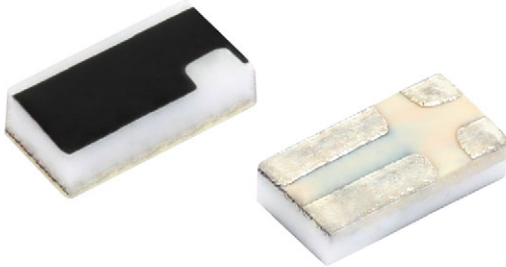




## Thick Film Surface Mount Chip Resistors, Current Sensor, 4-Terminal



### FEATURES

- 4-Terminal design allows extremely low resistance value (0.01  $\Omega$ ) with tight tolerance (1 %)
- High power to foot print size ratio
- Suitable for current sensing in power supplies and other applications
- Metal glaze on high quality ceramic
- Protective overglaze
- Lead (Pb)-free solder contacts on Ni barrier layer
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	CASE SIZE	POWER RATING $P_{70^\circ\text{C}}$ W	TEMPERATURE COEFFICIENT $\pm$ ppm/ $^\circ\text{C}$	RESISTANCE RANGE $\Omega$	TOLERANCE $\pm$ %
RCWK0306	0306	0.33	300	0.01 to 0.1	1.0

#### 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](http://www.vishay.com/doc?20020))
- (1) Use E24 decade values for 5.0 % and 1.0 % tolerance parts and E96 decade values for 0.5 % and 1.0 %. Refer to Standard Decade Table ([www.vishay.com/doc?31001](http://www.vishay.com/doc?31001))

### GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: **RCWK030610LFMEA** (visit [www.vishay.net](http://www.vishay.net) Vishay Dale parts numbering manual for all options)

**R C W K 0 3 0 6 1 0 L 0 F M E A**

GLOBAL MODEL  
(8 digits)  
**RCWK0306**

VALUE  
(4 digits)  
L = m $\Omega$  <sup>(1)</sup>  
R = decimal  
**10L0** = 0.01  $\Omega$   
**R100** = 0.1  $\Omega$

TOLERANCE  
(1 digit)  
**F** =  $\pm$  1.0 %

TCR  
(1 digit)  
**M** =  $\pm$  300 ppm/ $^\circ\text{C}$

PACKAGING  
(2 digits)  
**EA** = lead (Pb)-free,  
tape/reel

#### Note

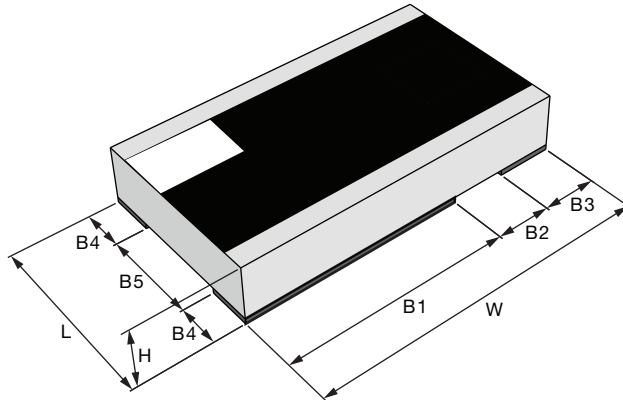
- (1) Use "L" for resistance values < 0.1  $\Omega$

### TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RCWK0306
Operating temperature range	$^\circ\text{C}$	-55 to +155
Maximum operating voltage	V	$(P \times R)^{1/2}$
Insulation voltage $U_{\text{ins}}$ (1 min.)	V	> 100
Insulation resistance	$\Omega$	> $10^9$
Weight/1000 pieces (typical)	g	3

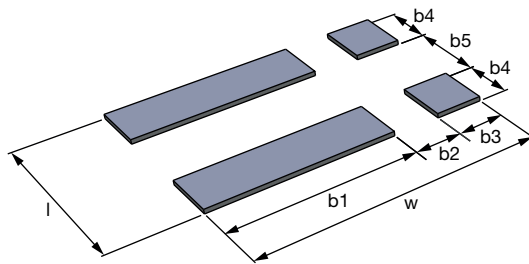


**DIMENSIONS** in millimeters



MODEL	L	W	H	B1	B2	B3	B4	B5
RCWK0306	0.85 ± 0.1	1.5 ± 0.1	0.45 ± 0.1	0.9 ± 0.2	0.3 (Ref.)	0.3 ± 0.1	0.28 ± 0.1	0.3 ± 0.2

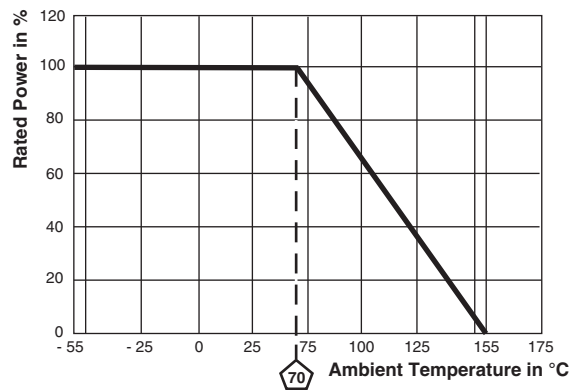
**SOLDER PAD DIMENSIONS** in millimeters



• Surface-mount solder profile recommendations: [www.vishay.com/doc?31052](http://www.vishay.com/doc?31052)

MODEL	l	w	b1	b2	b3	b4	b5
RCWK0306	1.34	1.64	0.97	0.25	0.42	0.3	0.2

**DERATING**





PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal shock	MIL-STD-202, method 107, -55 °C to +125 °C, 15 min at each extreme, 300 cycles	± (1.0 % + 0.0005 Ω)
Short time overload	2.5 x rated power; 5 s	± (0.5 % + 0.0005 Ω)
High temperature exposure	MIL-STD-202, method 108, 1000 h at T = 155 °C, 0 % power	± (2.0 % + 0.0005 Ω)
Temperature cycling	JESD 22, method JA-104, 1000 cycles (-55 °C to +125 °C)	± (2.0 % + 0.0005 Ω)
Biased humidity	MIL-STD-202, method 103, 1000 h 85 °C/85 % RH, 10 % x (P x R) <sup>1/2</sup>	± (2.0 % + 0.0005 Ω)
Mechanical shock	MIL-STD-202, method 213, condition C, 10 g's, 6 ms (half sine), 3 directions	± (1.0 % + 0.0005 Ω)
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)
Operational life	MIL-STD-202, method 108, 1000 h at T = 125 °C at rated power	± (2.0 % + 0.0005 Ω)
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)
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7a and 7b not required	± (2.0 % + 0.0005 Ω)

PACKAGING					
MODEL	REEL				
	TAPE WIDTH	DIAMETER	PITCH	PIECES/REEL	CODE
RCWK0306	8 mm/punched paper	180 mm/7"	4 mm	5000	EA

**Notes**

- Embossed carrier tape per EIA-481-1A
- Additional packaging details at: [www.vishay.com/doc?31543](http://www.vishay.com/doc?31543)



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