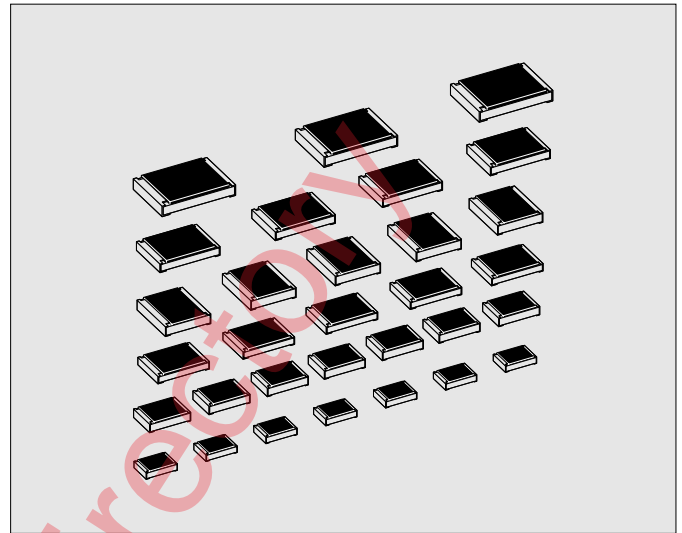


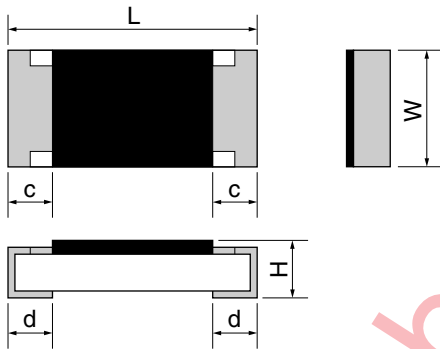
FCR

●Features

1. FCR is a trimmable device and replaceable with various resistors.
2. Resistance and coating film designed for YAG Laser Trimming.
3. Please contact KAMAYA for Halogen and Antimony free product of FCR series.
4. Stability Class : 5%



●Dimensions



Unit : mm

| Style | Metric | Inch | L | W | H | c | d | *Unit weight/pc. |
|---------|--------|------|----------|---------------------------------------|-----------|----------|----------|------------------|
| FCR1/16 | 1608 | 0603 | 1.6±0.1 | 0.8 ^{+0.15} _{-0.10} | 0.45±0.10 | 0.3±0.1 | 0.3±0.1 | 2mg |
| FCR1/10 | 2012 | 0805 | 2.0±0.1 | 1.25±0.10 | 0.55±0.10 | 0.4±0.2 | 0.4±0.2 | 5mg |
| FCR1/8 | 3216 | 1206 | 3.2±0.15 | 1.6±0.15 | 0.55±0.10 | 0.5±0.25 | 0.5±0.25 | 9mg |
| FCR1/4 | 3225 | 1210 | 3.2±0.15 | 2.5±0.15 | 0.55±0.15 | 0.5±0.25 | 0.5±0.25 | 16mg |
| FCR1/2 | 5025 | 2010 | 5.0±0.15 | 2.5±0.15 | 0.55±0.15 | 0.6±0.2 | 0.6±0.2 | 25mg |
| FCR1 | 6332 | 2512 | 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 | | 471 | L | TE |
| FCR | 1/4 | | | |
| Product Type | Rated Dissipation & Size | | | * Packaging & Standard Qty. (Min.) |
| | Code | Rated Dissipation | Metric | Inch |
| | 1/16 | 0.063W | 1608 | 0603 |
| | 1/10 | 0.1W | 2012 | 0805 |
| | 1/8 | 0.125W | 3216 | 1206 |
| | 1/4 | 0.25W | 3225 | 1210 |
| | 1/2 | 0.5W | 5025 | 2010 |
| | 1 | 1.0W | 6332 | 2512 |
| | Tolerance on Rated Resistance | | | |
| | - | 0 -30 % | | |
| | L | ±15% | | |
| | Rated Resistance | | | |
| | E24 Series | | | |
| | e.g. : 471=470 ohm | | | |
| B | Bulk (Loose Package) | 1,000pcs. | All Styles | |
| TP | Paper Tape | 5,000pcs. | FCR1/16 FCR1/10 FCR1/8 | |
| TE | Embossed Tape | 4,000pcs. | FCR1/4 FCR1/2 FCR1 | |

*Refer to Tape and Packaging information on pages 54 and 55.

TRIMMABLE CHIP RESISTORS; RECTANGULAR TYPE

FCR

●Ratings

| Style | Size Metric (Inch) | Rated Dissipation at 70°C W | Combinations of Rated Resistance Range and Temperature Coefficient of Resistance | | Tolerance on Rated Resistance | Limiting Element Voltage V | Preferred Number Series for Resistors | Isolation Voltage V | Category Temperature Range °C |
|---------|--------------------------|-----------------------------------|---|--|----------------------------------|----------------------------------|---|---------------------------|-------------------------------------|
| | | | Rated Resistance Range | Temperature Coefficient of Resistance 10 ⁴ /°C | | | | | |
| FCR1/16 | 1608 (0603) | 0.063 | 10Ω~4.7MΩ | ±200 | L (±15%) -(0~-30%) | 50 | E24 | 100 | -55~+125 |
| FCR1/10 | 2012 (0805) | 0.1 | 1Ω~9.1Ω 10Ω~4.7MΩ | +500~-200 ±200 | | 150 | | | |
| FCR1/8 | 3216 (1206) | 0.125 | | | | 200 | 500 | | |
| FCR1/4 | 3225 (1210) | 0.25 | | | | | | | |
| FCR1/2 | 5025 (2010) | 0.5 | | | | | | | |
| FCR1 | 6332 (2512) | 1.0 | | | | | | | |

Note1. Rated Voltage = √(Rated Dissipation)×(Rated Resistance). (d.c. or a.c. r.m.s. Voltage)

Note2. Limiting Element Voltage can only be applied to resistors when the resistance value is equal to or higher than the critical resistance value.

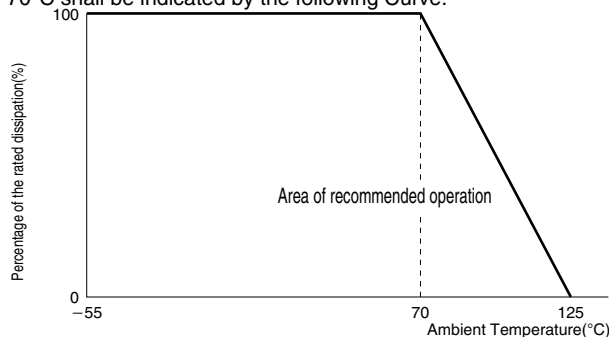
Note3. Critical Resistance Value is the resistance value at which the rated voltage is equal to the limiting element voltage.

Note4. T.C.R.: ±100×10⁻⁶/°C (10 ohm~1M ohm) is available on your request.

Note5. The indicated values of Ratings are in the case without trimming.

●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

Lower Category Temperature

-55°C

Upper Category Temperature

+125°C

Duration of the Damp heat, Steady-State Test

56 days

●Performance Characteristics JIS C 5201-1 : 1998

| Description | Requirements | Test Methods |
|---|--|--|
| Voltage proof | No breakdown or flashover R _≥ 1G ohm | Clause 4.7 FCR1/16 100Va.c.,60s FCR1/10~1 500Va.c.,60s |
| Variation of resistance with temperature | See Ratings Table | Clause 4.8 Measuring temperature : +20°C/-55°C/ +20°C/+125°C/+20°C |
| Overload | ΔR _≤ ±(1%+0.05 ohm) 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 of 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/ 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", 70°C, 1,000h. |
| Endurance at the upper category temperature | ΔR _≤ ±(5%+0.1 ohm) No visible damage | Clause 4.25.3 125°C, no-load, 1,000h. |
| Adhesion | No visible damage | Clause 4.32 5N, 10s |
| Bend strength of the face plating | ΔR _≤ ±(1%+0.05 ohm) | Clause 4.33 FCR1/16~1/4 Amount of bend : 3 mm FCR1/2, 1 Amount of bend : 1 mm |

Note5. The indicated characteristics value is without trimming.