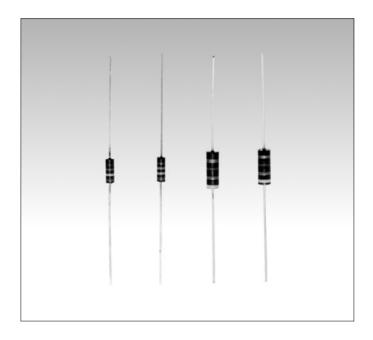
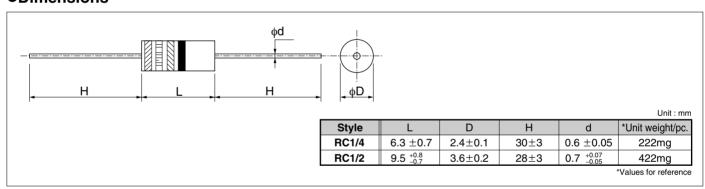
RC

●Features

- 1. Improved pulse endurance characteristics compared to carbon-film
- 2. Wide resistance range is available, 1 ohm ~ 22M ohm.
- 3. Stability Class: 10%

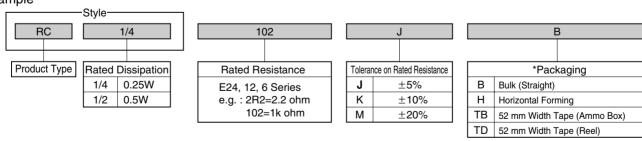


Dimensions



●Part Number Description





*Refer to Tape and Packaging information on pages 66.

FIXED CARBON COMPOSITION RESISTORS

Ratings

	Rated Dissipation at 70°C W	Limiting Element Voltage V	Rated Resistance	Combination of Rated Resistance Range and Temperature Coefficient of Resistance			Toloronce on Dated Desistance and	Isolation	Category Temperature
Style				Temperature Coefficient of Resistance %		Rated Resistance	Tolerance on Rated Resistance and Perferred Number Series for Resistors	Voltage	Range
				at -55 °C	at +125 °C	Range	I GIGITEU NUITIDEL DELICS IDI FICSISIDIS	V	°C
RC1/4	0.25	250	1 ohm~5.6M ohm	+6.5 ~0	+1~-5	1 ohm ~ 1k ohm	J (± 5%) : E24	100	55~+125
				+10 ~0	0~-6 0~-7.5	1.1k ohm ~ 10k ohm 11k ohm ~100k ohm	K (± 10%)		
RC1/2	0.5	350	1 ohm~22M ohm	+13 ~0 +15 ~0	0~-7.5	110k ohm ~ 100k ohm	: E12	500	
				+15 ~0	0~-10	1.1M ohm ~ 22M ohm	M(± 20%) : E6		

Note1. Rated Voltage = $\sqrt{\text{(Rated Dissipation)} \times (\text{Rated Resistance})}$. (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.

Storage

Temperature 20±15°C, Humidity 60%R.H. Max, Recommendation Storing Term 6 months after shipped from factory.

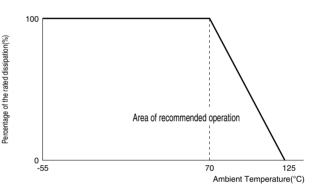
Derating Curve

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	Clause 4.7 V-block method RC1/4 100Va.c.,60s RC1/2 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≤±(2%+0.1 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 the less Severe, 5s.			
	Tensile	ΔR≤±(2%+0.1 ohm) No visible damage	Clause 4.16.2 10N for 5~10s			
Robustness of terminations	Bending	ΔR≤±(2%+0.1 ohm) No visible damage	Clause 4.16.3 5N twice			
	Torsion	ΔR≤±(2%+0.1 ohm) No visible damage	Clause 4.16.4 180°C, 2 rotation			
Solderability		In accordance with Clause 4.17.4.5	Clause 4.17 235°C, 5s			
Resistance to soldering heat		ΔR≤±(3%+0.1 ohm) No visible damage, legible marking	Clause 4.18 After immersion into the flux, the immersion into solder shall be carried out 4mm from the body at 350°C for 3.5s.			
Rapid change of temperature		ΔR≤±(2%+0.1 ohm) No visible damage	Clause 4.19 5 cycles between -55°C and +125°C.			
Climatic sequence		ΔR≤±(10%+0.5 ohm) Insulation resistance : R≥100M 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≤±(10%+0.5 ohm) Insulation resistance : R≥100M ohm No visible damage, legible marking	Clause 4.24 40°C, 95%R.H., 56 days, test a), b) and c) of Clause 4.24.2.1			
Endurance at 70°C		ΔR≤±(10%+0.5 ohm) No visible damage Insulation resistance : R≥1G ohm	Clause 4.25.1 Rated voltage, 1.5h "ON", 0.5h "OFF", 70°C, 1,000h.			
Endurance at the upper category temperature		ΔR≤±(10%+0.5 ohm) No visible damage Insulation resistance : R≥1G ohm	Clause 4.25.3 125°C, no-load, 1,000h.			

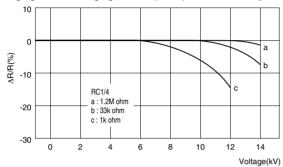
Note3. Critical Resistance Value is the resistance value at which the rated voltage is equal to the limiting element voltage.

FIXED CARBON COMPOSITION RESISTORS

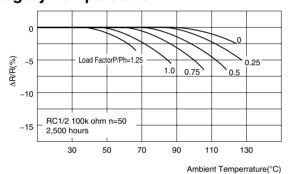
Typical Characteristics

Surge Resistance Characteristics

Charging and discharging a 2,000 pF capacitor for 100 cycles.

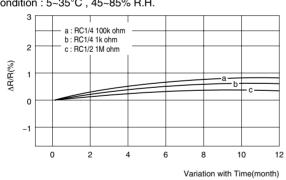


Relationship between Load Ratio and Category Temperature



Variation with Time

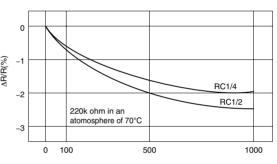
Condition: 5~35°C, 45~85% R.H.



1R/R(%) RC1/2 -20 b : 10k ohm c: 1k ohm -30 14

Endurance at 70°C

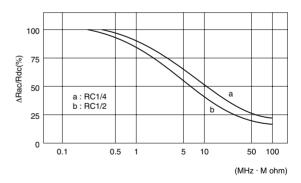
10



Testing Time(Hrs.)

Voltage(kV)

Frequency Characteristics



[&]quot;Typical characteristics indicate the mean values of $\Delta R/R$ etc."

Reliability Test

Endurance in humidity

Samples: RC1/4J,100 ohm,1k ohm,10k ohm,100k ohm×150 each. Total 2,400.

Conditions: Direct current voltage equivalent to the following load ratings in cycles on "ON" for 1.5h and "OFF" for 0.5h for a total of 5,000h in an atmosphere of 40°C, 90 to 95%R.H.

Criterion (%)		Load Ratio P/Pn	Total Testing Time	Number of Failures	Failure	Average Lifetime (60% reliability level)	
		(%)	T(Hrs.)	r(pcs.)	λ	λCL(60%)	(Hrs.)
ΔR/R	±5	0	2.984X10 ⁶	6	0.201	0.244	4.098×10⁵
		20	2.990X10 ⁶	4	0.134	0.176	5.682×10⁵
		60	2.997X10 ⁶	2	0.067	0.104	9.615×10⁵
		100	2.992X10 ⁶	3	0.100	0.139	7.194×10⁵
		Total	1.196X10 ⁷	15	0.125	0.138	7.209×10⁵
	±10	Total	1.20X10 ⁷	0	0.0055	0.007	1.299×10 ⁷