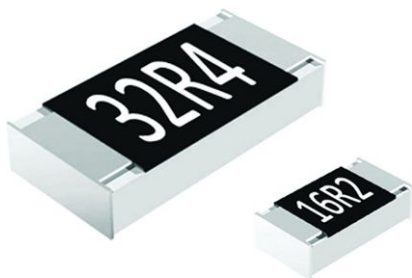


Fully RoHS Compliant, Green, Thick Film, Rectangular Chip Resistors



FEATURES

- Fully Green** resistor body with pure tin solder contacts
- Stability $\Delta R/R = 1\%$ for 1000 h at 70 °C
- Metal glaze on high quality ceramic
- Compliant to RoHS Directive 2002/95/EC
- AEC-Q200 qualified



STANDARD ELECTRICAL SPECIFICATIONS

MODEL	SIZE		RATED DISSIPATION P_{70} W	LIMITING ELEMENT VOLTAGE $U_{max. AC/DC}$	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE Ω	SERIES
	INCH	METRIC						
RCG0603	0603	RR 1608M	0.1	75	± 100 ± 200	± 1 ± 5	1R0 to 10M	E24; E96 E24
			Zero-Ohm-Resistor: $R_{max.} = 20\text{ m}\Omega$, $I_{max.} = 2.0\text{ A}$					
RCG0805	0805	RR 2012M	0.125	150	± 100 ± 200	± 1 ± 5	1R0 to 10M	E24; E96 E24
			Zero-Ohm-Resistor: $R_{max.} = 20\text{ m}\Omega$, $I_{max.} = 2.5\text{ A}$					
RCG1206	1206	RR 3216M	0.25	200	± 100 ± 200	± 1 ± 5	1R0 to 10M	E24; E96 E24
			Zero-Ohm-Resistor: $R_{max.} = 20\text{ m}\Omega$, $I_{max.} = 3.5\text{ A}$					

Notes

- These resistors do not feature a limited lifetime when operated within the permissible limits. However, resistance value drift increasing over operating time may result in exceeding a limit acceptable to the specific application, thereby establishing a functional lifetime.
- Marking: See datasheet "Surface Mount Resistor Marking" (document number 20020).
- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material.

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RCG0603	RCG0805	RCG1206
Rated dissipation P_{70} ⁽¹⁾	W	0.1	0.125	0.25
Limiting element voltage $U_{max. AC/DC}$	V	75	150	200
Insulation voltage U_{ins} (1 min)	V	> 100	> 200	> 300
Insulation resistance	Ω	> 10^9		
Category temperature range	°C	- 55 to + 155		
Weight	mg	2	5.5	10

Note

- ⁽¹⁾ The power dissipation on the resistor generates a temperature rise against the local ambient, depending on the heat flow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature of 155 °C is not exceeded.

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

PART NUMBER AND PRODUCT DESCRIPTION

Part Number: RCG080510K0FKEA00

R	C	G	0	8	0	5	1	0	K	0	F	K	E	A	0	0
MODEL			VALUE			TOLERANCE			TCR			PACKAGING			SPECIAL	
RCG0603 RCG0805 RCG1206			R = Decimal K = Thousand M = Million 0000 = 0 Ω Jumper			F = $\pm 1\%$ J = $\pm 5\%$ Z = Jumper			K = ± 100 ppm/K N = ± 200 ppm/K 0 = Jumper			EA EB EC			Up to 2 digits 00 = Standard	

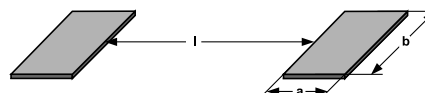
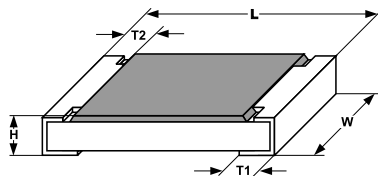
PRODUCT DESCRIPTION: RCG0805 100 10K 1% EA

RCG0805	100	10K	1%	EA
MODEL	TCR	RESISTANCE VALUE	TOLERANCE	PACKAGING
RCG0603 RCG0805 RCG1206	± 100 ppm/K ± 200 ppm/K	10R = 10 Ω 10K = 10 k Ω 1M = 1 M Ω 0R0 = JUMPER	$\pm 1\%$ $\pm 5\%$	EA EB EC

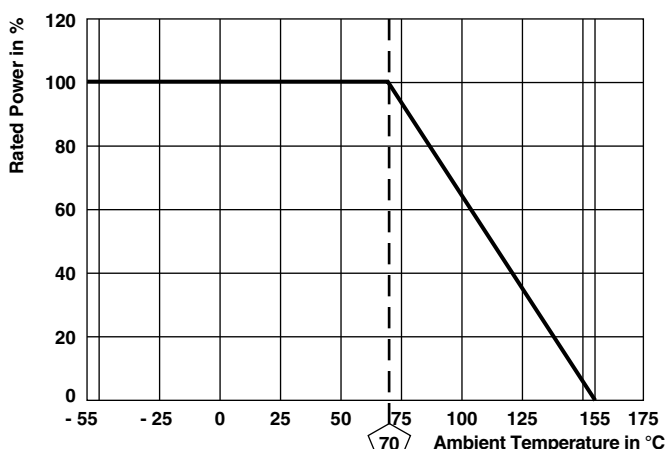
PACKAGING

MODEL	UNIT	PAPER TAPE ON REEL ACC. TO IEC 60286-3, TYPE I	
		QUANTITY	CODE
RCG0603	180 mm/7"	5000	EA
	285 mm/11.25"	10 000	EB
	330 mm/13"	20 000	EC
RCG0805	180 mm/7"	5000	EA
	285 mm/11.25"	10 000	EB
	330 mm/13"	20 000	EC
RCG1206	180 mm/7"	5000	EA
	285 mm/11.25"	10 000	EB
	330 mm/13"	20 000	EC

DIMENSIONS



SIZE		DIMENSIONS in millimeters					SOLDER PAD DIMENSIONS in millimeters					
							REFLOW SOLDERING			WAVE SOLDERING		
INCH	METRIC	L	W	H	T1	T2	a	b	l	a	b	l
0603	1608	1.55 $^{+0.10}_{-0.05}$	0.85 ± 0.1	0.45 ± 0.05	0.3 ± 0.2	0.3 ± 0.2	0.5	0.9	1.0	0.9	0.9	1.0
0805	2012	2.0 $^{+0.20}_{-0.10}$	1.25 ± 0.15	0.45 ± 0.05	0.3 $^{+0.20}_{-0.10}$	0.3 ± 0.2	0.7	1.3	1.2	0.9	1.3	1.3
1206	3216	3.2 $^{+0.10}_{-0.20}$	1.6 ± 0.15	0.55 ± 0.05	0.45 ± 0.2	0.4 ± 0.2	0.9	1.7	2.0	1.1	1.7	2.3

FUNCTIONAL PERFORMANCE
Derating

GREEN REQUIREMENTS**

SUBSTANCES	CONCENTRATION LIMIT
Lead (Pb)	< 1000 ppm
Mercury (Hg)	< 1000 ppm
Cadmium (Cd)	< 100 ppm
Hexavalent Chromium	< 1000 ppm
Polybrominated Biphenyl (PBB)	< 1000 ppm
Polybrominated Diphenyl Ether (PBDE)	< 1000 ppm
Bromine (Br)	< 900 ppm
Chlorine (Cl)	< 900 ppm
Sum of Bromine and Chlorine	≤ 1500 ppm max.
Antimony (Sb)	< 900 ppm
Red Phosphorous	< 100 ppm

Notes

- No exemptions (e.g. Pb in glass) may be applied to any substances or application for the "Green" category
- All concentration levels are based on homogenous materials

TEST PROCEDURES AND REQUIREMENTS

EN 60115-1 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS PERMISSIBLE CHANGE (ΔR)	
				STABILITY CLASS 2 OR BETTER	
			Stability for product types:		
			RCG e3	1 Ω to 10 M Ω	1 Ω to 10 M Ω
4.5	-	Resistance	-	$\pm 1 \%$	$\pm 5 \%$
4.7	-	Voltage proof	$U = 1.4 \times U_{ins}$; 60 s	No flashover or breakdown	
4.13	-	Short time overload	$U = 2.5 \times \sqrt{P_{70} \times R} \leq 2 \times U_{max.}$; duration: Acc. to style	$\pm (0.25 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
4.17.2	58 (Td)	Solderability	Solder bath method; Sn96.5Ag3Cu0.5 non-activated flux; (245 \pm 5) $^{\circ}$ C (3 \pm 0.3) s	Good tinning ($\geq 95 \%$ covered); no visible damage	
4.8.4.2	-	Temperature coefficient	(20/- 55/20) $^{\circ}$ C and (20/125/20) $^{\circ}$ C	± 100 ppm/K	± 200 ppm/K
4.32	21 (Uu ₃)	Shear (adhesion)	RR 1608: 9N RR 2012 and larger: 45N	No visible damage	

TEST PROCEDURES AND REQUIREMENTS					
EN 60115-1 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS PERMISSIBLE CHANGE (ΔR)	
				STABILITY CLASS 2 OR BETTER	
			Stability for product types:	1 Ω to 10 M Ω	1 Ω to 10 M Ω
			RCG e3		
4.33	21 (Uu ₁)	Substrate bending	Depth 2 mm; 3 times	No visible damage, no open circuit in bent position $\pm (0.25 \% R + 0.05 \Omega)$	
4.23	-	Climatic sequence:	-	$\pm (1 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.1 \Omega)$
4.23.2	2 (Ba)	Dry heat	125 °C; 16 h		
4.23.3	30 (Db)	Damp heat, cyclic	55 °C; $\geq 90 \% RH$; 24 h; 1 cycle		
4.23.4	1 (Aa)	Cold	- 55 °C; 2 h		
4.23.5	13 (M)	Low air pressure	1 kPa; (25 \pm 10) °C; 1 h		
4.23.6	30 (Db)	Damp heat, cyclic	55 °C; $\geq 90 \% RH$; 24 h; 5 cycles		
4.23.7	-	DC load	$U = \sqrt{P_{70} \times R}$		
4.25.1	-	Endurance at 70 °C	$U = \sqrt{P_{70} \times R} \leq U_{max.}$; 1.5 h on; 0.5 h off; 70 °C; 1000 h	$\pm (1 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.1 \Omega)$
4.18.2	58 (Td)	Resistance to soldering heat	Solder bath method (260 \pm 5) °C; (10 \pm 1) s	$\pm (0.25 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
4.35	-	Flamability, needle flame test	IEC 60695-11-5; 10 s	No burning after 30 s	
4.24	78 (Cab)	Damp heat, steady state	(40 \pm 2) °C; (93 \pm 3) % RH; 56 days	$\pm (1 \% R + 0.05 \Omega)$	
4.25.3	-	Endurance at upper category temperature	155 °C, 1000 h	$\pm (1 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.1 \Omega)$
4.40	-	Electrostatic discharge (human body model)	IEC 61340-3-1; 3 pos. + 3 neg. discharges; ESD test voltage acc. to size	$\pm (1 \% R + 0.05 \Omega)$	
4.29	45 (XA)	Component solvent resistance	Isopropyl alcohol; 50 °C; method 2	No visible damage	
4.30	45 (XA)	Solvent resistance of marking	Isopropyl alcohol; 50 °C; method 1, toothbrush	Marking legible, no visible damage	
4.22	6 (Fc)	Vibration, endurance by sweeping	f = 10 Hz to 2000 Hz; x, y, z \leq 1.5 mm; A \leq 200 m/s ² ; 10 sweeps per axis	$\pm (0.25 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
4.37	-	Periodic electric overload	$U = \sqrt{15 \times P_{70} \times R}$ $\leq 2 \times U_{max.}$; 0.1 s on; 2.5 s off; 1000 cycles	$\pm (1 \% R + 0.05 \Omega)$	
4.27	-	Single pulse high voltage overload, 10 μ s/700 μ s	$\hat{U} = 10 \times \sqrt{P_{70} \times R}$ $\leq 2 \times U_{max.}$; 10 pulses	$\pm (1 \% R + 0.05 \Omega)$	

All tests are carried out in accordance with the following specifications:

- EN 60115-1, generic specification
- EN 140400, sectional specification
- EN 140401-802, detail specification
- IEC 60068-2, environmental test procedures

Packaging of components is done in paper or blister tapes according to IEC 60286-3.



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