

# 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 (RoHS2)

## Electrical Data

| Tested Per MIL-STD-202                                                                                                      |                                                                           |                                         |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------|
|                                                                                                                             | IBT 1/4                                                                   | IBT 1/2                                 |
| Equivalent Allen Bradley reference                                                                                          | RC07                                                                      | RC20                                    |
| Power Rating<br>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<br>whichever is less                                   | P x R or 350 volts<br>whichever is less |
| Maximum Ambient Temperature<br>Resistors derated to zero load at this temperature                                           | ±130°C                                                                    | ±130°C                                  |
| Nominal Resistance Range                                                                                                    | 1Ω - 5.6 megΩ                                                             | 1Ω - 20 megΩ                            |
| Standard Resistance Tolerances                                                                                              | ±5%, ±10%                                                                 | ±5%, ±10%                               |
| Dielectric Withstand Voltage<br>Atmospheric Pressure<br>Barometric pressure 3.4" Hg 115 millibars                           | 500V<br>325V                                                              | 700V<br>450V                            |
| Insulation Resistance (min.)                                                                                                | 10,000 meg                                                                | 10,000 meg                              |
| Voltage Coefficient of Resistance<br>% resistance change/volt at 10% and (min.)<br>100% RCWV for values 1K to 20 meg (max.) | -.005%<br>-.032%                                                          | -.005%<br>-.032%                        |
| Short-Time Overload<br>Apply 2.5 times RCWV at maximum<br>Indicated for 5 seconds                                           | Maximum Voltage<br>Typical resistance change<br>Maximum resistance change | 700V<br>±0.5%<br>±2%                    |
|                                                                                                                             |                                                                           | 700V<br>±0.5%<br>±2%                    |

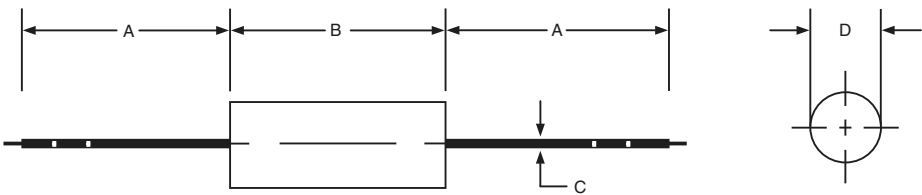
### General Note

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All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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

| <div><div>PACKAGING:<br/>5000/reel<br/>1000/bulk</div></div> |                              |                                                 |                                 |                                |
|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------|---------------------------------|--------------------------------|
| Dimensions (Inches and (mm))                                                                                                                   |                              |                                                 |                                 |                                |
| IRC Type                                                                                                                                       | A                            | B                                               | C                               | D                              |
| IBT 1/4                                                                                                                                        | 1.18 ± 0.12<br>(30.00 ± 3.0) | 0.248 ± 0.028<br>(6.3 ± 0.70)                   | 0.024 ± 0.002<br>(0.60 ± 0.05)  | 0.094 ± 0.004<br>(2.40 ± 0.10) |
| IBT 1/2                                                                                                                                        | 1.1 ± 0.12<br>(28.00 ± 3.0)  | 0.374 + 0.032 / -0.028<br>(9.50 + 0.80 / -0.70) | 0.0275 ± 0.002<br>(0.70 ± 0.05) | 0.142 ± 0.008<br>(3.6 ± 0.20)  |

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

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BI Technologies IRC Welwyn

<http://www.ttelectronics.com/resistors>

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