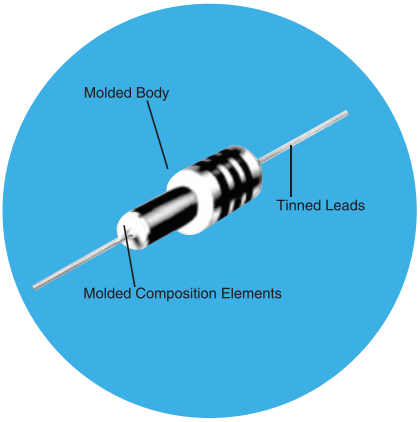
# Resistors

# 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**<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 whichever is less | P x R or 350 volts whichever is less |
| **Maximum Ambient Temperature**<br>**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**<br>**Atmospheric Pressure**<br>**Barometric pressure 3.4" Hg 115 millibars** | | <br>500V<br>325V | <br>700V<br>450V |
| **Insulation Resistance** | **(min.)** | 10,000 meg | 10,000 meg |
| **Voltage Coefficient of Resistance**<br>**% resistance change/volt at 10% and**<br>**100% RCWV for values 1K to 20 meg** | <br>**(min.)**<br>**(max.)** | <br>-.005%<br>-.032% | <br>-.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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BI Technologies IRC Welwyn

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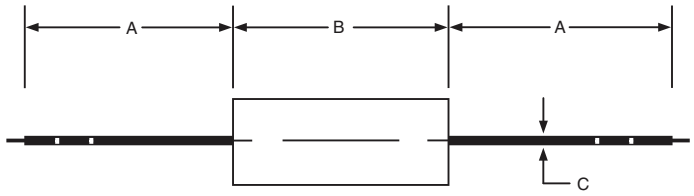
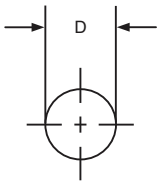
# Resistance Temperature Characteristics

| | 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) |

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# Ordering Procedure

This product has two valid part numbers:

**European (Welwyn) Part Number: IBT1/2-20KJI** (IBT1/2, 20 kilohms ±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 = ±5% | I = Tape Pack & Pb-free | |
| IBT1/2 | | K = ±10% | All sizes | Taped, 5000/reel |

**USA (IRC) Part Number: IBT1/2203JLFLTR** (IBT1/2, 20 kilohms ±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 = ±5% | LF = Pb-free | LTR = Lead Tape<br>Omit for Bulk Pack | |
| IBT1/2 | R = ohms for values <10 ohms | K = ±10% | | All sizes | 5000/reel |
| | | | | | 1000/bulk |

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# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

TT Electronics:

RC20GF560J RC20GF621J RC20GF220JTR RC20GF751J RC20GF360J RC20GF684J RC20GF682J RC20GF680J RC20GF683J RC20GF391J RC20GF393J RC20GF390J RC20GF103J RC20GF123J RC20GF101J RC20GF121J RC20GF104J RC20GF105J RC20GF221J RC20GF2R2J RC20GF222J RC20GF224J RC20GF2R7J RC20GF223J RC20GF220J RC20GF2R0J RC20GF681J RC20GF184J RC20GF180J RC20GF181J RC20GF510J RC20GF514J RC20GF153J RC20GF154J RC20GF151J RC20GF333J RC20GF331J RC20GF330J RC20GF120J RC20GF124J RC20GF203J RC20GF152J RC20GF274J RC20GF272J RC20GF271J RC20GF8R2J RC20GF4R7J RC20GF304J RC20GF301J RC20GF131J RC20GF202J RC20GF204J RC20GF201J RC20GF332J RC20GF750J RC20GF474J RC20GF470J RC20GF472J RC20GF473J RC20GF471J RC20GF111J RC20GF114J RC20GF106J RC20GF102J RC20GF563J RC20GF561J RC20GF2R0JTR RC20GF4R7JTR RC20GF620J RC20 RC20GF102JTR RC20GF112J RC20GF150J RC20GF151JTR RC20GF152JTR RC20GF161J RC20GF182J RC20GF1R0JTR RC20GF200J RC20GF204JTR RC20GF270J RC20GF270JTR RC20GF273J RC20GF300J RC20GF334J RC20GF361J RC20GF394J RC20GF3R0J RC20GF470JTRLF RC20GF511J RC20GF513J RC20GF562J RC20GF5R6J RC20GF622J RC20GF681JTRLF RC20GF820J RC20GF822J RC20GF3R3J RC20GF200JTR RC20GF1R0J