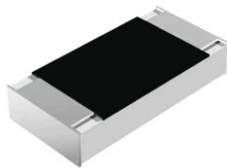


Standard Thick Film Chip Resistors



FEATURES

- Very small standard size (0.4 mm x 0.2 mm)
- Low tolerance (1 %)
- Material categorization:
For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

STANDARD ELECTRICAL SPECIFICATIONS

TYPE	CASE SIZE IMPERIAL	CASE SIZE METRIC	POWER RATING P_{70} W	LIMITING ELEMENT VOLTAGE $U_{max.}$ AC _{RMS} /DC V	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE Ω	SERIES				
CRCW01005	01005	RR0402M	0.031	15	± 250	± 1	10.0 to 1M	E24; E96				
						± 2, ± 5		E24				
					-200/+600	± 1	1.0 to 9.76	E24; E96				
						± 2, ± 5	1.0 to 9.1	E24				
					Zero-Ohm-Resistor: $R_{max.} = 50\text{ m}\Omega$, $I_{max.} = 0.5\text{ A}$							

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.
- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material.

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CRCW01005
Rated Dissipation P_{70} ⁽¹⁾	W	0.031
Operating Voltage $U_{max. AC_{RMS}/DC}$	V	15
Insulation Voltage U_{ins} (1 min)	V	30
Insulation Resistance	Ω	$> 10^9$
Operating Temperature Range	$^{\circ}\text{C}$	-55 to +125
Mass	mg	0.07

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 125 $^{\circ}\text{C}$ is not exceeded.

PART NUMBER AND PRODUCT DESCRIPTION
PART NUMBER: CRCW01001K00FREL

C	R	C	W	0	1	0	0	1	K	0	0	F	R	E	L
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TYPE
CRCW0100

VALUE
R = Decimal K = Thousand M = Million 0000 = Jumper

TOLERANCE
F = $\pm 1.0\%$ G = $\pm 2.0\%$ J = $\pm 5.0\%$ Z = Jumper

TCR
R = ± 250 ppm/K Y = -200 ppm/K/ $+600$ ppm/K 0 = Jumper

PACKAGING
EL

PRODUCT DESCRIPTION: CRCW01005 250 1K0 1 % ET3 e3

CRCW01005
TYPE
CRCW01005

250
TCR
± 250 ppm/K $-200/+600$ ppm/K

1K0
RESISTANCE VALUE
1R0 = $1\ \Omega$ 10R = $10\ \Omega$ 1K0 = $1\ k\Omega$ 10K = $10\ k\Omega$ 1M0 = $1\ M\Omega$ 0R0 = Jumper

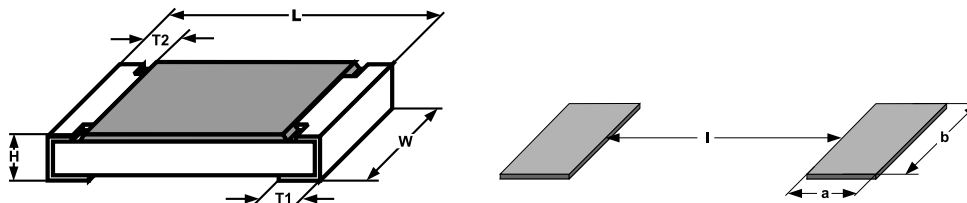
1 %
TOLERANCE VALUE
$\pm 1\%$ $\pm 2\%$ $\pm 5\%$

ET3
PACKAGING
ET3

e3
LEAD (Pb)-FREE
e3 = Pure tin termination finish

PACKAGING

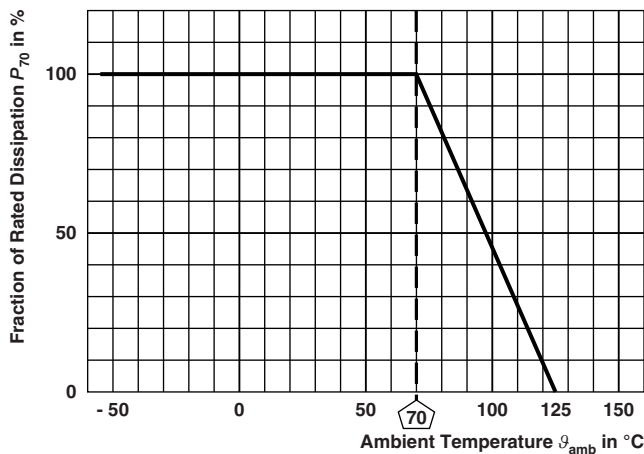
TYPE	CODE	QUANTITY	CARRIER TAPE	WIDTH	PITCH	REEL DIAMETER
CRCW01005	EL = ET3	20 000	Paper tape acc. to IEC 60286-3, Type 1a	8 mm	2 mm	180 mm/7"

DIMENSIONS in millimeters


SIZE		DIMENSIONS					RECOMMENDED SOLDER PAD DIMENSIONS		
IMPERIAL	METRIC	L	W	H	T1	T2	a	b	l
01005	RR0402M	0.4 ± 0.02	0.2 ± 0.02	0.13 ± 0.02	0.10 ± 0.03	0.10 ± 0.03	0.15	0.2	0.2

Note

- No marking for 01005 size.

DERATING


TEST PROCEDURES AND REQUIREMENTS				
EN 60115-1 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS PERMISSIBLE CHANGE (ΔR)
			Stability for product types:	STABILITY CLASS 1 OR BETTER
			CRCW01005 e3	1 Ω to 1 M Ω
4.5	-	Resistance	-	$\pm 1\%$; $\pm 2\%$; $\pm 5\%$
4.13	-	Short time overload	$U = 2.5 \times \sqrt{P_{70} \times R} \leq 2 \times U_{\max.}$; duration according to style	$\pm (2\% R + 0.1 \Omega)$
4.17.2	58 (Td)	Solderability	Solder bath method; Sn60Pb40 non activated flux; (235 $\pm$ 5) $^{\circ}\text{C}$ (2 $\pm$ 0.2) s	Good tinning ($\geq 95\%$ covered) no visible damage
			Solder bath method; Sn96.5Ag3Cu0.5 non-activated flux; (235 $\pm$ 3) $^{\circ}\text{C}$ (2 $\pm$ 0.5) s	Good tinning ($\geq 95\%$ covered) no visible damage
4.8.4.2	-	Temperature coefficient	(20/-55/20) $^{\circ}\text{C}$ and (20/125/20) $^{\circ}\text{C}$	- 200 ppm/K/+600 ppm/K, ± 250 ppm/K
4.33	21 (Uu ₁)	Substrate bending	Depth 3 mm; 1 time	No visible damage, no open circuit in bent position $\pm (1\% R + 0.05 \Omega)$
4.19	14 (Na)	Rapid change of temperature	15 min. at -55 $^{\circ}\text{C}$; 15 min. at 125 $^{\circ}\text{C}$; 300 cycles	$\pm (2\% R + 0.1 \Omega)$
4.25.1	-	Endurance at 70 $^{\circ}\text{C}$	$U = \sqrt{P_{70} \times R} \leq U_{\max.}$; 1.5 h on; 0.5 h off; 70 $^{\circ}\text{C}$; 1000 h	$\pm (5\% R + 0.1 \Omega)$
4.18.2	58 (Td)	Resistance to soldering heat	Solder bath method (260 $\pm$ 5) $^{\circ}\text{C}$; (10 $\pm$ 1) s	$\pm (2\% R + 0.1 \Omega)$
4.24	78 (Cab)	Damp heat, steady state	(40 $\pm$ 2) $^{\circ}\text{C}$; (90 to 95) % RH; 1000 h	$\pm (5\% R + 0.1 \Omega)$
4.25.3	-	Endurance at upper category temperature	125 $^{\circ}\text{C}$; 1000 h	$\pm (2\% R + 0.1 \Omega)$
4.29	45 (XA)	Component solvent resistance	Isopropyl alcohol; (20 to 25) $^{\circ}\text{C}$; (5 $\pm$ 0.5) min	No visible damage

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-x, environmental test procedures

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



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