

# BC337, BC337-25, BC337-40

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic                                                                          | Symbol        | Min | Typ | Max | Unit |
|-----------------------------------------------------------------------------------------|---------------|-----|-----|-----|------|
| <b>OFF CHARACTERISTICS</b>                                                              |               |     |     |     |      |
| Collector – Emitter Breakdown Voltage<br>( $I_C = 10\text{ mA}$ , $I_B = 0$ )           | $V_{(BR)CEO}$ | 45  | –   | –   | Vdc  |
| Collector – Emitter Breakdown Voltage<br>( $I_C = 100\text{ }\mu\text{A}$ , $I_E = 0$ ) | $V_{(BR)CES}$ | 50  | –   | –   | Vdc  |
| Emitter – Base Breakdown Voltage<br>( $I_E = 10\text{ }\mu\text{A}$ , $I_C = 0$ )       | $V_{(BR)EBO}$ | 5.0 | –   | –   | Vdc  |
| Collector Cutoff Current<br>( $V_{CB} = 30\text{ V}$ , $I_E = 0$ )                      | $I_{CBO}$     | –   | –   | 100 | nAdc |
| Collector Cutoff Current<br>( $V_{CE} = 45\text{ V}$ , $V_{BE} = 0$ )                   | $I_{CES}$     | –   | –   | 100 | nAdc |
| Emitter Cutoff Current<br>( $V_{EB} = 4.0\text{ V}$ , $I_C = 0$ )                       | $I_{EBO}$     | –   | –   | 100 | nAdc |

## ON CHARACTERISTICS

|                                                                                            |                               |               |     |   |     |     |
|--------------------------------------------------------------------------------------------|-------------------------------|---------------|-----|---|-----|-----|
| DC Current Gain<br>( $I_C = 100\text{ mA}$ , $V_{CE} = 1.0\text{ V}$ )                     | BC337<br>BC337-25<br>BC337-40 | $h_{FE}$      | 100 | – | 630 | –   |
|                                                                                            |                               |               | 160 | – | 400 |     |
| ( $I_C = 300\text{ mA}$ , $V_{CE} = 1.0\text{ V}$ )                                        |                               |               | 250 | – | 630 |     |
|                                                                                            |                               |               | 60  | – | –   |     |
| Base–Emitter On Voltage<br>( $I_C = 300\text{ mA}$ , $V_{CE} = 1.0\text{ V}$ )             |                               | $V_{BE(on)}$  | –   | – | 1.2 | Vdc |
| Collector – Emitter Saturation Voltage<br>( $I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$ ) |                               | $V_{CE(sat)}$ | –   | – | 0.7 | Vdc |

## SMALL-SIGNAL CHARACTERISTICS

|                                                                                                                 |          |   |     |   |     |
|-----------------------------------------------------------------------------------------------------------------|----------|---|-----|---|-----|
| Output Capacitance<br>( $V_{CB} = 10\text{ V}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )                             | $C_{ob}$ | – | 15  | – | pF  |
| Current – Gain – Bandwidth Product<br>( $I_C = 10\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ , $f = 100\text{ MHz}$ ) | $f_T$    | – | 210 | – | MHz |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

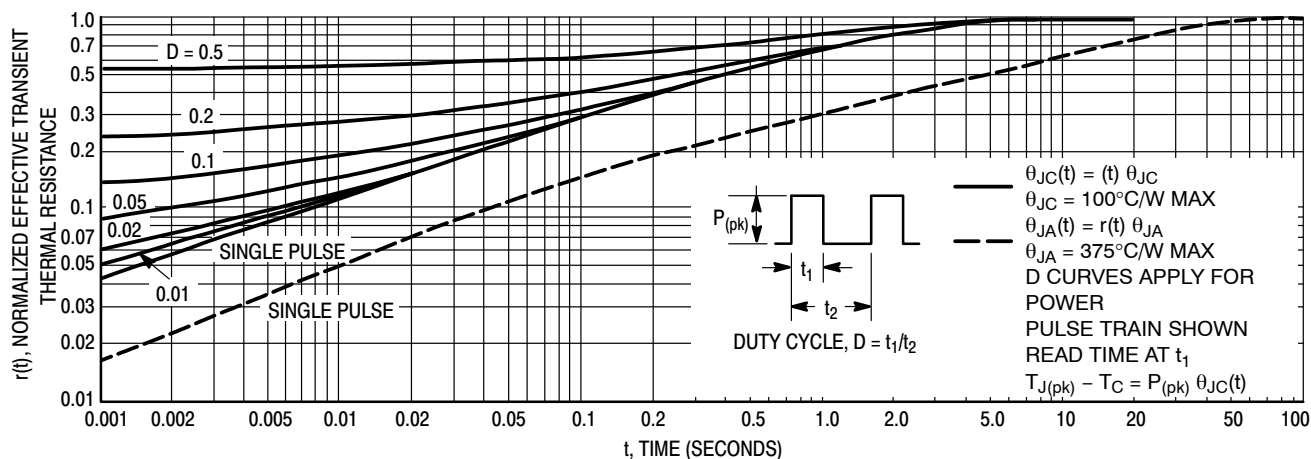


Figure 1. Thermal Response

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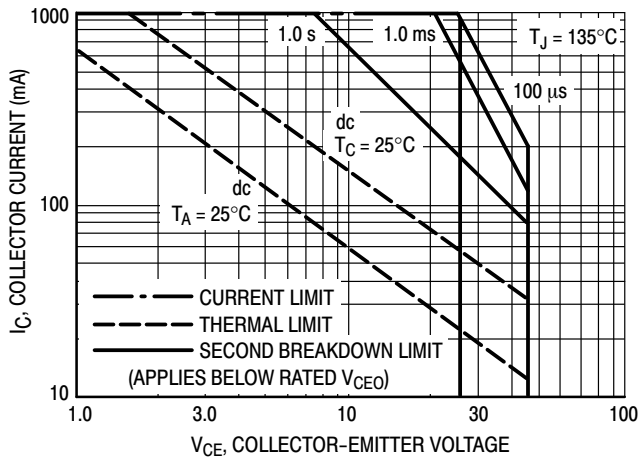


Figure 2. Active Region – Safe Operating Area

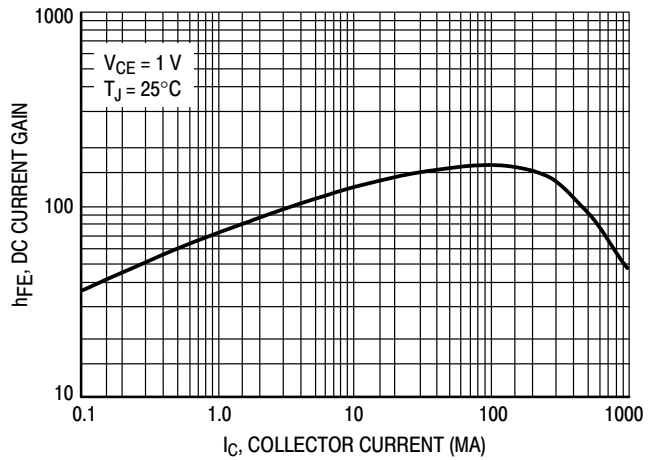


Figure 3. DC Current Gain

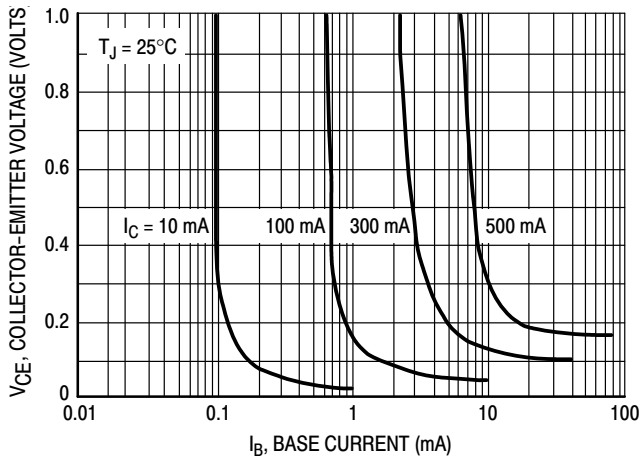


Figure 4. Saturation Region

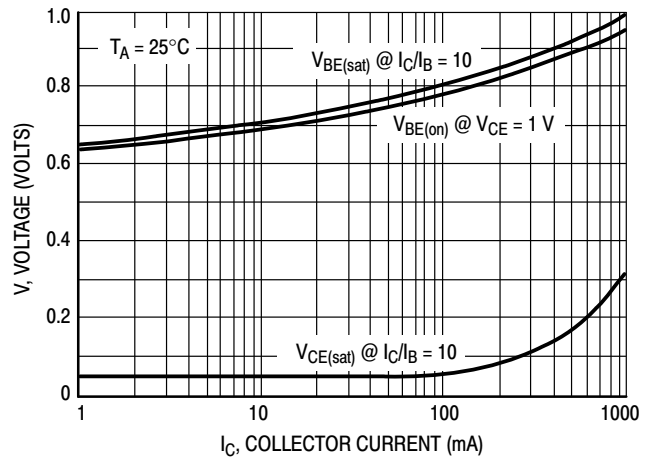


Figure 5. "On" Voltages

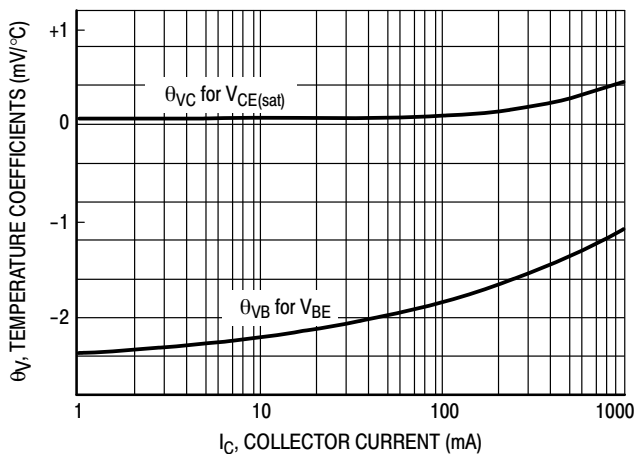


Figure 6. Temperature Coefficients

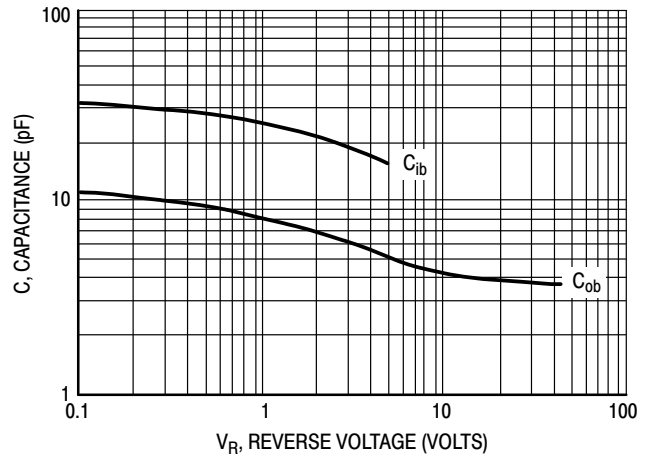


Figure 7. Capacitances

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### ORDERING INFORMATION

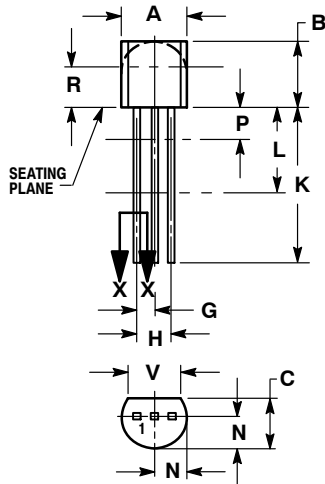
| Device        | Marking | Package            | Shipping†          |
|---------------|---------|--------------------|--------------------|
| BC337G        | 7       | TO-92<br>(Pb-Free) | 5000 Units / Bulk  |
| BC337RL1G     | 7       |                    | 2000 / Tape & Reel |
| BC337-025G    | 7-25    |                    | 5000 Units / Bulk  |
| BC337-25RL1G  | 7-25    |                    | 2000 / Tape & Reel |
| BC337-25RLRAG | 7-25    |                    | 2000 / Tape & Reel |
| BC337-25ZL1G  | 7-25    |                    | 2000 / Ammo Box    |
| BC337-040G    | 7-40    |                    | 5000 Units / Bulk  |
| BC337-40RL1G  | 7-40    |                    | 2000 / Tape & Reel |
| BC337-40ZL1G  | 7-40    |                    | 2000 / Ammo Box    |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

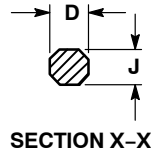
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## PACKAGE DIMENSIONS

### TO-92 (TO-226) CASE 29-11 ISSUE AM



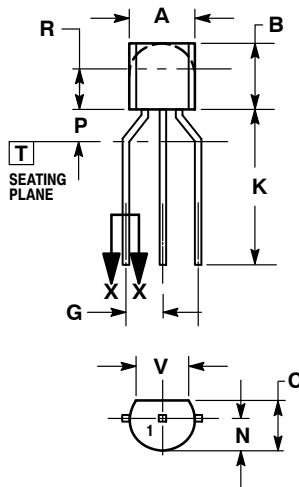
STRAIGHT LEAD  
BULK PACK



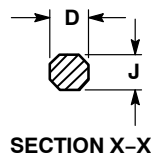
#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

| DIM | INCHES |       | MILLIMETERS |       |
|-----|--------|-------|-------------|-------|
|     | MIN    | MAX   | MIN         | MAX   |
| A   | 0.175  | 0.205 | 4.45        | 5.20  |
| B   | 0.170  | 0.210 | 4.32        | 5.33  |
| C   | 0.125  | 0.165 | 3.18        | 4.19  |
| D   | 0.016  | 0.021 | 0.407       | 0.533 |
| G   | 0.045  | 0.055 | 1.15        | 1.39  |
| H   | 0.095  | 0.105 | 2.42        | 2.66  |
| J   | 0.015  | 0.020 | 0.39        | 0.50  |
| K   | 0.500  | ---   | 12.70       | ---   |
| L   | 0.250  | ---   | 6.35        | ---   |
| N   | 0.080  | 0.105 | 2.04        | 2.66  |
| P   | ---    | 0.100 | ---         | 2.54  |
| R   | 0.115  | ---   | 2.93        | ---   |
| V   | 0.135  | ---   | 3.43        | ---   |



BENT LEAD  
TAPE & REEL  
AMMO PACK



#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

| DIM | MILLIMETERS |      |
|-----|-------------|------|
|     | MIN         | MAX  |
| A   | 4.45        | 5.20 |
| B   | 4.32        | 5.33 |
| C   | 3.18        | 4.19 |
| D   | 0.40        | 0.54 |
| G   | 2.40        | 2.80 |
| J   | 0.39        | 0.50 |
| K   | 12.70       | ---  |
| N   | 2.04        | 2.66 |
| P   | 1.50        | 4.00 |
| R   | 2.93        | ---  |
| V   | 3.43        | ---  |

#### STYLE 17:

1. COLLECTOR
2. BASE
3. EMITTER

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