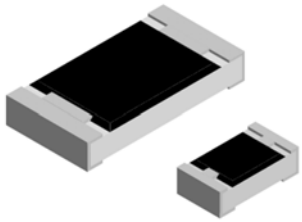
Thick Film Surface Mount Chip Resistors, Wraparound, Extremely Low Value (0.01 Ω to 0.976 Ω)



FEATURES

- Extremely low resistance values (0.01 Ω to 0.976 Ω)
- Enhanced power rating due to long side terminal construction (0612, 1020 types)
- Suitable for current sensing and shunts
- Metal glaze on high quality ceramic
- Protective overglaze
- Lead (Pb)-free solder contacts on Ni barrier layer
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb e3 RoHS COMPLIANT HALOGEN FREE

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	CASE SIZE	POWER RATING $P_{70\,°C}$ W	TEMPERATURE COEFFICIENT ± ppm/°C	RESISTANCE RANGE Ω	TOLERANCE ± %	E-SERIES (2)
RCWE0402	0402	0.125	400	0.033 to 0.05	5.0	24
			200	0.051 to 0.18	1.0, 5.0	24; 96
			100	0.2 to 0.976	0.5, 1.0, 5.0 (1)	
RCWE0603	0603	0.2	700	0.010 to 0.018	5.0	24
			400	0.02 to 0.03	1.0, 5.0	24; 96
			200	0.033 to 0.1	1.0, 5.0	
			100	0.11 to 0.976	0.5, 1.0, 5.0 (1)	
RCWE0805	0805	0.25	400	0.010 to 0.018	5.0	24
			300	0.02 to 0.03	1.0, 5.0	24; 96
			200	0.033 to 0.05	1.0, 5.0	
			100	0.051 to 0.976	0.5, 1.0, 5.0 (1)	
RCWE0612	0612	1.0	300	0.010 to 0.016	2.0, 5.0	24
			200	0.018 to 0.2	2.0, 5.0	
			100	0.205 to 0.976	1.0, 5.0	24; 96
RCWE1206	1206	0.5	600	0.010 to 0.018	5.0	24
			300	0.02 to 0.03	1.0, 5.0	24; 96
			200	0.033 to 0.05	1.0, 5.0	
			100	0.051 to 0.976	0.5, 1.0, 5.0 (1)	
RCWE1210	1210	1.0	500	0.010 to 0.018	5.0	24
			300	0.02 to 0.03	1.0, 5.0	24; 96
			200	0.033 to 0.05	1.0, 5.0	
			100	0.051 to 0.976	0.5, 1.0, 5.0 (1)	
RCWE1020	1020	2.0	200	0.010 to 0.016	2.0, 5.0	24
			100	0.0162 to 0.976	1.0, 5.0	24; 96
RCWE2010	2010	1.0	600	0.010 to 0.018	5.0	24
			300	0.02 to 0.03	1.0, 5.0	24; 96
			200	0.033 to 0.05	1.0, 5.0	
			100	0.051 to 0.976	0.5, 1.0, 5.0 (1)	
RCWE2512	2512	2.0	600	0.010 to 0.018	5.0	24
			300	0.02 to 0.03	1.0, 5.0	24; 96
			200	0.033 to 0.05	1.0, 5.0	
			100	0.051 to 0.976	0.5, 1.0, 5.0 (1)	

Notes

- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material.
- Part marking: Reference “Surface Mount Resistor Marking” (www.vishay.com/doc?20020).

(1) Tight tolerance of 0.5 % is available for resistance values above 0.200 Ω.

(2) Use E24 decade values for 5.0 % tolerance parts and E96 decade values for 0.5 % and 1.0 %. Refer to Standard Decade Table (www.vishay.com/doc?31001).

For technical questions, contact: ff2cresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: RCWE060351L0FNEA (visit www.vishay.net Vishay Dale parts numbering manual for all options)

R	C	W	E	0	6	0	3	5	1	L	0	F	N	E	A

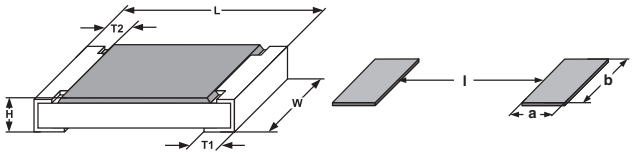
GLOBAL MODEL (8 digits)	VALUE (4 digits)	TOLERANCE (1 digit)	TCR (1 digit)	PACKAGING (2 digits)
RCWE0402 **RCWE0603** **RCWE0805** **RCWE0612** **RCWE1206** **RCWE1210** **RCWE1020** **RCWE2010** **RCWE2512**	**L** = mΩ * **R** = decimal **10L0** = 0.01 Ω **R470** = 0.47 Ω **Note**: * Use "**L**" for resistance values < 0.1 Ω	**D** = ± 0.5 % **F** = ± 1.0 % **G** = ± 2.0 % **J** = ± 5.0 %	**K** = ± 100 ppm/°C **N** = ± 200 ppm/°C **M** = ± 300 ppm/°C **Q** = ± 400 ppm/°C **P** = ± 500 ppm/°C **T** = ± 600 ppm/°C **G** = ± 700 ppm/°C	**EA** = lead (Pb)-free, tape/reel

TECHNICAL SPECIFICATIONS

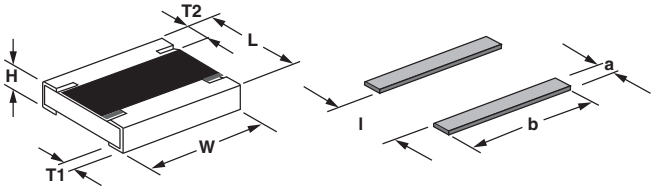
PARAMETER	UNIT	RCWE0402	RCWE0603	RCWE0805	RCWE0612	RCWE1206	RCWE1210	RCWE1020	RCWE2010	RCWE2512
Operating temp. range	°C	-55 to +155								
Maximum operating voltage	V	$(P \times R)^{1/2}$								
Insulation voltage U_{ins} (1 min)	V	> 75	> 100	> 200	> 100	> 300	> 300	> 300	> 300	> 300
Insulation resistance	Ω	> 10^9								
Weight/1000 pieces (typical)	g	0.7	3	5.5	11.5	10.5	17.5	27.5	26	40.5

DIMENSIONS

RCWE0402 to RCWE2512



RCWE0612, RCWE1020

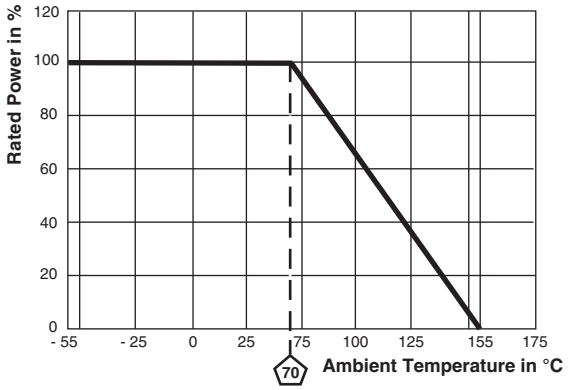


MODEL	DIMENSIONS in millimeters						SOLDER PAD DIMENSIONS in millimeters		
	RESISTANCE RANGE Ω	L	W	H	T1	T2	a	b	l
RCWE0402	0.033 to 0.976	1.05 ± 0.05	0.55 ± 0.05	0.35 ± 0.1	0.3 ± 0.15	0.25 ± 0.1	0.7	0.7	0.3
RCWE0603	0.01 to 0.03	1.6 ± 0.1	0.85 ± 0.1	0.5 ± 0.1	0.5 ± 0.2	0.3 ± 0.2	0.9	1.0	0.4
	0.033 to 0.976				0.3 ± 0.2		0.7	1.0	0.8
RCWE0805	0.01 to 0.03	2.0 ± 0.15	1.3 ± 0.1	0.55 ± 0.1	0.6 ± 0.2	0.35 ± 0.2	1.0	1.4	0.6
	0.033 to 0.976				0.4 ± 0.2		0.8	1.4	1.0
RCWE0612	0.01 to 0.976	1.6 ± 0.2	3.2 ± 0.2	0.6 ± 0.1	0.4 ± 0.15	0.25 ± 0.15	0.9	3.5	0.8
RCWE1206	0.01 to 0.03	3.1 ± 0.15	1.6 ± 0.15	0.6 ± 0.1	0.9 ± 0.2	0.45 ± 0.2	1.3	1.8	1.0
	0.033 to 0.05				0.8 ± 0.2		1.2	1.8	1.2
	0.051 to 0.976				0.45 ± 0.2		1.0	1.8	1.6
RCWE1210	0.01 to 0.03	3.1 ± 0.2	2.5 ± 0.2	0.6 ± 0.1	0.8 ± 0.2	0.4 ± 0.2	1.3	2.6	1.1
	0.033 to 0.976				0.4 ± 0.2		0.9	2.6	2.0
RCWE1020	0.01 to 0.976	2.5 ± 0.2	5.0 ± 0.2	0.6 ± 0.1	0.55 ± 0.15	0.30 ± 0.15	1.2	5.5	1.4
RCWE2010	0.01 to 0.03	5.0 ± 0.2	2.5 ± 0.15	0.6 ± 0.1	1.6 ± 0.3	0.6 ± 0.2	2.3	3.0	1.4
	0.033 to 0.05				0.7 ± 0.3		1.4	3.0	3.2
	0.051 to 0.976				0.7 ± 0.3		1.4	3.0	3.2
RCWE2512	0.01 to 0.03	6.3 ± 0.2	3.15 ± 0.15	0.6 ± 0.1	2.0 ± 0.3	0.6 ± 0.2	2.8	3.6	1.4
	0.033 to 0.05				0.8 ± 0.3		1.6	3.6	3.8
	0.051 to 0.976				0.8 ± 0.3		1.6	3.6	3.8

For technical questions, contact: ff2cresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

DERATING



PERFORMANCE		
TEST	**CONDITIONS OF TEST**	**TEST LIMITS**
Thermal shock	MIL-STD-202, method 107, -55 °C to +125 °C, 300 cycles at each extreme	± (1.0 % + 0.0005 Ω) Δ*R*
Short time overload	2 x rated power; duration according the model	± (0.5 % + 0.0005 Ω) Δ*R*
High temperature exposure	MIL-STD-202, method 108, 1000 h at T = 125 °C, 0 % power	± (2.0 % + 0.0005 Ω) Δ*R*
Temperature cycling	JESD 22, method JA-104, 1000 cycles (-55 °C to +125 °C)	± (2.0 % + 0.0005 Ω) Δ*R*
Biased humidity	MIL-STD-202, method 103, 1000 h 85 °C/85 % RH, 10 % x $(P \times R)^{1/2}$	± (2.0 % + 0.0005 Ω) Δ*R*
Mechanical shock	MIL-STD-202, method 213, condition C, 10 *g*'s, 6 ms (half sine), 3 directions	± (1.0 % + 0.0005 Ω) Δ*R*
Vibration	MIL-STD-202, method 204, 5 *g*'s, 20 min, 12 cycles, 3 directions, 10 Hz to 2000 Hz	± (1.0 % + 0.0005 Ω) Δ*R*
Operational life	MIL-STD-202, method 108, 1000 h at T = 125 °C at rated power	± (2.0 % + 0.0005 Ω) Δ*R*
Resistance to solder heat	MIL-STD-202, method 210, +260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence	± (1.0 % + 0.0005 Ω) Δ*R*
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7a and 7b not required	± (2.0 % + 0.0005 Ω) Δ*R*

PACKAGING					
MODEL	**REEL**				
	TAPE WIDTH	**DIAMETER**	**PITCH**	**PIECES/REEL**	**CODE**
RCWE0402	8 mm/punched paper	180 mm/7"	2 mm	10 000	EA
RCWE0603	8 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWE0805	8 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWE0612	8 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWE1206	8 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWE1210	8 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWE1020	12 mm/embossed plastic	180 mm/7"	4 mm	4000	EA
RCWE2010	12 mm/embossed plastic	180 mm/7"	4 mm	4000	EA
RCWE2512	12 mm/embossed plastic	180 mm/7"	8 mm	2000	EA

Note

- Embossed carrier tape per EIA-481-1A.

For technical questions, contact: ff2cresistors@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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 in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

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

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург, Промышленная ул, дом № 19, литера Н, помещение 100-Н Офис 331