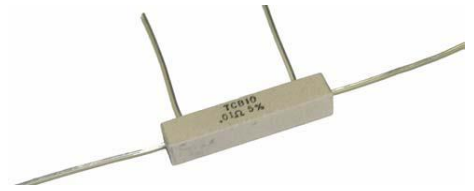


### Features:

- Four terminal construction
- Low inductance
- Low temperature coefficient
- Fireproof construction
- All welded termination
- Low resistance value ceramic encased resistor
- 100% RoHS compliant and lead free without exemption
- Halogen free
- REACH compliant
- See CB data sheet for performance and environmental specifications

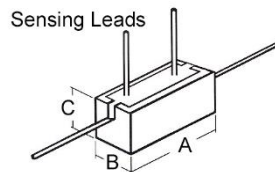


### Electrical Specifications

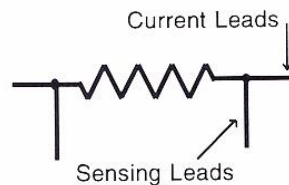
Type/Code	Power Rating (W) @ 70°C	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance		
			0.25%, 0.5%	1%	5%
TCB3	3	± 40	0.02 - 0.1	0.005 - 0.1	
TCB5	5				
TCB7	7		0.02 - 0.15	0.01 - 0.15	0.01 - 0.15
TCB10	10				
TCB15	15		0.02 - 0.2	0.01 - 0.2	

Max Voltage Rating =  $\sqrt{P \cdot R}$

### Mechanical Specifications



Lead Diameter 0.036"  
Length 1" minimum



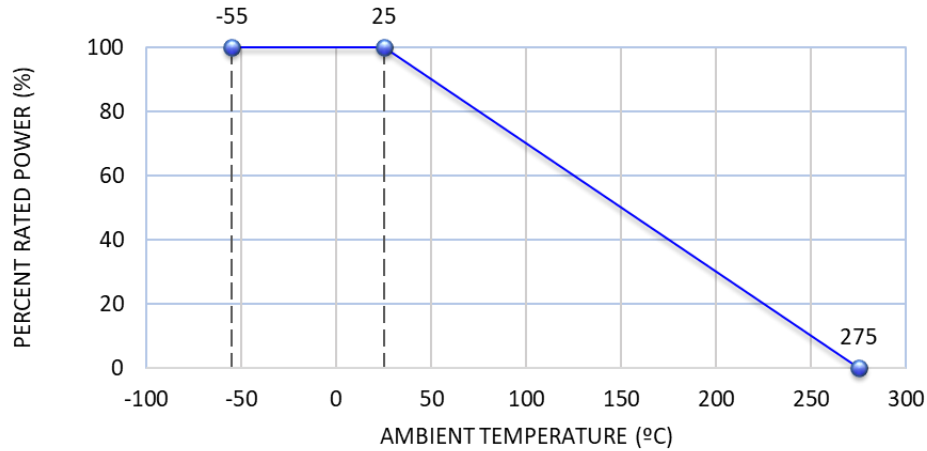
Type/Code	A Body Length (max)	B Body Width	C Body Height (Bulk)	Sensing Lead Spacing	Unit
TCB3	0.875 ± 0.031	0.312 ± 0.031	0.312 ± 0.031	0.563 ± 0.062	inches
	22.23 ± 0.79	7.92 ± 0.79	7.92 ± 0.79	14.30 ± 1.57	mm
TCB5	0.875 ± 0.031	0.375 ± 0.031	0.375 ± 0.031	0.563 ± 0.062	inches
	22.23 ± 0.79	9.53 ± 0.79	9.53 ± 0.79	14.30 ± 1.57	mm
TCB7	1.400 ± 0.031	0.375 ± 0.310	0.375 ± 0.031	1.000 ± 0.062	inches
	35.56 ± 0.79	9.53 ± 7.87	9.53 ± 0.79	25.40 ± 1.57	mm
TCB10	1.875 ± 0.031	0.375 ± 0.031	0.375 ± 0.031	1.375 ± 0.062	inches
	47.63 ± 0.79	9.53 ± 0.79	9.53 ± 0.79	34.93 ± 1.57	mm
TCB15	1.875 ± 0.031	0.500 ± 0.031	0.500 ± 0.031	1.375 ± 0.062	inches
	47.63 ± 0.79	12.70 ± 0.79	12.70 ± 0.79	34.93 ± 1.57	mm

### Performance Characteristics

Test	Test Results
Moisture Resistance	± 5%
Thermal Shock	± 2%
Load Life @ 70°C - 1000 hours	± 5%
Resistance to Soldering Heat	± 2%
Short Time Overload - 5xPn for 5 seconds	± 2%
Dielectric Withstanding Voltage	± 2%

Operating temperature range is -55°C to +275°C

**Power Derating Curve:**



**Recommended Solder Profile**

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with “\*\*”.

**100% Matte Tin / RoHS Compliant Terminations**

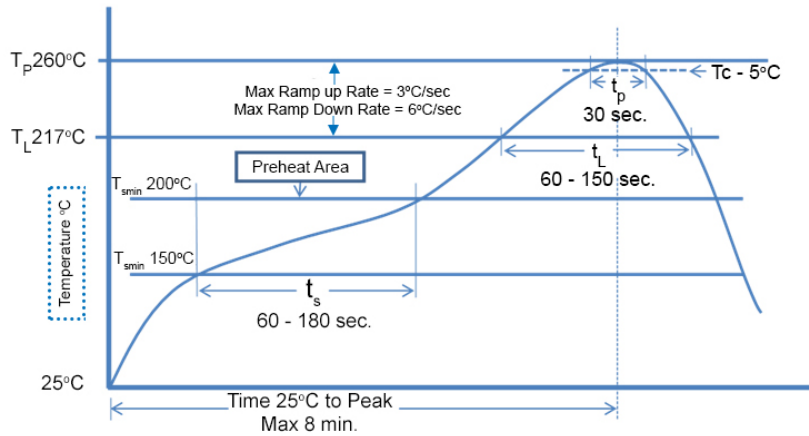
Soldering iron recommended temperatures: 330°C to 350°C with minimum duration.  
Maximum number of reflow cycles: 3.

Wave Soldering			
Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

Temperature Diff. = Difference between final preheat stage and soldering stage.

Convection IR Reflow			
Description	Maximum	Recommended	Minimum
Ramp Up (°C/sec)	3°C/sec	2°C/sec	*
Dwell Time > 217°C	150 seconds	90 seconds	60 seconds
Solder Temp.	260°C	245°C	*
Dwell Time at Max.	30 seconds	15 seconds	10 seconds
Ramp DN (°C/sec)	6°C/sec	3°C/sec	*

**Recommended Lead Free Resistor Reflow Profile**



**RoHS Compliance**

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union’s directive regarding “Restrictions on Hazardous Substances” (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

**RoHS Compliance Status**

Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
TCB	Ceramic Housed Current Sensing Resistor with 4 Leads	Special (4 Leads)	YES	100% Matte Sn	Jan-06	06/01

**“Conflict Metals” Commitment**

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the “conflict region” of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

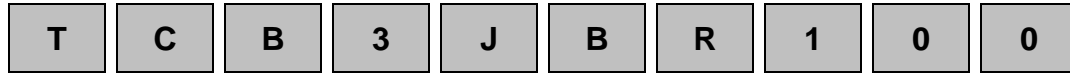
**Compliance to “REACH”**

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, “The Registration, Evaluation, Authorization and Restriction of Chemicals”, otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

**Environmental Policy**

It is the policy of Stackpole Electronics, Inc. to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

**How to Order**



Product Series	
Code	Description
TCB	Ceramic Housed - 4 leads

Power Rating	
Size	W
3	3
5	5
7	7
10	10
15	15

Tolerance	
Code	Tol
C	0.25%
D	0.5%
F	1%
J	5%

Packaging			
Code	Description	Size	Quantity
B	Bulk	3 and 5	200
		7, 10, 15	150

Resistance Value
Four characters with the multiplier used as the decimal holder. "L" used as multiplier of 10 <sup>-3</sup> for any value under 0.1 ohm
0.005 ohm = 5L00
0.01 ohm = 10L0
0.1 ohm = R100