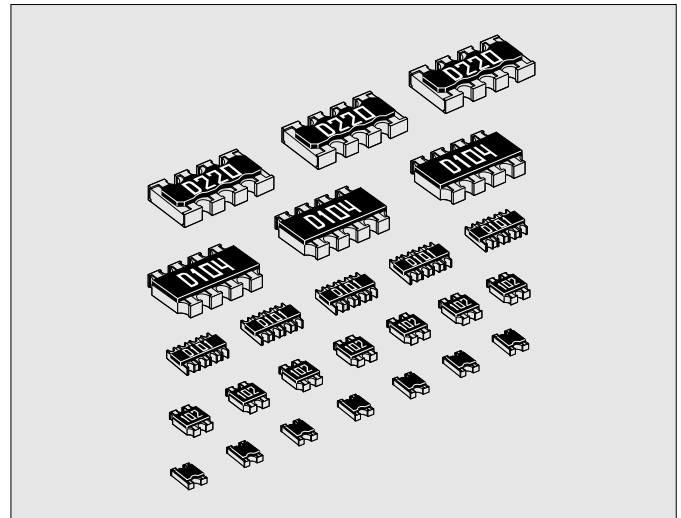


# RAC10, 16, 32

## ●Features

- 1.The RAC Series are chip resistor networks with three attenuative terminal styles.
- 2.High density SMD packaging gives higher productivity and reduces assembly costs.
3. Suitable for flow and reflow soldering. (including IR and VPS)
4. Suitable for automatic insertion.
5. Stability class : 5%



## ●Dimensions and Circuit

Terminal Style: A

RAC16 4D  
RAC32 4D

Terminal Style: B

RAC16 4D

Terminal Style: C

RAC10 4D  
RAC16 4D  
RAC32 4D

Terminal Style: A

RAC16 2D

Terminal Style: C

RAC10 2D

Circuit

$R_1=R_2=\dots=R_n$

\*Please contact KAMAYA for different resistance values.  
Please contact KAMAYA for the detail of marking on over coating.

| Style    | Terminal | L         | W        | H         | Q <sub>1</sub> | *Q <sub>2</sub> | a         | b                                      | *P   | *Unit weight/pc. |
|----------|----------|-----------|----------|-----------|----------------|-----------------|-----------|--|------|------------------|
| RAC10 2D | C        | 1.0 ±0.05 | 1.0±0.05 | 0.35±0.05 | —              | 0.33            | 0.15±0.10 | 0.25 <sup>+0.05</sup> <sub>-0.10</sub> | 0.65 | 1.1mg            |
| RAC10 4D | C        | 2.0 ±0.1  | 1.0±0.1  | 0.35±0.05 | 0.35±0.1       | 0.45            | 0.15±0.10 | 0.25±0.10                              | 0.5  | 2.1mg            |
| RAC16 2D | A        | 1.6 ±0.1  | 1.6±0.1  | 0.5 ±0.1  | 0.5 ±0.1       | —               | 0.25±0.10 | 0.25 <sup>+0.15</sup> <sub>-0.10</sub> | 0.8  | 3.5mg            |
| RAC16 4D | A        | 3.2 ±0.1  | 1.6±0.1  | 0.5 ±0.1  | 0.5 ±0.1       | —               | 0.25±0.10 | 0.2 ±0.1                               | 0.8  | 7mg              |
| RAC16 4D | B        | 3.2 ±0.1  | 1.6±0.1  | 0.6 ±0.1  | 0.45±0.05      | —               | 0.35±0.15 | 0.45±0.10                              | 0.8  | 10mg             |
| RAC16 4D | C        | 3.2 ±0.1  | 1.6±0.1  | 0.5 ±0.1  | 0.4 ±0.15      | 0.6             | 0.3 ±0.2  | 0.25±0.15                              | 0.8  | 7mg              |
| RAC32 4D | A        | 5.08±0.20 | 3.1±0.2  | 0.55±0.10 | 0.8 ±0.2       | —               | 0.5 ±0.2  | 0.3 ±0.2                               | 1.27 | 27mg             |
| RAC32 4D | C        | 5.08±0.20 | 3.1±0.2  | 0.55±0.10 | 0.8 ±0.2       | 1.1             | 0.5 ±0.2  | 0.3 ±0.2                               | 1.27 | 27mg             |

Unit : mm  
\*Values for reference

## ●Product Classification

Example

RAC 16 2 D 103 J A B

① Product Type ② Size ③ No. of Elements ④ Circuits ⑤ Rated Resistance ⑥ Resistance Tolerance ⑦ Terminal Style ⑧ Packaging

| ① Product Type |  |  |  | ② Size |  | ③ No. of Elements |  | ④ Circuits |  | ⑤ Rated Resistance |  | ⑥ Resistance Tolerance |  | ⑦ Terminal Style |  | ⑧ Packaging                |  |
|----------------|--|--|--|--------|--|-------------------|--|------------|--|--------------------|--|------------------------|--|------------------|--|----------------------------|--|
| Code           |  |  |  | Code   |  | Code              |  | Code       |  | Code               |  | Code                   |  | Code             |  | Code                       |  |
| RAC            |  |  |  | 16     |  | 2                 |  | D          |  | 103                |  | J                      |  | A                |  | B                          |  |
| ① Product Type |  |  |  | ② Size |  | ③ No. of Elements |  | ④ Circuits |  | ⑤ Rated Resistance |  | ⑥ Resistance Tolerance |  | ⑦ Terminal Style |  | ⑧ Packaging                |  |
| Code           |  |  |  | Code   |  | Code              |  | Code       |  | Code               |  | Code                   |  | Code             |  | Code                       |  |
| 10             |  |  |  | 1.0mm  |  | 2                 |  | 2elements  |  | E24 Series         |  | ±5%                    |  | Without corner   |  | Bulk(Loose Package)        |  |
| 16             |  |  |  | 1.6mm  |  | 4                 |  | 4elements  |  | e.g:103=10k ohm    |  | Resistor               |  | With corner      |  | TP Paper Tape.             |  |
| 32             |  |  |  | 3.2mm  |  | —                 |  | —          |  | JP                 |  | Jumper                 |  | Type             |  | TE Embossed Tape.          |  |
| —              |  |  |  | —      |  | —                 |  | —          |  | —                  |  | —                      |  | —                |  | TH Paper Tape. (2mm pitch) |  |
| —              |  |  |  | —      |  | —                 |  | —          |  | —                  |  | —                      |  | —                |  | All Styles                 |  |
| —              |  |  |  | —      |  | —                 |  | —          |  | —                  |  | —                      |  | —                |  | RAC16                      |  |
| —              |  |  |  | —      |  | —                 |  | —          |  | —                  |  | —                      |  | —                |  | RAC32                      |  |
| —              |  |  |  | —      |  | —                 |  | —          |  | —                  |  | —                      |  | —                |  | RAC10                      |  |

\*Refer to Taping and Packaging information in page 34.35

●Ratings

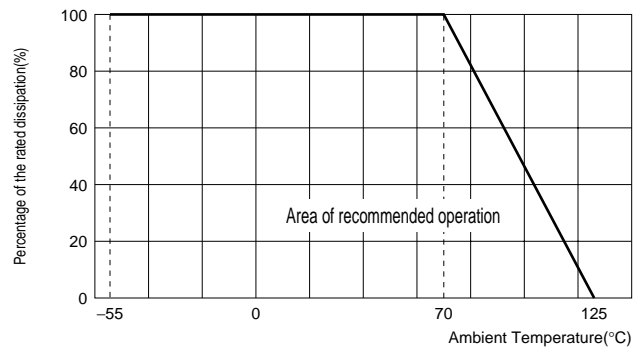
| Style | Rated Dissipation at 70°C W | Rated Current of Jumper | Limiting Element Voltage V | Temperature Coefficient of Resistance 10 <sup>-6</sup> /°C | Rated Resistance Range | Tolerance on Rated Resistance | Preferred Number Series for Resistors | Isolation Voltage V | Category Temperature Range °C |
|-------|-----------------------------|-------------------------|----------------------------|--|------------------------|-------------------------------|---------------------------------------|---------------------|-------------------------------|
| RAC10 | 0.063/Element               | 1.0                     | 25                         | ±200   | 10 ohm~1M ohm          | J(±5%)                        | E24 Series                            | 50                  | -55~+125                      |
| RAC16 |                             |                         | 50                         |  |                        |                               |                                       | 100                 |                               |
| RAC32 | 0.125/Element               | 2.0                     | 200                        |  |                        |                               |                                       | 400                 |                               |

Note.1 Rated Voltage =  $\sqrt{(\text{Rated Power}) \times (\text{Rated Resistance})}$  (d.c. or a.c. r.m.s. Voltage)

Note.2 Limiting Element Voltage can only be applied to resistors when the resistance value is equal to or higher than the critical resistance value.

●Derating Curve

The derated values of dissipation at temperature in excess of 70°C shall be as indicated by the following Curve.  
(The load current shall be derated according to Derating Curve in case of the Jumper)



●Climatic Category

55/125/56

Lower Category Temperature -55°C  
Upper Category Temperature +125°C  
Duration of the Damp heat, Steady-State Test 56days

●Performance Characteristics JIS C 5201-1 : 1998

| Description                                 | Requirements  | Test Methods  |
|---|---|---|
| Voltage proof                               | No breakdown or flashover R≥1G ohm                      | Clause 4.7 RAC32 400Va.c.,60s<br>RAC16 100Va.c.,60s<br>RAC10 50Va.c.,60s  |
| Variation of resistance with temperature    | See Ratings Table                                       | Clause 4.8 Measuring temperature : +20°C/-55°C/<br>+20°C/+125°C/+20°C   |
| Overload                                    | ΔR≤±(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≤±(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≤±(1%+0.05 ohm) No visible damage                     | Clause 4.19 5 cycles between -55°C and +125°C.  |
| Climatic sequence                           | ΔR≤±(5%+0.1 ohm) No visible damage                      | Clause 4.23 Dry/Damp heat(12+12h cycle), first cycle./<br>Cold/Damp heat(12+12h cycle), remaining cycle./ D.C.Load.                                 |
| Damp test, steady state                     | ΔR≤±(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≤±(5%+0.1 ohm) No visible damage                      | Clause 4.25.1 Rated voltage, 1.5h "ON", 0.5h "OFF",<br>70°C, 1000h.   |
| Endurance at the upper category temperature | ΔR≤±(5%+0.1 ohm) No visible damage                      | Clause 4.25.3 125°C, no-load, 1000h.  |
| Adhesion                                    | No visible damage                                       | Clause 4.32 5N, 10s   |
| Bend strength of the face plating           | ΔR≤±(1%+0.05 ohm)                                       | Clause 4.33 Amount of bend : 3mm  |