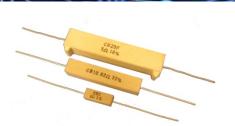
Resistive Product Solutions

#### Features:

- Fireproof power resistor
- · High thermal conductivity
- "M" in MCB stands for metal oxide element
- Standoffs may be available (CBF, MCBF) contact Stackpole for details
- 100% RoHS compliant and lead free without exemption
- Halogen free
- REACH compliant

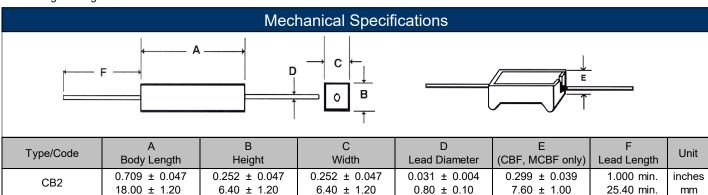


Electrical Specifications - CB						
T /O - d -	Power Rating (W) @ 70°C	Maximum Working Voltage (V)	Maximum Overload Voltage (V)	TCR (ppm/°C) (1)	Ohmic Range (Ω) and Tolerance	
Type/Code					5%, 10%	
		250	500	± 800	0.056 - 0.1	
CB2	2			± 500	0.12 - 0.2	
				± 200	0.22 - 100	
	3	300	600	± 800	0.1	
CB3				± 500	0.12 - 3	
				± 200	3.3 - 100	
	5	350	700	± 800	0.1 - 0.15	
CB5				± 500	0.18 - 0.68	
				± 200	0.75 - 470	
	7	500	1000	± 800	0.39 - 0.51	
CB7				± 500	0.56 - 0.82	
				± 200	0.91 - 470	
	10	700	1400	± 800	0.51 - 1	
CB10				± 500	1.1 - 2.7	
				± 200	3 - 680	
		700	1400	± 800	0.56 - 1	
CB15	15			± 500	1.3 - 3	
				± 200	3.6 - 820	

Electrical Specifications - MCB						
Type/Code	Power Rating (W) @ 70 °C	Maximum Working Voltage (V)	Maximum Overload Voltage (V)	TCR (ppm/°C) (1)	Ohmic Range ( $\Omega$ ) and Tolerance	
Type/Code					5%, 10%	
MCB3	3	300	600		110 - 51K	
MCB5	5	350	700		110 - 51K	
MCB7	7	500	1000	± 200	510 - 51K	
MCB10	10	700	1400		750 - 51K	
MCB15	15	700	1400		910 - 51K	

(1) Lower TCR may be available for certain values. Contact Stackpole.

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



CB3, MCB3

 $0.315 \pm 0.047$ 

 $8.00 \pm 1.20$ 

1.000 min.

25.40 min.

inches

mm

0.374 ± 0.039

 $9.50 \pm 1.00$ 

 $0.031 \pm 0.004$ 

 $0.80 \pm 0.10$ 

0.866 ± 0.047

22.00 ± 1.20

0.315 ± 0.047

 $8.00 \pm 1.20$ 

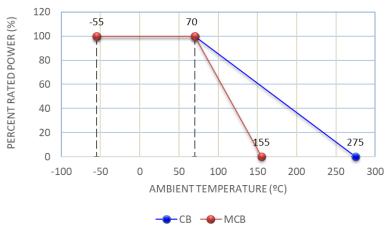
Resistive Product Solutions

Mechanical Specifications (cont.)							
Type/Code	A Body Length	B Height	C Width	D Lead Diameter	E (CBF, MCBF only)	F Lead Length	Unit
CB5, MCB5	0.866 ± 0.047	0.374 ± 0.039	0.374 ± 0.039	0.031 ± 0.004	0.437 ± 0.039	1.000 min.	inches
OBO, MOBO	22.00 ± 1.20	9.50 ± 1.00	9.50 ± 1.00	$0.80 \pm 0.10$	11.10 ± 1.00	25.40 min.	mm
CB7, MCB7	1.378 ± 0.059	$0.374 \pm 0.039$	0.374 ± 0.039	0.031 ± 0.004	$0.500 \pm 0.039$	1.000 min.	inches
	35.00 ± 1.50	$9.50 \pm 1.00$	9.50 ± 1.00	$0.80 \pm 0.10$	12.70 ± 1.00	25.40 min.	mm
CB10, MCB10	1.890 ± 0.059	$0.374 \pm 0.039$	0.374 ± 0.039	0.031 ± 0.004	0.500 ± 0.039	1.000 min.	inches
	48.00 ± 1.50	$9.50 \pm 1.00$	9.50 ± 1.00	$0.80 \pm 0.10$	12.70 ± 1.00	25.40 min.	mm
CB15, MCB15	1.890 ± 0.059	0.512 ± 0.047	0.512 ± 0.047	0.031 ± 0.004	0.626 ± 0.039	1.000 min.	inches
	48.00 ± 1.50	13.00 ± 1.20	13.00 ± 1.20	$0.80 \pm 0.10$	15.90 ± 1.00	25.40 min.	mm

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

Operating temperature range for CB is -55°C to +275°C Operating temperature range for MCB is -55°C to +155°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

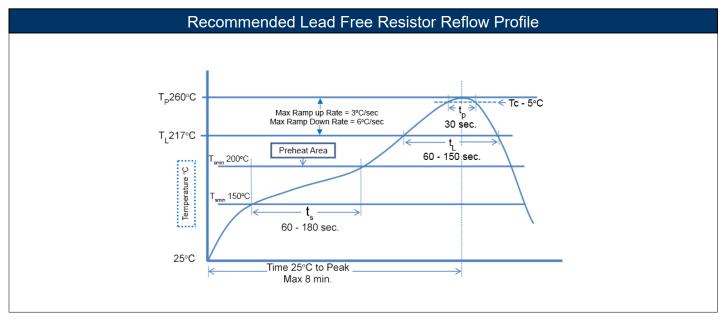
Soldering iron recommended temperatures: 330°C to 350°C with minimum duration. Maximum number of reflow cycles: 3.

Resistive Product Solutions

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. = Defference 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	*			



## **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)		
СВ	General Purpose Ceramic Housed with Axial Leads Wirewound Resistor	Axial	YES	100% Matte Sn	Jan-06	06/01		
МСВ	Ceramic Housed General Purpose Metal Oxide Element Resistor	Axial	YES	100% Matte Sn	Jan-06	06/01		

# Stackpole Electronics, Inc.

Resistive Product Solutions

#### "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. (SEI) 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.

