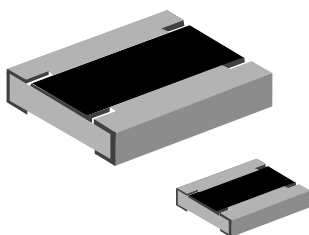


Long Side Termination Thick Film Chip Resistors



FEATURES

- Enhanced power rating
- Long side terminations
- Protective overglaze
- Pure tin solder contacts on Ni barrier layer, provides compatibility with lead (Pb)-free and lead containing soldering processes
- Compliant to RoHS directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition
- AEC-Q200, rev. C compliant



RoHS
COMPLIANT
HALOGEN
FREE

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	SIZE		POWER RATING P_{70} W	LIMITING ELEMENT VOLTAGE MAX. V	TEMPERATURE COEFFICIENT ppm/K	TOLERANCE %	RESISTANCE RANGE Ω	E-SERIES
	INCH	METRIC						
RCL0612 e3	0612	RR1632	0.5	75	± 100	± 1	1 to 1M	E24 + E96
					± 200	± 5		E24
RCL1218 e3	1218	RR3246	1.0	200	± 100	± 1	1 to 2M2	E24 + E96
					± 200	± 5		E24

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 data sheet "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	RCL0612	RCL1218
Rated Dissipation P_{70} ⁽¹⁾	W	0.5	1.0
Limiting Element Voltage $U_{max. AC/DC}$	V	75	200
Insulation Voltage $U_{ins.}$ (1 min)	V	> 100	> 200
Insulation Resistance	Ω	> 10^9	
Category Temperature Range	$^{\circ}\text{C}$	- 55 to + 155	
Weight	mg	11	29.5

Note

⁽¹⁾ The power dissipation on the resistors 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 $^{\circ}\text{C}$ is not exceeded.

PART NUMBER AND PRODUCT DESCRIPTION

PART NUMBER: RCL061210K0FKEA⁽¹⁾

R	C	L	0	6	1	2	1	0	K	0	F	K	E	A		
MODEL/SIZE			VALUE			TOLERANCE			TCR			PACKAGING ⁽²⁾			SPECIAL	
RCL0612 RCL1218			R = Decimal K = Thousand M = Million 0000 = Jumper			F = ± 1 % J = ± 5 % Z = Jumper			K = ± 100 ppm/K N = ± 200 ppm/K 0 = Jumper			EA EB EC EK			Up to 2 digits	

PRODUCT DESCRIPTION: RCL0612 10K 1 % 100 ET1 e3

RCL0612	10K	1 %	100	ET1	e3
MODEL	RESISTANCE VALUE	TOLERANCE	TCR	PACKAGING ⁽²⁾	LEAD (Pb)-FREE
RCL0612 RCL1218	10R = 10 Ω 10K = 10 kΩ 1M = 1 MΩ 0R0 = Jumper	± 1 % ± 5 %	± 100 ppm/K ± 200 ppm/K	ET1 ET5 ET6 ET9	e3 = Pure tin termination finish

Notes

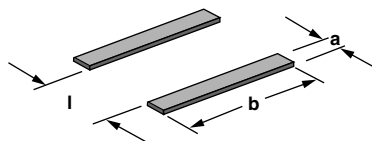
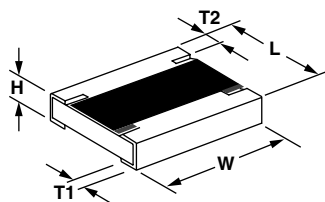
(1) Preferred way for ordering products is by use of the PART NUMBER

(2) Please refer to table PACKAGING, see below

PACKAGING

MODEL	TAPE WIDTH	DIAMETER	PITCH	PIECES/ REEL	PACKAGING CODE			
					PART NUMBER		PRODUCT DESC.	
					PAPER	BLISTER	PAPER	BLISTER
RCL0612	8 mm	180 mm/7"	4 mm	5000	EA		ET1	
		285 mm/11.25"	4 mm	10 000	EB		ET5	
		330 mm/13"	4 mm	20 000	EC		ET6	
RCL1218	12 mm	180 mm/7"	4 mm	4000		EK		ET9

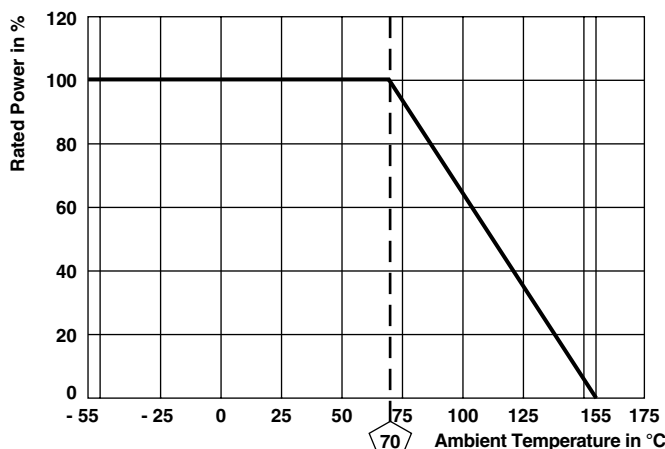
DIMENSIONS in millimeters



SIZE		DIMENSIONS					SOLDER PAD DIMENSIONS					
							REFLOW SOLDERING			WAVE SOLDERING		
INCH	METRIC	L	W	H	T1	T2	a	b	l	a	b	l
0612	1632	1.6 ± 0.2	3.2 ± 0.2	0.55 ± 0.1	0.35 ± 0.15	0.25 ± 0.15	0.6	3.2	1.0	1.1	3.2	1.0
1218	3246	3.2 ^{+0.10} _{-0.20}	4.6 ± 0.15	0.55 ± 0.05	0.45 ± 0.2	0.4 ± 0.2	1.1	4.9	1.9	1.25	4.8	1.9

FUNCTIONAL PERFORMANCE

Derating



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 1 M Ω	
			RCL e3		
4.5	-	Resistance	-	$\pm 1 \%$	$\pm 5 \%$
4.7	-	Voltage proof	$U = 1.4 \times U_{\text{ins}}$; 60 s	No flashover or breakdown	
4.13	-	Short time overload	$U = 2.5 \times \sqrt{P_{70} \times R} \leq 2 \times U_{\text{max.}}$; 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; 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; (245 $\pm$ 5) $^{\circ}\text{C}$ (3 $\pm$ 0.3) 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) $^{\circ}\text{C}$	$\pm 100 \text{ ppm/K}$	$\pm 200 \text{ ppm/K}$
4.32	21 (Uu ₃)	Shear (adhesion)	45N	No visible damage	
4.33	21 (Uu ₁)	Substrate bending	Depth 2 mm; 3 times	No visible damage, no open circuit in bent position $\pm (0.25 \% R + 0.05 \Omega)$	
4.19	14 (Na)	Rapid change of temperature	30 min at - 55 $^{\circ}\text{C}$; 30 min at 125 $^{\circ}\text{C}$		
			5 cycles	$\pm (0.25 \% R + 0.05 \Omega)$	$\pm (0.5 \% R + 0.05 \Omega)$
			1000 cycles	$\pm (1 \% R + 0.05 \Omega)$	$\pm (1 \% R + 0.05 \Omega)$

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 1 M Ω	
			RCL e3		
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 70 °C; 8000 h	$\pm (0.5 \% R + 0.05 \Omega)$ $\pm (1 \% R + 0.05 \Omega)$	$\pm (2 \% R + 0.1 \Omega)$ $\pm (4 \% R + 0.1 \Omega)$
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 voltage: 1000 V	$\pm (1 \% R + 0.05 \Omega)$	
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	$\dot{U} = 10 \times \sqrt{P_{70} \times R}$ $\leq 2 \times U_{\max.}$; 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



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.