

## Carbon Composition Resistor

### IBT Series

- Meets performance standards of EIA RS-172
- Hot molded process for product uniformity
- Ideal for pulse-loaded handling
- Non-inductive design



 All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

## Electrical Data

Tested Per MIL-STD-202		
	IBT 1/4	IBT 1/2
Equivalent Allen Bradley reference	RC07	RC20
Power Rating Determined by load life test 100% load @ 70°C ambient	1/4W	1/2W
Rated Continuous Working Voltage (RCWV)	P x R or 250 volts whichever is less	P x R or 350 volts whichever is less
Maximum Ambient Temperature Resistors derated to zero load at this temperature	+130°C	
Nominal Resistance Range	1Ω - 5.6 megΩ	1Ω - 20 megΩ
Standard Resistance Tolerances	<100K: 5%, 10%, ≥100K: 10%	
Dielectric Withstand Voltage Atmospheric Pressure Barometric pressure 3.4" Hg 115 millibars	500V 325V	700V 450V
Insulation Resistance (min.)	10,000 meg	10,000 meg
Voltage Coefficient of Resistance % resistance change/volt at 10% and (min.) 100% RCWV for values 1K to 20 meg (max.)	-0.005% -0.032%	-0.005% -0.032%
Short-Time Overload Apply 2.5 times RCWV at maximum Indicated for 5 seconds	Maximum Voltage Typical resistance change Maximum resistance change	700V ±0.5% ±2%
		700V ±0.5% ±2%

### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.  
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IBT Series

## Resistance Temperature Characteristics

	Resistance Range	-55°C	+105°C
Maximum percent resistance change from room temperature (+25°C) value	under 1K	+2.0 to +5.0	-4.0 to -2.0
	1K to 9.1 K	+5.0 to +9.0	-5.0 to -3.0
	10K to 91K	+8.0 to +11.0	-7.0 to -5.0
	100K to 910K	+10.0 to +14.0	-9.0 to -7.0
	1 meg to 10 meg	13.0 to +20.0	-14.0 to -9.0

## Physical Data



**PACKAGING:**  
 5000/reel  
 1000/bulk

Dimensions (Inches and (mm))				
IRC Type	A	B	C	D
IBT 1/4	1.18 ± 0.12 (30.00 ± 3.0)	0.248 ± 0.028 (6.3 ± 0.70)	0.024 ± 0.002 (0.60 ± 0.05)	0.094 ± 0.004 (2.40 ± 0.10)
IBT 1/2	1.1 ± 0.12 (28.00 ± 3.0)	0.374 + 0.032 / -0.028 (9.50 + 0.80 / -0.70)	0.0275 ± 0.002 (0.70 ± 0.05)	0.142 ± 0.008 (3.6 ± 0.20)

Application notes - Lead forming within 2mm of the body and soldering within 4mm of the body are not recommended. Owing to the hydropscopic nature of carbon composition technology, aqueous washing is not recommended.

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## Ordering Procedure

This product has two valid part numbers:

**European (Welwyn) Part Number: IBT1/2-20KJI** (IBT1/2, 20 kilohms  $\pm 5\%$ , Pb-free)

I	B	T	1	/	2	-	2	0	K	J	I
1					2		3	4			

1	2	3	4
Type	Value	Tolerance	Packing & Termination Finish
IBT1/4	3/4 characters	J = $\pm 5\%$	I = Tape Pack & Pb-free
IBT1/2	R = ohms K = kilohms M = megohms	K = $\pm 10\%$	All sizes Taped, 5000/reel

**USA (IRC) Part Number: IBT1/2203JLFLTR** (IBT1/2, 20 kilohms  $\pm 5\%$ , Pb-free)

I	B	T	1	/	2	2	0	3	J	L	F	L	T	R
1					2		3	4		5				

1	2	3	4	5
Type	Value	Tolerance	Termination Finish	Packing
IBT1/4	2 digits + multiplier	J = $\pm 5\%$	LF = Pb-free	LTR = Lead Tape Omit for Bulk Pack
IBT1/2	R = ohms for values <10 ohms	K = $\pm 10\%$		All sizes 5000/reel 1000/bulk

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