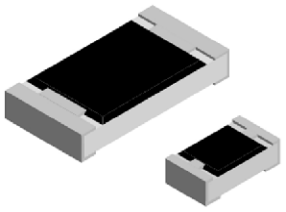
Thick Film Surface Mount Chip Resistor, Wraparound, Low Value (0.1 Ω to 0.91 Ω)



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

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	POWER RATING $P_{70\,°C}$ W	TEMPERATURE COEFFICIENT ppm/°C	RESISTANCE RANGE Ω	E-SERIES
			± 5.0 %	
RCWL0402	0.063	± 600	0.22 to 0.43	24
		± 400	0.47 to 0.91	
RCWL0603	0.1	± 400	0.10 to 0.43	24
		± 200	0.47 to 0.91	
RCWL0805	0.125	± 300	0.10 to 0.43	24
		± 200	0.47 to 0.91	
RCWL1206	0.25	± 300	0.10 to 0.43	24
		± 200	0.47 to 0.91	
RCWL1210	0.33	± 200	0.10 to 0.91	24
RCWL1218	1.0	± 200	0.10 to 0.91	24
RCWL2010	0.5	± 200	0.10 to 0.91	24
RCWL2512	1.0	± 200	0.10 to 0.91	24

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

GLOBAL PART NUMBER INFORMATION

GLOBAL PART NUMBERING EXAMPLE: 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

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

For technical questions, contact: ff2cresistors@vishay.com

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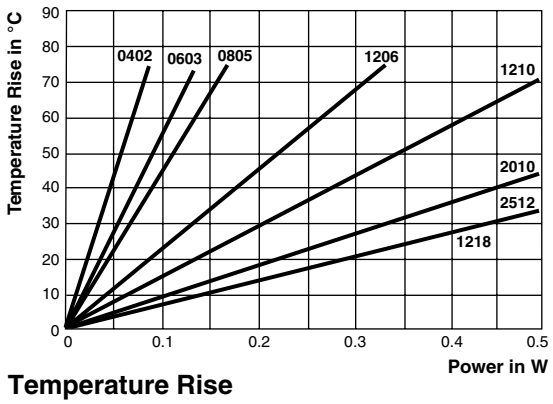
Thick Film Surface Mount Chip Resistor, Wraparound, Low Value (0.1 Ω to 0.91 Ω)

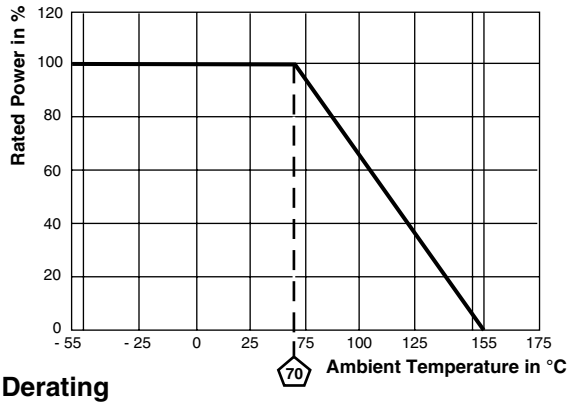
TECHNICAL SPECIFICATIONS									
PARAMETER	UNIT	RCWL0402	RCWL0603	RCWL0805	RCWL1206	RCWL1210	RCWL1218	RCWL2010	RCWL2512
Operating Temp. Range	°C	- 55 to + 155							
Maximum Operating Voltage	V	$(P \times R)^{1/2}$							
Insulation Voltage U_{ins} (1 min)	V	> 75	> 100	> 200	> 300	> 300	> 300	> 300	> 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
Short Time Overload	2 x rated power; duration according the model	± (0.5 % + 0.005 Ω) ΔR
High Temperature Exposure	MIL-STD-202, Method 108, 1000 h at T = 125 °C, 0 % power	± (2.0 % + 0.005 Ω) ΔR
Temperature Cycling	JESD 22, Method JA-104, 1000 cycles (- 55 °C to + 125 °C)	± (2.0 % + 0.005 Ω) ΔR
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) ΔR
Mechanical Shock	MIL-STD-202, Method 213, Condition C, 10 g's, 6 ms (half sine), 3 directions	± (0.5 % + 0.005 Ω) ΔR
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) ΔR
Operational Life	MIL-STD-202, Method 108, 1000 h at T = 125 °C at rated power	± (2.0 % + 0.005 Ω) ΔR
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) ΔR
Moisture Resistance	MIL-STD-202, Method 106, 0 % power, 7a and 7b not required	± (2.0 % + 0.005 Ω) ΔR

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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