

# EBW Series

## Manganin/NiCr Current Sense

CURRENT  
SENSE

The EBW Series are manufactured using electron beam welding technology. This allows the joining of different alloys with great accuracy and tolerance. The EBW Series have heavy copper connectors, excellent long term stability and low inductance. These components can tolerate soldering temperatures of 350C for 30 seconds or 250C for 10min. These can be mounted using re-flow soldering or welding on copper. The EBWA can handle a power of 5W up to 100A at 0.5mΩ. The EBWB can handle a constant power of 7W at 0.2mΩ and a continuous load of 180A at 0.2mΩ.



### APPLICATIONS

- Current sensors for hybrid power sources
- Frequency converters
- High current automotive applications.

### SERIES SPECIFICATIONS

Model	Power (W)	Resistance (mΩ)	Material	TCR (20°C - 150°C)
EBWA-M	5	0.5	Manganin	±75ppm/°C
	4	1	Manganin	±60ppm/°C
EBWA-N	4	2	NiCr Alloy	±100ppm/°C
	3	3	NiCr Alloy	±100ppm/°C
	2.5	4	NiCr Alloy	±100ppm/°C
EBWB-M	7	0.2	Manganin	±100ppm/°C
	6	0.5	Manganin	±100ppm/°C
EBWB-N	6	1	NiCr Alloy	±120ppm/°C
	4	2	NiCr Alloy	±120ppm/°C
	3.5	3	NiCr Alloy	±120ppm/°C

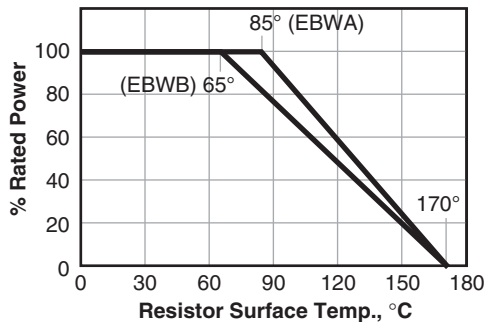
### CHARACTERISTICS

<b>Tolerance</b>	±1(F), ±2(G), ±5(J)
<b>TCR</b>	20°C-150°C Max. ±100ppm/°C (EBWA) Max. ±120ppm/°C (EBWB)
<b>Operating Temperature</b>	-55°C to 170°C

### PERFORMANCE DATA

<b>Thermal Shock</b>	-65°C, 25°C, 125°C, 25°C 25cycles	±0.1%
<b>Short Time Overload</b>	Rated Power X 5 for 5 secs.	±0.2%
<b>Resistance to Soldering Heat</b>	350°C 30 sec. or 250°C 10 min.	±0.2%
<b>Moisture Resistance</b>	90-98%RH, +25°C, +65°C, -10°C 10 cycles	±0.2%
<b>High Temperature Exposure</b>	140°C for 250 hours	±0.2%
<b>Vibration High Frequency</b>	15g 10 to 2000Hz 36 cycles	±0.2%
<b>Inductance</b>		<3nH
<b>Load Life</b>	90 min "ON" 30 min "OFF" for 2000 hours	±1.0%

### Derating

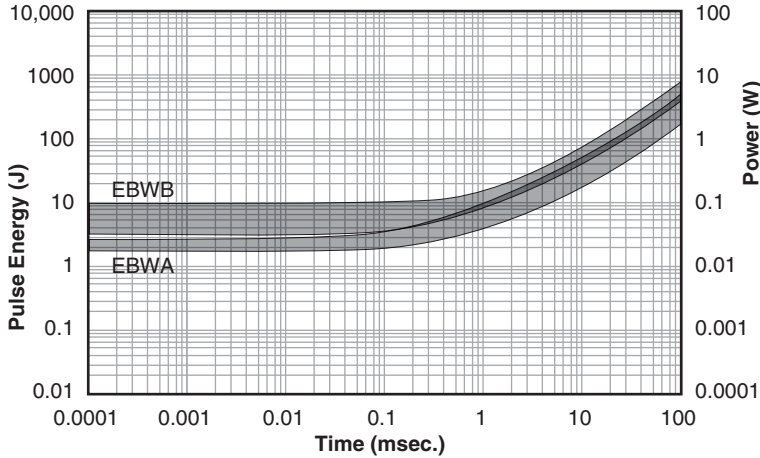


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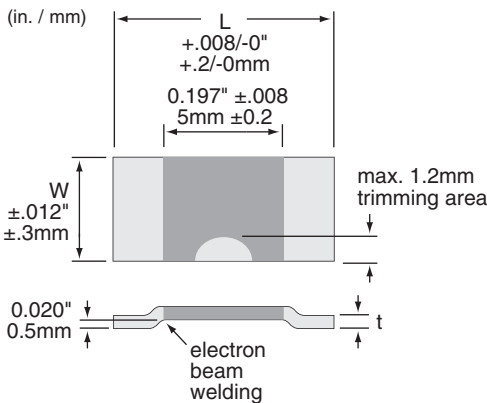
### PULSE ENERGY/POWER FOR CONTINUOUS OPERATION



**EBWA:** Max. curve is only valid for the resistance value 0.5m. The min. curve is only valid for the resistance value 4m. For other resistance values the area in between the max. and the min. curve is valid

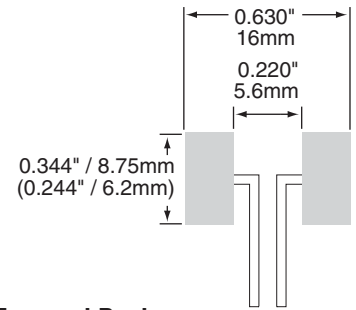
**EBWB:** Max. curve is only valid for the resistance value 0.2m. The min. curve is only valid for the resistance value 2m. For other resistance values the area in between the max. and the min. curve is valid

### DIMENSIONS



	Ohm Value	L	W	Thickness "t"
EBWA-M	0.5m $\Omega$	0.413 / 10.5	0.197 / 5	0.035 / 0.88
	1m $\Omega$			0.017 / 0.43
EBWA-N	2m $\Omega$	0.413 / 10.5	0.197 / 5	0.025 / 0.64
	3m $\Omega$			0.017 / 0.43
	4m $\Omega$			0.013 / 0.32
EBWB-M	0.2m $\Omega$	0.598 / 15.2	0.295 / 7.5	0.059 / 1.5
	0.5m $\Omega$			0.022 / 0.56
EBWB-N	1m $\Omega$	0.598 / 15.2	0.295 / 7.5	0.035 / 0.9
	2m $\Omega$			0.018 / 0.45
	3m $\Omega$			0.012 / 0.3

### Land Pattern



### Tape and Reel

Reel: ~12.95" (329mm)

Qty. per reel: BWS03: 3000pcs  
BWS05: 2000pcs

### ORDERING INFORMATION

RoHS Compliant					
Series	Size	Alloy	Resistance	Tolerance	Tape and reel
EBWA	-M	R	0020	F	E
Electron Beam Weld		M = Manganin N = NiCr		F = 1% G = 2% J = 5%	EBWA: 3000 pc/reel EBWB: 2000 pc/reel

### Standard Part Numbers

- EBWA-MR0005FE
- EBWA-MR0010FE
- EBWA-NR0020FE
- EBWA-NR0030FE
- EBWA-NR0040FE
- EBWB-MR0002FE
- EBWB-MR0005FE
- EBWB-NR0010FE
- EBWB-NR0020FE
- EBWB-NR0030FE