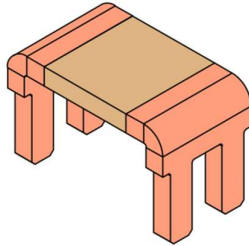




# SBE-3820Series

Low Ohmic EB Welded SMD Precision Resistor



### Features

- 5 Watts Permanent Power
- Constant Current up to 100 amps (0.5mΩ)
- High Conductivity Copper Connectors
- Excellent Long Term Stability
- High Application Temperature Range -55°C to +170°C
- Max. Solder Temperature up to 350°C / 30Sec
- Flame Resistant
- Solid Metal Construction
- RoHS and REACH Compliant
- AEC-Q200 Compliant

### Applications

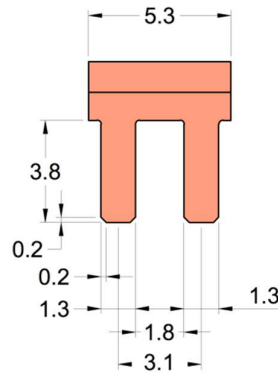
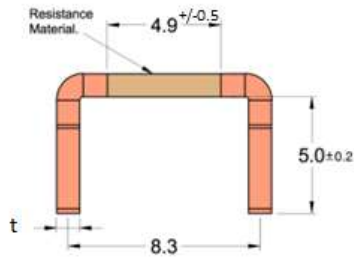
- Current Sensing/ Feedback
- Automotive Applications
- Power Modules
- Frequency Convertors
- Inverters
- Low Inductance Applications



Technical Data		
Resistance Values	0.3, 0.5, 1, 2	(mΩ)
Tolerance	1, 3, 5	(%)
TCR - Temperature Coefficient (Resistive Alloy)	<+20 (Copper Manganese Alloys), <-35 (Aluchrom Alloy)	(ppm/K)
Applicable Temperature Range	-55 to +170	°C
Load Capacity	See Table 2	-
Inductance	<3	nH
Stability Deviation	< 0.5 after 2000 Hours, $T_t = 110^\circ\text{C}$	%
* $T_t$ = Terminal Temperature	< 1.0 after 2000 Hours, $T_t = 140^\circ\text{C}$	%

Note: High Temperature Resistant Insulation (CYG-KYNR) or equivalent can be provided on resistance alloy.

Table 1



Nominal Dimension	Tolerance
0.5-3	± 0.1
3-6	± 0.1
6-30	± 0.2

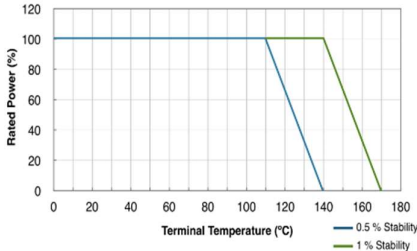
All dimensions are in mm, See table 2 for thickness.



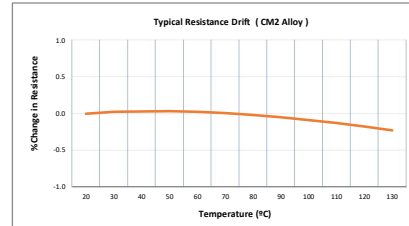
# SBE- 3820 Series

Low Ohmic EB Welded SMD Precision Resistor

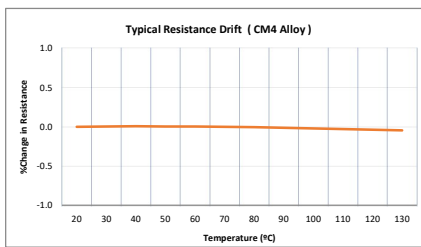
**Power Derating Curve**



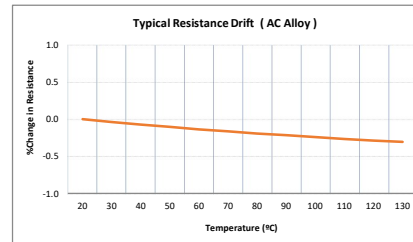
**Resistance Change vs Temperature**



**Resistance Change vs Temperature**



**Resistance Change vs Temperature**



## Performance:

Type of Test	Reference STD	Test Specifications	Acceptance Criteria
High Temperature Exposure	MIL-STD-202 Method 108	1000 hrs. @ T=170°C.Unpowered.	$\Delta R$ +/-1%
Temperature Cycling	JESD22 Method JA-104	-55°C to 150°C, 1000Cycles, 30 minutes at each extreme	$\Delta R$ +/-0.5%
Biased Humidity	MIL-STD-202 Method 103	85°C & 85RH with 10% operating power, 1000 hrs.	$\Delta R$ +/-0.5%
Operational Life	MIL-STD-202 Method 108	125°C at rated power,1000 hrs.	$\Delta R$ +/-1%
External Visual	MIL-STD-883 Method 2009	Visual inspection	Visual
Physical Dimension	JESD22 Method JB-100	Dimensional inspection as per SBCL Specifications	Shall confirm within tolerance limits
Resistance to Solvents	MIL-STD-202 Method 215	Clean with Aqueous chemical	Marking shall be legible
Mechanical Shock	MIL-STD-202 Method 213	100g for 6ms, Half sine	$\Delta R$ +/-0.2%
Vibration	MIL-STD-202 Method 204	5g for 20 minutes, 12 cycles each of 3orientations.10-2000Hz	$\Delta R$ +/-0.2%
Resistance to Soldering Heat	MIL-STD-202 Method 210	Solder Temp. 260°C, Time 10 seconds	$\Delta R$ +/-0.5%
Solderability	J-STD-002	As per J-STD-002	>95% Coverage in 10x Magnification
Electrical Characterization	User Spec.	Resistance as defined	Shall confirm within tolerance limits
Short Time Over Load	--	5x Rated Power for 5 seconds	$\Delta R$ +/-1%
Low Temperature Storage	--	-65°C for 24 hrs.	$\Delta R$ +/-0.2%



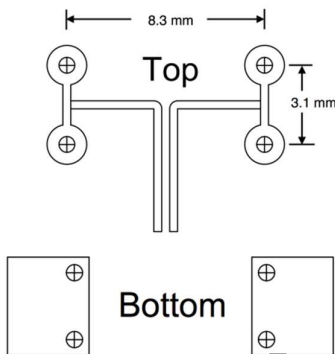
# SBE - 3820 Series

Low Ohmic EB Welded SMD Precision Resistor

Type	Resistance Value (mΩ)	Material	t±0.1 (mm)	TCR (ppm)	P <sub>70°C</sub> (W) At Ambient
SBE-CM4-R0003	0.3	Copper Manganese Alloy	0.85	<300	5
SBE-CM2-R0005	0.5	Copper Manganese Alloy	0.86	<300	5
SBE-AC-R001	1.0	Aluchrom Alloy	1.25	< 100	5
SBE-AC-R002	2.0	Aluchrom Alloy	0.62	< 100	4

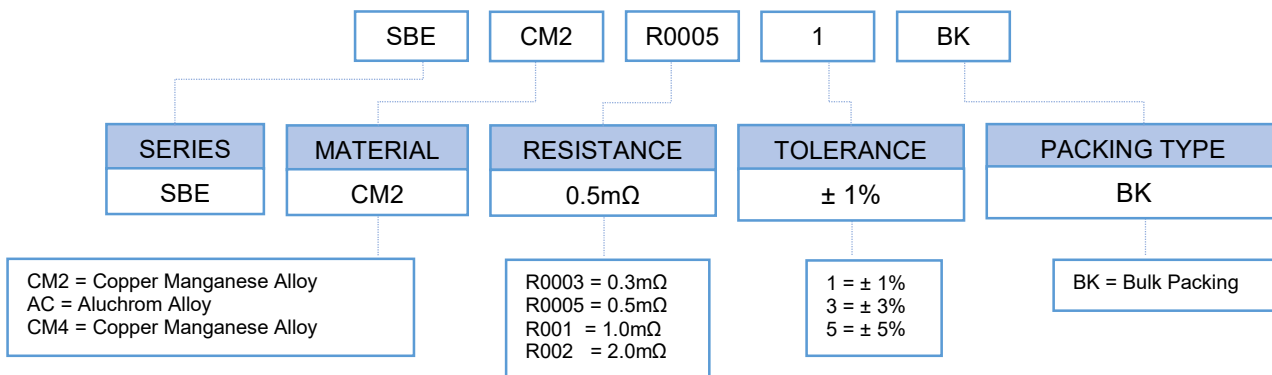
### PCB Layout

Table 2



### Example of Ordering Code

#### SBE-CM2-R0005-1-BK



### Packing Specifications

3000 Pieces sealed in Plastic Bags