

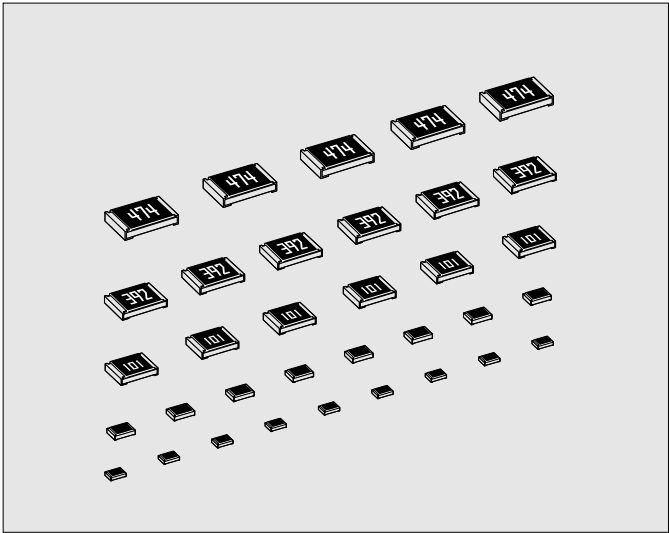
FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE & PRECISION

KAMAYA OHM

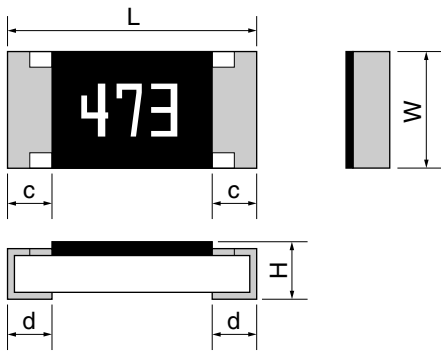
RGC

●Features

1. Suitable for precision applications.
2. High stabilized characteristics and Performance equivalent to thin-film chip resistors.
3. Precise Dimension by Laser-scriber method (RGC1/20).
4. Press Pocket Taping Package (RGC1/20).
5. Please contact KAMAYA for Halogen and Antimony free product of RGC series.
6. Stability Class : 5%



●Dimensions



Rated resistance value marking is with 3-digit (E24) or 4-digit (E96) on the over coating.  
RGC1/16 : only 3digit marking is available.  
RGC1/16S,1/20 : only No marking is available.

| Style    | Metric | Inch | L        | W                                     | H          | c          | d                                     | *Unit weight/pc. |
|----------|--------|------|----------|---------------------------------------|------------|------------|---------------------------------------|------------------|
| RGC1/20  | 0603   | 0201 | 0.6±0.03 | 0.3 ±0.03                             | 0.23 ±0.03 | 0.1 ±0.05  | 0.15 ±0.05                            | 0.16mg           |
| RGC1/16S | 1005   | 0402 | 1.0±0.05 | 0.5 ±0.05                             | 0.35 ±0.05 | 0.2 ±0.1   | 0.25 <sup>+0.05</sup> <sub>-0.1</sub> | 0.6mg            |
| RGC1/16  | 1608   | 0603 | 1.6±0.1  | 0.8 <sup>+0.15</sup> <sub>-0.05</sub> | 0.45 ±0.10 | 0.25 ±0.10 | 0.3 ±0.1                              | 2mg              |
| RGC1/10  | 2012   | 0805 | 2.0±0.1  | 1.25 ±0.10                            | 0.6 ±0.1   | 0.4 ±0.2   | 0.4 ±0.2                              | 5mg              |
| RGC1/8   | 3216   | 1206 | 3.2±0.15 | 1.6 ±0.15                             | 0.6 ±0.1   | 0.5 ±0.25  | 0.5 ±0.25                             | 9mg              |

Unit : mm

\*Values for reference

●Part Number Description

Example

Style

RGC1/16

Product Type

| Rated Dissipation & Size |                   |        |      |
|--------------------------|-------------------|--------|------|
| Code                     | Rated Dissipation | Metric | Inch |
| 1/20                     | 0.05W             | 0603   | 0201 |
| 1/16S                    | 0.063W            | 1005   | 0402 |
| 1/16                     | 0.1W<br>(0.063W)  | 1608   | 0603 |
| 1/10                     | 0.125W<br>(0.1W)  | 2012   | 0805 |
| 1/8                      | 0.25W<br>(0.125W) | 3216   | 1206 |

\*If Category Temperature Range is "-55~+155", Rated Dissipation is applied to in ( ).

C

473

D

TP

| Tolerance on Rated Resistance |       |
|-------------------------------|-------|
| D                             | ±0.5% |
| F                             | ±1.0% |

| Rated Resistance                    |         |
|-------------------------------------|---------|
| E24 Series<br>e.g. : 473=47k ohm    | 3-Digit |
| E96 Series<br>e.g. : 7152=71.5k ohm | 4-Digit |

| Temperature Coefficient of Resistance |                            |
|---------------------------------------|----------------------------|
| C                                     | ± 50×10 <sup>-6</sup> /°C  |
| K                                     | ± 100×10 <sup>-6</sup> /°C |

| * Packaging & Standard Qty. (Min.) |                                     |            |                              |
|------------------------------------|-------------------------------------|------------|------------------------------|
| B                                  | Bulk (Loose Package)                | 1,000pcs.  | All Styles                   |
| PA                                 | Press-Pocket Paper Tape (2mm pitch) | 15,000pcs. | RGC1/20                      |
| TH                                 | Paper Tape (2 mm pitch)             | 10,000pcs. | RGC1/16S                     |
| TP                                 | Paper Tape                          | 5,000pcs.  | RGC1/16<br>RGC1/10<br>RGC1/8 |
| BA                                 | Bulk Case                           | 25,000pcs. | RGC1/16                      |
|                                    |                                     | 10,000pcs. | RGC1/10                      |
|                                    |                                     | 5,000pcs.  | RGC1/8                       |

\*Refer to Tape and Packaging information on pages 52 and 53.  
\*Please contact Kamaya sales department for 1mm pitch taping of RGC1/16s, 1/20.

## FIXED THICK FILM CHIP RESISTORS; RECTANGULAR TYPE &amp; PRECISION

RGC

## ●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 |
|----------|--------------------|-----------------------------|------------------------|---------|---------|------------|-------------------------------|---------------------------------------|----------------------|----------------------------|---------------------|-------------------------------|
|          |                    |                             | 10Ω                    | 100Ω    | 1kΩ     | 1MΩ        |                               | Code                                  | 10 <sup>-6</sup> /°C |                            |                     |                               |
| RGC1/20  | 0603 (0201)        | 0.05                        |                        | 51~976  |         |            | D(±0.5%)                      | K                                     | ±100                 | 25                         | 50                  | -55~+125                      |
|          |                    |                             |                        |         | 1k~1M   |            |                               | C                                     | ±50                  |                            |                     |                               |
| RGC1/16S | 1005 (0402)        | 0.063                       |                        | 10~97.6 |         |            | D(±0.5%)<br>F(±1%)            | K                                     | ±100                 | 50                         | 100                 | -55~+155                      |
|          |                    |                             |                        |         | 100~1M  |            |                               | C                                     | ±50                  |                            |                     |                               |
|          |                    |                             |                        |         |         | 1.02M~3.3M |                               | K                                     | ±100                 |                            |                     |                               |
| RGC1/16  | 1608 (0603)        | 0.1<br>*1(0.063)            | 3.3~97.6               |         |         |            | F(±1%)                        | K                                     | ±100                 |                            |                     | -55~+125<br>*1(-55~+155)      |
|          |                    |                             |                        | 10~97.6 |         |            | D(±0.5%)<br>F(±1%)            | C                                     | ±50                  |                            |                     |                               |
|          |                    |                             |                        |         | 100~1M  |            |                               | K                                     | ±100                 |                            |                     |                               |
|          |                    |                             |                        |         |         | 1.02M~3.3M |                               |                                       |                      |                            |                     |                               |
| RGC1/10  | 2012 (0805)        | 0.125<br>*1(0.1)            | 3.3~97.6               |         |         |            | F(±1%)                        | C                                     | ±50                  | 150                        | 500                 |                               |
|          |                    |                             |                        |         | 10~3.3M |            | D(±0.5%), F(±1%)              |                                       |                      |                            |                     |                               |
| RGC1/8   | 3216 (1206)        | 0.25<br>*1(0.125)           | 3.3~97.6               |         |         |            | F(±1%)                        | C                                     | ±50                  | 200                        |                     |                               |
|          |                    |                             |                        |         | 10~4.7M |            | D(±0.5%), F(±1%)              |                                       |                      |                            |                     |                               |

\*1 If Category Temperature Range is "-55~+155", Rated Dissipation is applied to in ( ).

Note1. E24, E96 are available for "F"(1%) and "D"(0.5%)

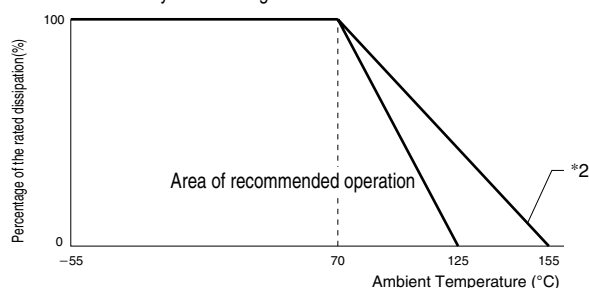
Note2. Rated Voltage =  $\sqrt{(\text{Rated Dissipation}) \times (\text{Rated Resistance})}$ . (d.c. or a.c. r.m.s. Voltage)

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.

## ●Derating Curve

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



## ●Climatic Category

55/125/56 \*2(55/155/56)

Lower Category Temperature -55°C \*2(-55°C)

Upper Category Temperature +125°C \*2(+155°C)

Duration of the Damp heat,

Steady-State Test 56 days \*2(56 days)

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

| Description                                 | Requirements  | Test Methods  |
|---|---|---|
| Voltage proof                               | No breakdown or flashover<br>$R \geq 1G \text{ ohm}$                            | Clause 4.7 RGC1/20 50Va.c., 60s<br>RGC1/16S, 1/16, 1/10, 1/8 100Va.c., 60s  |
| Variation of resistance with temperature    | See Ratings Table   | Clause 4.8 Measuring temperature : +20°C/+125°C *2(+155°C)/+20°C  |
| Overload                                    | $\Delta R \leq \pm(1\%+0.05 \text{ ohm})$<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                | $\Delta R \leq \pm(1\%+0.05 \text{ ohm})$                                       | 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                 | $\Delta R \leq \pm(1\%+0.05 \text{ ohm})$ No visible damage                     | Clause 4.19 5 cycles between -55°C and +125°C *2(+155°C).   |
| Climatic sequence                           | $\Delta R \leq \pm(5\%+0.1 \text{ ohm})$ 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                     | $\Delta R \leq \pm(5\%+0.1 \text{ ohm})$ 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                           | $\Delta R \leq \pm(5\%+0.1 \text{ ohm})$ 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 | $\Delta R \leq \pm(5\%+0.1 \text{ ohm})$ No visible damage                      | Clause 4.25.3 125°C *2(155°C), no-load, 1,000h.   |
| Adhesion                                    | No visible damage   | Clause 4.32 5N, 10s (RGC1/20 : 3N)  |
| Bend strength of the face plating           | $\Delta R \leq \pm(1\%+0.05 \text{ ohm})$                                       | Clause 4.33 Amount of bend : 3 mm   |

\*2 ( ) on Derating Curve, Climatic Category, and Test Methods will be applied, when Upper Category Temperature is +155°C.