RCWL Vishay Dale

HALOGEN

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
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

Note

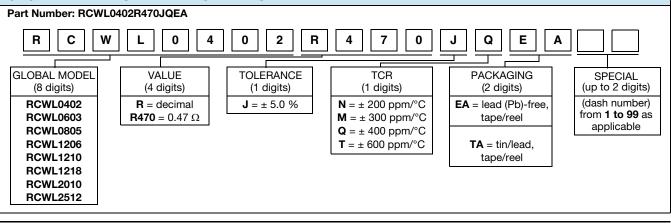
* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

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	5	24		
RCWL0603	0603	0.1	400	0.10 to 0.43	5	24		
			200	0.47 to 0.91	5	24		
RCWL0805	0805	0.125	300	0.10 to 0.43	5	24		
			200	0.47 to 0.91	5	24		
RCWL1206	1206	0.25	300	0.10 to 0.43	5	24		
		0.25	200	0.47 to 0.91	5	24		
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" (www.vishav.com/doc?20020)
- The resistance is measured from the top side

GLOBAL PART NUMBER INFORMATION



Revision: 21-Aug-2018

1 For technical questions, contact: <u>ww2bresistors@vishay.com</u> Document Number: 20018

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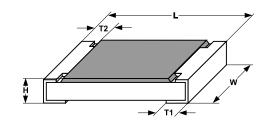
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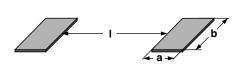
TECHNICAL SPECIFICATIONS

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	> 109							
Weight/1000 pieces (typical)	g	0.65	2	5.5	10	16	29.5	25.5	40.5

DIMENSIONS

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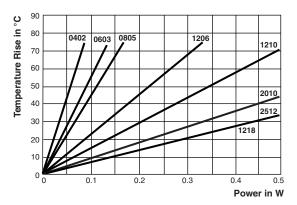




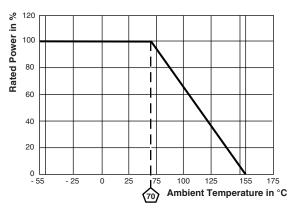
• Surface mount solder profile recommendations: <u>www.vishay.com/doc?31052</u>

		DIMENSIONS in millimeters									
MODEL		L W	н	T1	T2	REFLOW SOLDERING			WAVE SOLDERING		
	L .					а	b	I	а	b	I
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



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PERFORMANCE						
TEST	CONDITIONS OF TEST	TEST LIMITS				
Thermal shock	MIL-STD-202, method 107, -55 °C to +125 °C, 300 cycles at each extreme	\pm (2.0 % + 0.005 $\Omega) \Delta R$				
Short time overload	2x rated power; duration according the model	\pm (0.5 % + 0.005 $\Omega) \Delta R$				
High temperature exposure	MIL-STD-202, method 108, 1000 h at T = 125 °C, 0 % power	\pm (2.0 % + 0.005 $\Omega) \Delta R$				
Temperature cycling	JESD 22, method JA-104, 1000 cycles (-55 °C to +125 °C)	\pm (2.0 % + 0.005 $\Omega) \Delta R$				
Biased humidity	MIL-STD-202, method 103, 1000 h 85 °C/85 % RH, 10 % x (P x R) ^{1/2}	\pm (2.0 % + 0.005 $\Omega) \Delta R$				
Mechanical shock	MIL-STD-202, method 213, condition C, 10 g's, 6 ms (half sine), 3 directions	\pm (0.5 % + 0.005 $\Omega) \Delta R$				
Vibration	MIL-STD-202, method 204, 5 g's, 20 min, 12 cycles, 3 directions, 10 Hz to 2000 Hz	\pm (0.5 % + 0.005 $\Omega) \Delta R$				
Operational life	MIL-STD-202, method 108, 1000 h at T = 125 °C at rated power	\pm (2.0 % + 0.005 $\Omega) \Delta R$				
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 <i>R</i>				
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7a and 7b not required	\pm (2.0 % + 0.005 $\Omega) \Delta R$				

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



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