

# NTC Type BB Series

Thermometrics Bare Bead Thermistor



#### Features

#### Type BB05/07/11

- Type BB05/07/11
- Extremely small sizes
- Fastest thermal response times
- Suitable for RF and microwave power measurements
- Lower cost than glass sealed bead type thermistors

- Normal operating/storage temperature range is -112°F to 221°F (-80°C to 105°C)
- When protected from environmental exposures by mounting into special housings or enclosures, they are suitable for general temperature measurement or control applications
- Intermittent operation to 302°F (150°C) is permissible, however, stability will be degraded.

## Amphenol Advanced Sensors

# Type BB Specifications

### Type BB05/07/11

Miniature, uncoated bead thermistors on fine diameter platinum alloy lead-wires.

### Options

- Non-standard resistance tolerances
- Non-standard resistance values
- Reference temperature(s) other than 77°F (25°C) specify
- Mounting in special housings or enclosures
- Longer continuous leads
- Solderable or weldable/solderable leads
- Calibration—specify temperature(s)

### **Thermal and electrical Properties**

The following table lists the Thermal and electrical properties for all Bare Bead style thermistors. All definitions and test methods are per MIL-PRF-23648.



NTC Type BB dimensions

Thermis	Thermistor Type		BBOS	BB07	BB11	
Body Dir	mensions					
Nominal Diameter:			0.005 in	0.007 in	0.011 in	
			(0.13 mm)	(0.18 mm)	(0.28 mm)	
Maximum Diameter:			0.006 in	0.008 in	0.012 in	
			(0.15 mm)	(0.20 mm)	(0.30 mm)	
Maximur	m Length:		0.010 in	0.014 in	0.022 in	
			(0.25 mm)	(0.36 mm)	(0.56 mm)	
Lead-Wi	res					
Nominal Diameter:			0.0007 in	0.0011 in	0.0011 in	
			(0.02 mm)	(0.03 mm)	(0.03 mm)	
Minimum Lead Length:			0.312 in	0.312 in	0.312 in	
			(7.9 mm) (7.9 mm)		(7.9 mm)	
Lead Material:			Platinum Alloy	Platinum Alloy	Platinum Alloy	
Available Cuts:			"J" adj. (stubs)	"J" adj. (stubs)	"J" adj. (stubs)	
			"P" opposite	"P" opposite	"P" opposite	
Material System			Nominal	Nominal	Nominal	
			Resistance Resistance		Resistance	
			Range @ (25°C)	Range @ (25°C)	Range @ (25°C)	
Code Letter	R-vs-T Curve	25/125 Ratio				
E	0	5.0	_	_	_	
А	1	11.8	1.0 kΩ - 1.5 kΩ	300 Ω - 680 Ω	300 Ω – 680 Ω	
А	2	12.5	1.5 kΩ - 3.6 kΩ	680 Ω – 1.6k Ω	680 Ω – 1.6k Ω	
А	3	14.0	3.6 kΩ - 7.5 kΩ	1.6 kΩ – 3.6 kΩ	1.6 kΩ – 3.6 kΩ	
А	4	16.9	7.5 kΩ - 15 kΩ	3.6 kΩ – 6.8 kΩ	3.6 kΩ – 6.8 kΩ	
А	5	19.8	15 kΩ – 51 kΩ	6.8 kΩ - 27 kΩ	6.8 kΩ – 27 kΩ	
А	6	22.1	_	_	_	
А	7	22.7	51 kΩ – 150 kΩ	27 kΩ – 75 kΩ	27 kΩ – 75 kΩ	
В	8	29.4	150 kΩ – 270 kΩ	75 k $\Omega$ – 130 k $\Omega$	75 kΩ – 130 kΩ	
В	9	30.8	270 kΩ – 470 kΩ	130 kΩ – 240 kΩ	130 kΩ – 240 kΩ	
В	10	32.3	470 kΩ – 750 kΩ	240 kΩ – 360 kΩ	240 kΩ – 360 kΩ	
В	11	35.7	750 kΩ – 1.6 MΩ	360 k $\Omega$ – 820 k $\Omega$	360 k $\Omega$ – 820 k $\Omega$	
В	12	38.1	1.6 MΩ– 2.7 MΩ	820 kΩ – 1.3 MΩ	820 kΩ – 1.3 MΩ	
В	13	45.0	2.7 M $\Omega$ – 6.8 M $\Omega$	1.3 MΩ – 3.3 MΩ	1.3 MΩ – 3.3 MΩ	
В	14	48.1	6.8 MΩ – 10 MΩ	3.3 M $\Omega$ – 6.8 M $\Omega$	$3.3 \text{ M}\Omega - 6.8 \text{ M}\Omega$	
В	15	56.5	_	6.8 MΩ – 10 MΩ	$6.8~\text{M}\Omega$ – $10~\text{M}\Omega$	
D	16	75.6	_	_	_	
D	17	81.0	_	_	_	
Thermal	Time Con	stant				
Still Air at 77°F (25°C):			0.11 sec	0.2 sec	0.65 sec	
Plunge into Water:			4.5 msec	6 msec	11 msec	
Dissipat	ion Consta	int				
Still Air a	t 77°F (25°0	C):	0.05 mW/°C	0.07 mW/°C	0.095 mW/°C	
Still Water at 77°F (25°C):			0.25 mW/°C	0.35 mW/°C 0.47 mW/°C		
Power R	ating: (in a	iir)				
Maximur	m Power Ro	ating:	0.004 Watts	0.006 Watts	0.008 Watts	
100% Maximum Power to:			77°F (25°C)	77°F (25°C)	77°F (25°C)	
Derated to 0% at:			221°F (105°C)	221°F (105°C)	221°F (105°C)	

Resistance vs Temperature Characteristics: The nominal resistance range for the zero-power resistance at 77°F (25°C) is shown for each Thermistor Type and each available Material System. Each Material System is denoted by an ordering Code Letter, a referenced Curve number and the nominal 77°F/257°F (25°C/125°C) resistance ratio.

# Type BB Specifications

### Ordering Information

	Iype	Dl								
ВВ	Buie Beau Codo Nominal Road Diamotor in Mile									
	Code	O5 mils								
	05									
	07	07 mils								
	11									
	1	Code Lead Configuration								
		J	Adjace	nt leads						
		Р	Oppos	te leads						
			Code	Mater	m					
			X	See Thermal and Electrical						
				Properties table on page 2						
				Code	Zero-p	ower*				
				Resistance as						
					:5°C)					
				243	24k $\Omega$					
					Code	Tolerance				
					J	5				
					K	10				
					L	15				
					М	20				
					Ν	25				
					Р	30				
					Q	40				
					R	50				
					S	Non-standard consult factory				
					1	,				
\	¥		\	¥	¥					
BB -					· Ty	pical model number				

Special tolerances are available on request. Consult factory for special resistance tolerances, non- standard resistances and/or non-standard temperatures.

\* The zero-power resistance at 77°F (25°C), expressed in Ohms, is identified by a three digit code number. The first two digits represent significant figures, and the last digit specifies the number of zeros to follow. Example:  $24 \text{ k}\Omega = "243"$ . The standard resistance values are from the 24-Value series decade as specified in Military Standard MS90178.

1.0 / 1.1 / 1.2 / 1.3 / 1.5 / 1.6 / 1.8 / 2.0 / 2.2 / 2.4 / 2.7 / 3.0 3.3 / 3.6 / 3.9 / 4.3 / 4.7 / 5.1 / 5.6 / 6.2 / 6.8 / 7.5 / 8.2 / 9.1

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