ~ - 200        | 200                        |                     |                               |
|          |                    |                             |                        |             | 10 ~ 1M     |             | G, J      | -                             | ± 200                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             |             | F         | K                             | ± 100                                 |                      |                            |                     |                               |
|          |                    |                             |                        |             |             | 1.1M ~ 22M  | J         | -                             | ± 200                                 |                      |                            |                     |                               |

Note1. E24 series is available, E96 series is available for tolerance "F" (1%)

Note2. Rated Voltage =  $\sqrt{(\text{Rated Dissipation}) \times (\text{Rated Resistance})}$ . (d.c. or a.c. r.m.s. Voltage)

Note3. Limiting Element Voltage can only be applied to resistors when the resistance value is equal to or higher than the critical resistance value.

Note4. Critical Resistance Value is the resistance value at which the rated voltage is equal to the limiting element voltage.

Note5. Jumper: Resistance value is less than 50m ohm.

## ●Derating Curve

The derated values of dissipation for temperatures in excess of 70°C shall be indicated by the following Curve.

(For Jumpers the load current shall be derated according to the Derating Curve)



## ●Climatic Category

55/125/56: RMC1/32, 1/20

55/155/56: RMC1/16S, 1/16, 1/10, 1/8, 1/4, 1/2, 1

|                                              | RMC1/32, 1/20 | RMC1/16S, 1/16, 1/10, 1/8, 1/4, 1/2, 1 |
|----------------------------------------------|---------------|----------------------------------------|
| Lower Category Temperature                   | -55°C         | -55°C                                  |
| Upper Category Temperature                   | +125°C        | +155°C                                 |
| Duration of the Damp heat, Steady-State Test | 56 days       | 56 days                                |

## ●Performance Characteristics JIS C 5201-1 : 1998

| Description                                 | Requirements                                                        | Test Methods                                                                                                                                        |
|---------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage proof                               | No breakdown or flashover<br>R <sub>≥</sub> 1G ohm                  | Clause 4.7 RMC1/32, 1/20 50Va.c., 60s<br>RMC1/16S, 1/16 100Va.c., 60s<br>RMC1/10~1 500Va.c., 60s                                                    |
| Variation of resistance with temperature    | See Ratings Table                                                   | Clause 4.8 +20°C/-55°C/+20°C/+125°C/+20°C: RMC1/32, 1/20<br>+20°C/-55°C/+20°C/+155°C/+20°C: RMC1/16S~1                                              |
| Overload                                    | ΔR <sub>±</sub> (1%+0.05 ohm)<br>No visible damage, legible marking | Clause 4.13 The applied voltage shall be 2.5 times of the rated voltage or twice of the limiting element voltage, whichever is the less severe, 2s. |
| Solderability                               | In accordance with Clause 4.17.4.5                                  | Clause 4.17 235°C, 2s                                                                                                                               |
| Resistance to soldering heat                | ΔR <sub>±</sub> (1%+0.05 ohm)                                       | Clause 4.18 After immersion into the flux, the immersion into solder shall be carried out in Solder bath at 260°C for 5s.                           |
| Rapid change of temperature                 | ΔR <sub>±</sub> (1%+0.05 ohm) No visible damage                     | Clause 4.19 5 cycles between -55°C and +125°C: RMC1/32, 1/20<br>5 cycles between -55°C and +155°C: RMC1/16S~1                                       |
| Climatic sequence                           | ΔR <sub>±</sub> (5%+0.1 ohm) No visible damage                      | Clause 4.23 Dry/Damp heat (12+12h cycle), first cycle./ Cold/Damp heat (12+12h cycle), remaining cycle./ D.C.Load.                                  |
| Damp test, steady state                     | ΔR <sub>±</sub> (5%+0.1 ohm) No visible damage, legible marking     | Clause 4.24 40°C, 95%R.H., 56 days, test a) and b) of Clause 4.24.2.1                                                                               |
| Endurance at 70°C                           | ΔR <sub>±</sub> (5%+0.1 ohm) No visible damage                      | Clause 4.25.1 Rated voltage, 1.5h"ON", 0.5h"OFF", 70°C, 1,000h                                                                                      |
| Endurance at the upper category temperature | ΔR <sub>±</sub> (5%+0.1 ohm) No visible damage                      | Clause 4.25.3 125°C, no-load, 1,000h.: RMC1/32, 1/20<br>155°C, no-load, 1,000h.: RMC1/16S~1                                                         |
| Adhesion                                    | No visible damage                                                   | Clause 4.32 5N, 10s (RMC1/20 = 3N, RMC1/32 = 2N)                                                                                                    |
| Bend strength of the face plating           | ΔR <sub>±</sub> (1%+0.05 ohm)                                       | Clause 4.33 RMC1/32~1/4 Amount of bend: 3 mm<br>RMC1/2, 1 Amount of bend: 1 mm                                                                      |