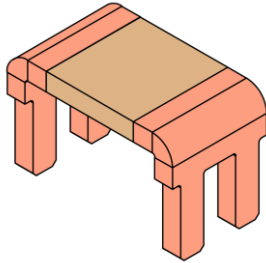


# SBE-3820Series

Low Ohmic EB Welded SMD Precision Resistor



### Features

- 5 Watts Permanent Power
- Constant Current up to 100 amps (0.3mΩ)
- 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 Certified
- AEC-Q200 Qualified

### Applications

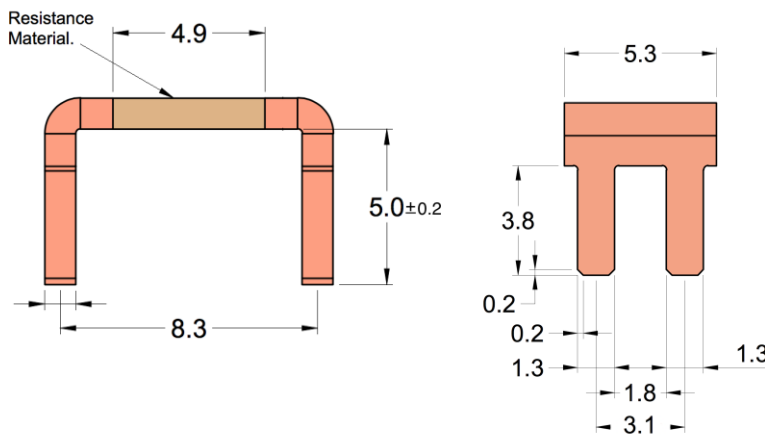
- Current Sensing/ Feedback
- Automotive Applications
- Power Modules
- Frequency Convertors
- Inverters
- Low Inductance Applications



Technical Data		
Resistance Values	0.3, 0.5, 1, 2	(mΩ)
Tolerance	1, 3, 5	(%)
TCR - Temperature Coefficient (Resistive Alloy)	<±10 (Copper Manganese Alloys), < -25 (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



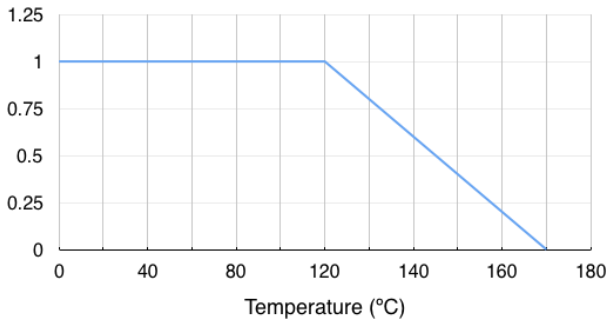
All dimensions are in mm, See table 2 for thickness.



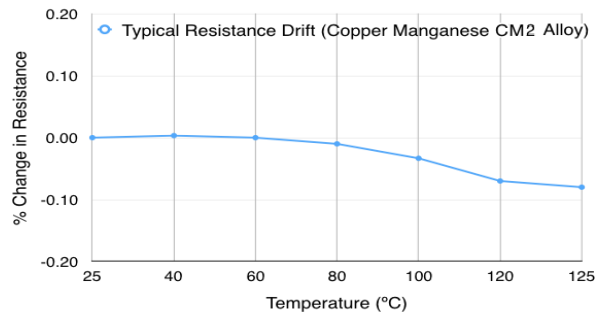
# SBE– 3820 Series

Low Ohmic EB Welded SMD Precision Resistor

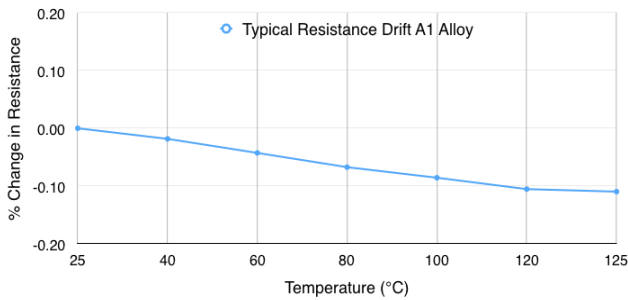
**P/P<sub>nom</sub> Power Derating Curve**



**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.	ΔR +/-1%
Temperature Cycling	JESD22 Method JA-104	-55°C to 150°C, 1000Cycles, 30 minutes at each extreme	ΔR +/-0.5%
Biased Humidity	MIL-STD-202 Method 103	85°C & 85RH with 10% operating power, 1000 hrs.	ΔR +/-0.5%
Operational Life	MIL-STD-202 Method 108	125°C at rated power,1000 hrs.	ΔR +/-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	ΔR +/-0.2%
Vibration	MIL-STD-202 Method 204	5g for 20 minutes, 12 cycles each of 3orientations.10-2000Hz	ΔR +/-0.2%
Resistance to Soldering Heat	MIL-STD-202 Method 210	Solder Temp. 260°C, Time 10 seconds	ΔR +/-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	ΔR +/-1%
Low Temperature Storage	--	-65°C for 24 hrs.	ΔR +/-0.2%



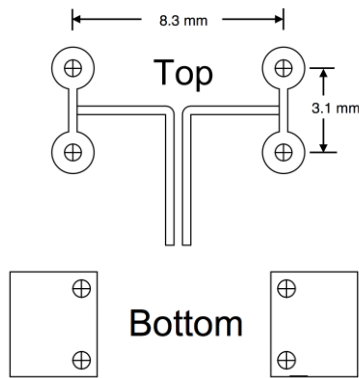
# SBE - 3820 Series

Low Ohmic EB Welded SMD Precision Resistor

Type	Resistance Value (mΩ)	Material	t ±0.1 (mm)	TCR (ppm)	P (W)
SBE-CM2-R0003	0.3	Copper Manganese Alloy	1.42	<300	5
SBE-CM2-R0005	0.5	Copper Manganese Alloy	0.86	<300	5
SBE-A1-R001	1.0	Aluchrom Alloy	1.36	< 100	5
SBE-A1-R002	2.0	Aluchrom Alloy	0.68	< 100	4

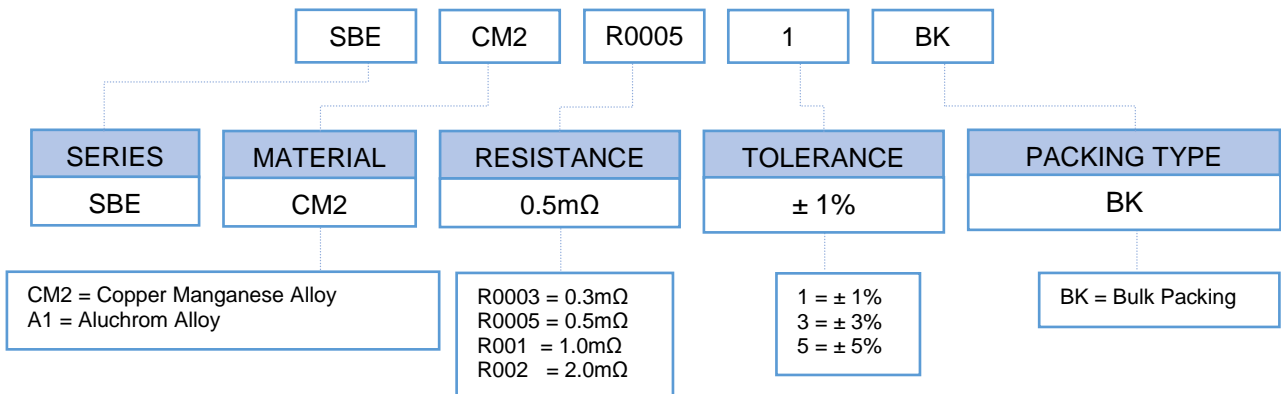
Table 2

### PCB Layout



### Example of Ordering Code

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



### Packing Specifications

3000 Pieces sealed in Plastic Bags