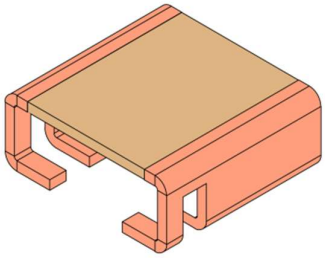
SBG – 2726 Series

Low Ohmic EB Welded SMD Precision Resistor



Features

- Power Rating up to 12W (0.2mΩ)
- Constant Current up to 245 amps (0.2 mΩ)
- Four Terminal Configuration
- Excellent Long Term Stability
- Max. Solder Temperature up to 350°C / 30 sec
- RoHS and REACH Compliant
- AEC-Q200 Compliant

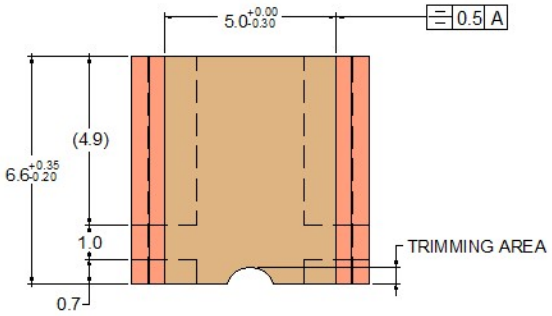
Applications

- Current Sensing/ Feedback
- Automotive Applications
- Power Modules
- Frequency Convertors

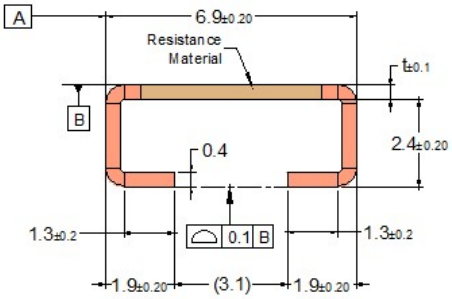
Technical Data

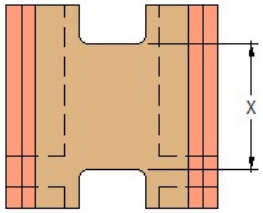
Resistance Values	0.2	0.3	0.5	0.7	1	2	3	4	5	mΩ
Tolerance	1, 2, 5									(%)
TCR - Temperature Coefficient of Resistive Alloy (20 to 60°C)	< ±20 (Copper Manganese Alloys) < -35 (Aluchrom Alloy) <± 20 (Nickel Chromium Alloy)									(ppm/°C)
TCR - Temperature Coefficient of Component (20 to 60°C)	See Table 2									(ppm/°C)
Applicable Temperature Range	-65 to +170									ºC
Load Capacity	See Table 2									-
Inductance	< 3									nH
Stability Deviation	< 0.5 after 2000 Hours, T_t^*= 100ºC									%
* T_t = Terminal Temperature	< 1.0 after 2000 Hours, T_t^*= 130ºC									%

Table 1



Resistance Value (mΩ)	X ±0.5
4.0	4.15
5.0	3.15





For 4.0 & 5.0m-ohm

Dimensions are in mm, See table 2 for thickness.

SBG - 2726Series

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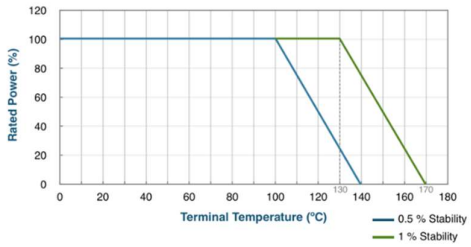
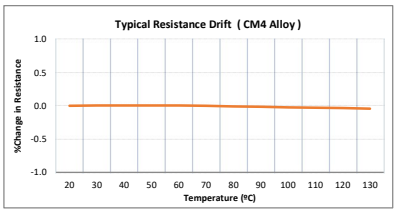
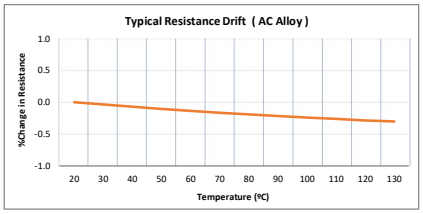
Power Derating Curve at 70°C
(SBG-CM4-R0005)



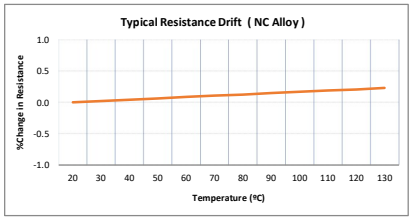
Resistance Change vs Temperature



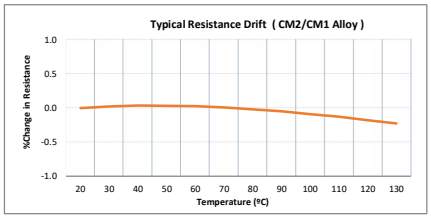
Resistance Change vs Temperature



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.	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%

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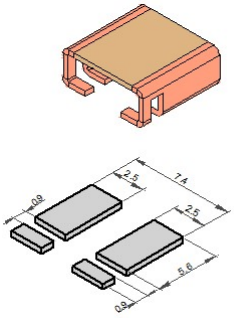
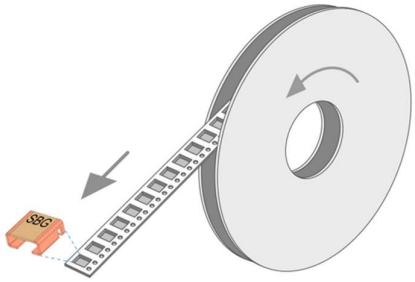
Type		Resistance Value (mΩ)	Material		t +/-0.1 (mm)	TCR (ppm/°C)	$P_{70°C}$ (W) At Ambient	R_{thi} (°C/W)	Wt. (nom. gm)
SBG-CM4-R0002		0.2	Copper Manganese Tin Alloy		1.42	< 25	12	4	0.59
SBG-CM1-R0003		0.3	Copper Manganese Alloy		1.06	< 50	11	5	0.49
SBG-CM4-R0003		0.3	Copper Manganese Tin Alloy		0.80	< 25	11	5	0.41
SBG-CM2-R0005		0.5	Copper Manganese Alloy		0.65	< 50	9	8	0.37
SBG-CM4-R0005		0.5	Copper Manganese Tin Alloy		0.45	< 25	9	8	0.31
SBG-CM2-R0007		0.7	Copper Manganese Alloy		0.47	< 25	8	12	0.32
SBG-CM2-R001		1.0	Copper Manganese Alloy		0.35	< 50	7	14	0.28
SBG-AC-R002	SBG-NC-R002	2.0	Aluchrom Alloy	NiCrAlloy	0.50	< 50	7	17	0.33
SBG-AC-R003	SBG-NC-R003	3.0	Aluchrom Alloy	NiCr Alloy	0.34	< 50	5	21	0.28
SBG-AC-R004	SBG-NC-R004	4.0	Aluchrom Alloy	NiCr Alloy	0.34	< 50	4	28	0.28
SBG-AC-R005	SBG-NC-R005	5.0	Aluchrom Alloy	NiCr Alloy	0.34	< 50	3	33	0.28

Table 2



Solder Pad Layout

Reel Information	
Reference Standard	DIN EN 60286-3
Width of Reel	16 mm
Reel Diameter (OD)	330mm (13'')
Number of parts per Reel	1500 pcs



Note:

1) Recommended Solder Reflow Profile:

http://www.shivalikbimetals.com/SRP-01.pdf

2) Aluchrom is ferro -magnetic and is not recommended for AC applications. For AC applications use NiCr(NC) variant .

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Example of Ordering Code

SBG-CM2-R001-1-TR

SBG	CM2	R001	1	TR
SERIES	MATERIAL	RESISTANCE	TOLERANCE	PACKING TYPE
SBG	CM2	1 mΩ	± 1%	TR

CM4 = Copper Manganese Tin Alloy CM1 = Copper Manganese Alloy CM2 = Copper Manganese Alloy AC=Aluchrom Alloy NC = Nickel Chromium Alloy	R0002 = 0.2 mΩ R0003 = 0.3 mΩ R0005 = 0.5 mΩ R0007 = 0.7 mΩ R001 = 1.0 mΩ R002 = 2.0 mΩ R003 = 3.0 mΩ R004 = 4.0 mΩ R005 = 5.0 mΩ	1 = ± 1% 2 = ± 2% 5 = ± 5%	TR = Tape & Reel BK = Bulk Packing