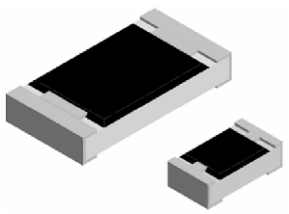
Thick Film Surface Mount Chip Resistors, Wraparound, Low Value (0.1 Ω to 0.91 Ω)



FEATURES

- Low resistance values (0.1 Ω to 0.91 Ω)
- Suitable for current sensing and shunts
- Metal glaze on high quality ceramic
- Protective overglaze
- Solder contacts on Ni barrier layer
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition

Pb Available

e3 RoHS* COMPLIANT

HALOGEN FREE

Note

* Pb containing terminations are not RoHS compliant, exemptions may apply

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	CASE SIZE	POWER RATING $P_{70\,°C}$ W	TEMPERATURE COEFFICIENT ± ppm/°C	RESISTANCE RANGE Ω	TOLERANCE ± %	E-SERIES
RCWL0402	0402	0.063	600	0.22 to 0.43	5	24
			400	0.47 to 0.91		
RCWL0603	0603	0.1	400	0.10 to 0.43	5	24
			200	0.47 to 0.91		
RCWL0805	0805	0.125	300	0.10 to 0.43	5	24
			200	0.47 to 0.91		
RCWL1206	1206	0.25	300	0.10 to 0.43	5	24
			200	0.47 to 0.91		
RCWL1210	1210	0.33	200	0.10 to 0.91	5	24
RCWL1218	1218	1.0	200	0.10 to 0.91	5	24
RCWL2010	2010	0.5	200	0.10 to 0.91	5	24
RCWL2512	2512	1.0	200	0.10 to 0.91	5	24

Note

- 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 document number 20020.
- The resistance is measured from the top side.

GLOBAL PART NUMBER INFORMATION

Part Number: RCWL0402R470JQEA

R	C	W	L	0	4	0	2	R	4	7	0	J	Q	E	A

GLOBAL MODEL	VALUE	TOLERANCE	TCR	PACKAGING
RCWL0402 **RCWL0603** **RCWL0805** **RCWL1206** **RCWL1210** **RCWL1218** **RCWL2010** **RCWL2512**	**R** = Decimal **R470** = 0.47 Ω	**J** = ± 5.0 %	**N** = ± 200 ppm/°C **M** = ± 300 ppm/°C **Q** = ± 400 ppm/°C **T** = ± 600 ppm/°C	**EA** = Lead (Pb)-free, tape/reel **TA** = Tin/lead, tape/reel

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

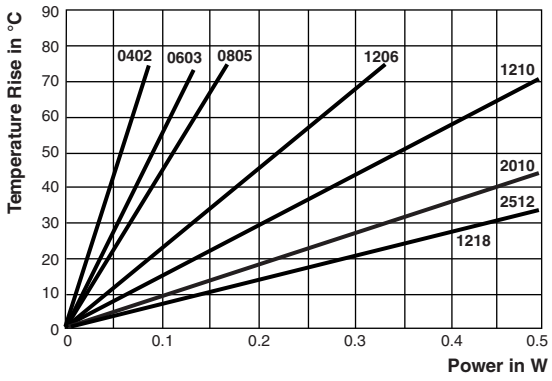
TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RCWL0402	RCWL0603	RCWL0805	RCWL1206	RCWL1210	RCWL1218	RCWL2010	RCWL2512
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	> 300	> 300	> 300	> 300	> 300
Insulation resistance	Ω	$> 10^9$							
Weight/1000 pieces (typical)	g	0.65	2	5.5	10	16	29.5	25.5	40.5

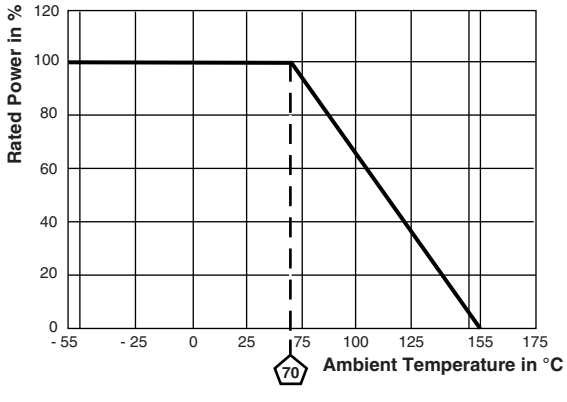
DIMENSIONS

MODEL	DIMENSIONS in millimeters										
	L	W	H	T1	T2	REFLOW SOLDERING			WAVE SOLDERING		
						a	b	l	a	b	l
RCWL0402	1.0 ± 0.05	0.5 ± 0.05	0.35 ± 0.05	0.25 ± 0.05	0.2 ± 0.1	0.4	0.6	0.5	0.5	0.6	0.5
RCWL0603	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
RCWL0805	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
RCWL1206	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
RCWL1210	3.2 ± 0.2	2.5 ± 0.2	0.55 ± 0.05	0.45 ± 0.2	0.4 ± 0.2	0.9	2.5	2.0	1.1	2.5	2.2
RCWL1218	3.2 $^{+0.10}_{-0.20}$	4.6 ± 0.15	0.55 ± 0.05	0.45 ± 0.2	0.4 ± 0.2	1.05	4.9	1.9	1.25	4.8	1.9
RCWL2010	5.0 ± 0.15	2.5 ± 0.15	0.6 ± 0.1	0.6 ± 0.2	0.6 ± 0.2	1.0	2.5	3.9	1.2	2.5	3.9
RCWL2512	6.3 ± 0.2	3.15 ± 0.15	0.6 ± 0.1	0.6 ± 0.2	0.6 ± 0.2	1.0	3.2	5.2	1.2	3.2	5.2

TEMPERATURE RISE



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	± (2.0 % + 0.005 Ω) ΔR

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

PERFORMANCE		
TEST	**CONDITIONS OF TEST**	**TEST LIMITS**
Short time overload	2 x rated power; duration according the model	± (0.5 % + 0.005 Ω) Δ*R*
High temperature exposure	MIL-STD-202, method 108, 1000 h at T = 125 °C, 0 % power	± (2.0 % + 0.005 Ω) Δ*R*
Temperature cycling	JESD 22, method JA-104, 1000 cycles (- 55 °C to + 125 °C)	± (2.0 % + 0.005 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 % + 0.005 Ω) Δ*R*
Mechanical shock	MIL-STD-202, method 213, condition C, 10 *g*'s, 6 ms (half sine), 3 directions	± (0.5 % + 0.005 Ω) Δ*R*
Vibration	MIL-STD-202, method 204, 5 *g*'s, 20 min, 12 cycles, 3 directions, 10 Hz to 2000 Hz	± (0.5 % + 0.005 Ω) Δ*R*
Operational life	MIL-STD-202, method 108, 1000 h at T = 125 °C at rated power	± (2.0 % + 0.005 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 % + 0.005 Ω) Δ*R*
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7a and 7b not required	± (2.0 % + 0.005 Ω) Δ*R*

PACKAGING					
MODEL	**REEL**				
	TAPE WIDTH	**DIAMETER**	**PITCH**	**PIECES/REEL**	**CODE**
RCWL0402	8 mm/punched paper	180 mm/7"	2 mm	10 000	EA
RCWL0603	8 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWL0805	8 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWL1206	8 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWL1210	12 mm/punched paper	180 mm/7"	4 mm	5000	EA
RCWL1218	12 mm/embossed plastic	180 mm/7"	4 mm	4000	EA
RCWL2010	12 mm/embossed plastic	180 mm/7"	4 mm	4000	EA
RCWL2512	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.

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9