

# BC337, BC337-25, BC337-40

## Amplifier Transistors

### NPN Silicon

#### Features

- These are Pb-Free Devices

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector – Emitter Voltage	$V_{CEO}$	45	Vdc
Collector – Base Voltage	$V_{CBO}$	50	Vdc
Emitter – Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current – Continuous	$I_C$	800	mA <sub>dc</sub>
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.5 12	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS

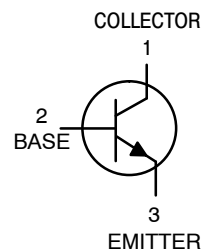
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

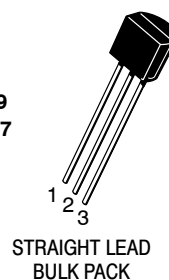


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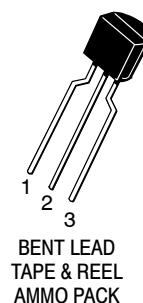
<http://onsemi.com>



**TO-92  
CASE 29  
STYLE 17**

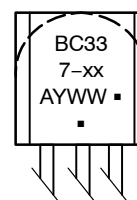


**STRAIGHT LEAD  
BULK PACK**



**BENT LEAD  
TAPE & REEL  
AMMO PACK**

#### MARKING DIAGRAM



BC337-xx = Device Code  
(Refer to page 4)

A = Assembly Location

Y = Year

WW = Work Week

▪ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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## 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 ( $I_C = 10\text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	45	–	–	Vdc
Collector – Emitter Breakdown Voltage ( $I_C = 100\text{ }\mu\text{A}$ , $I_E = 0$ )	$V_{(BR)CES}$	50	–	–	Vdc
Emitter – Base Breakdown Voltage ( $I_E = 10\text{ }\mu\text{A}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0	–	–	Vdc
Collector Cutoff Current ( $V_{CB} = 30\text{ V}$ , $I_E = 0$ )	$I_{CBO}$	–	–	100	nAdc
Collector Cutoff Current ( $V_{CE} = 45\text{ V}$ , $V_{BE} = 0$ )	$I_{CES}$	–	–	100	nAdc
Emitter Cutoff Current ( $V_{EB} = 4.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$	–	–	100	nAdc

## ON CHARACTERISTICS

DC Current Gain ( $I_C = 100\text{ mA}$ , $V_{CE} = 1.0\text{ V}$ )	BC337 BC337-25 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 ( $I_C = 300\text{ mA}$ , $V_{CE} = 1.0\text{ V}$ )		$V_{BE(on)}$	–	–	1.2	Vdc
Collector – Emitter Saturation Voltage ( $I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$ )		$V_{CE(sat)}$	–	–	0.7	Vdc

## SMALL-SIGNAL CHARACTERISTICS

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

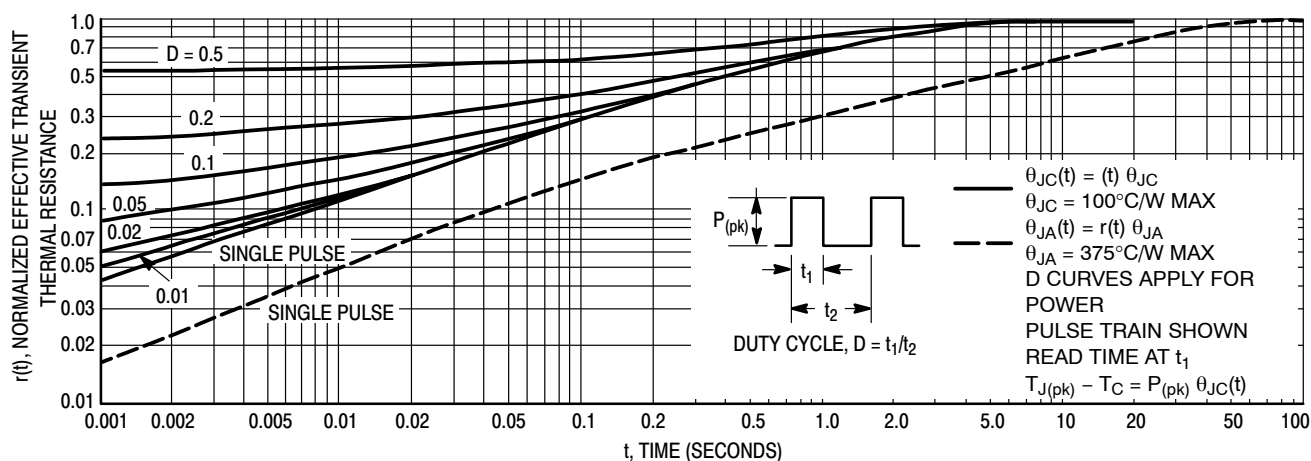


Figure 1. Thermal Response

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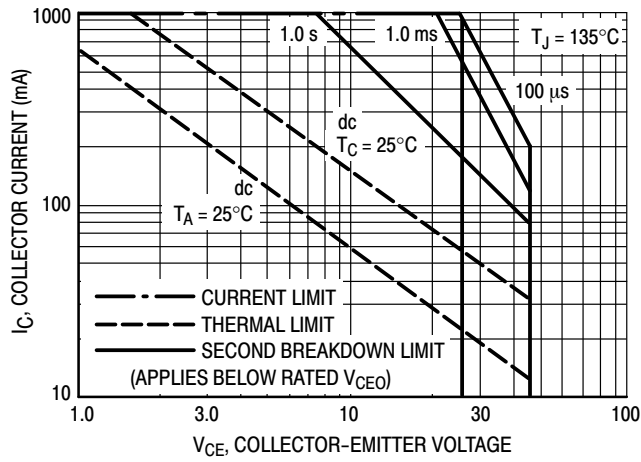


Figure 2. Active Region – Safe Operating Area

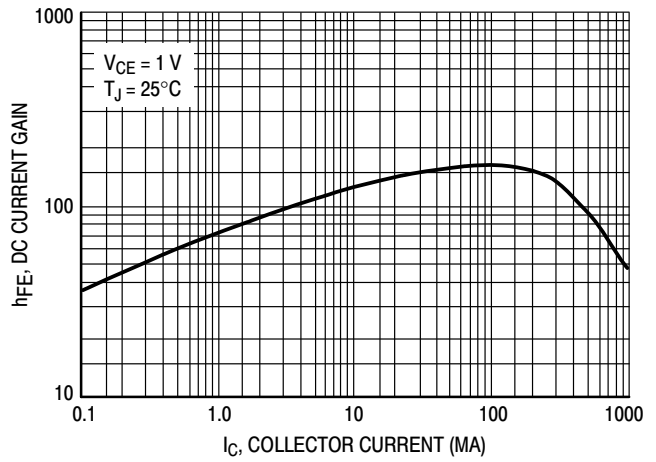


Figure 3. DC Current Gain

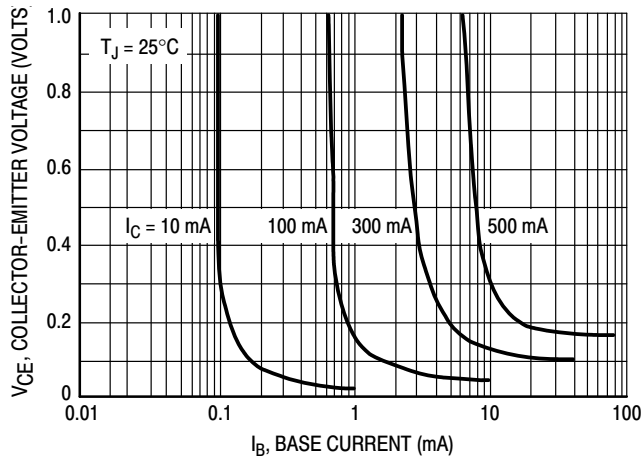


Figure 4. Saturation Region

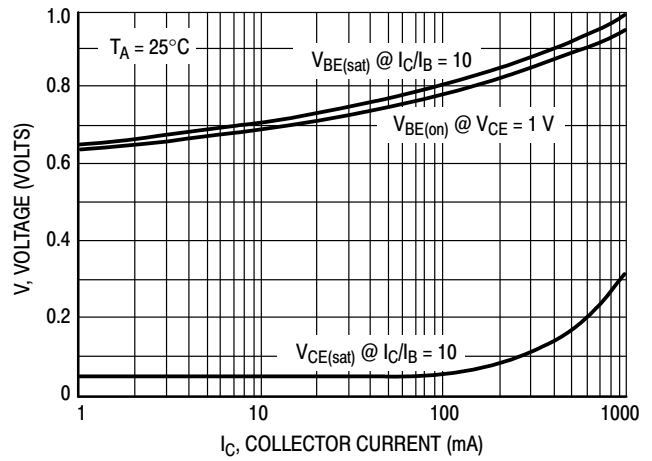


Figure 5. "On" Voltages

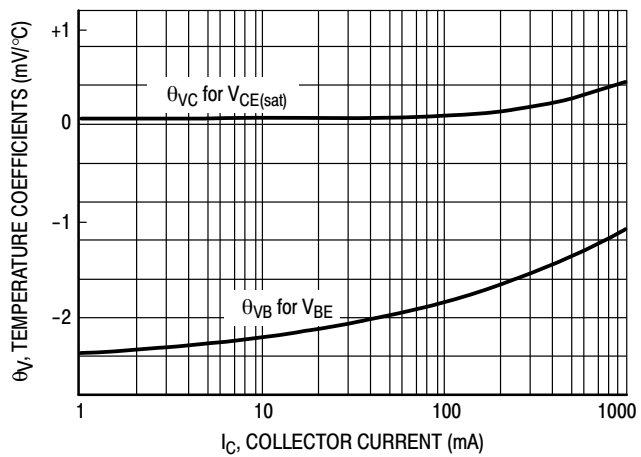


Figure 6. Temperature Coefficients

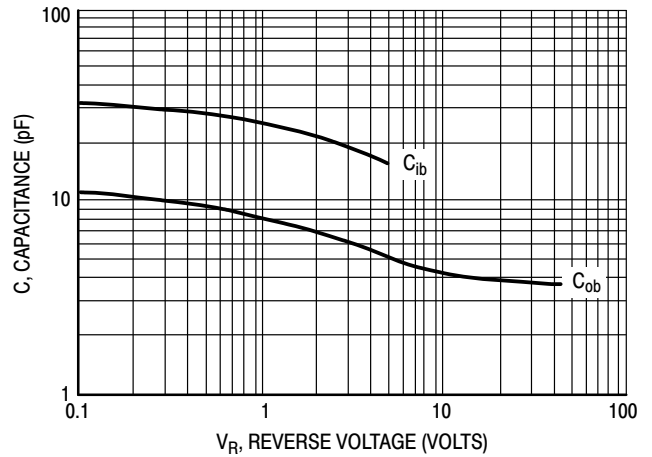


Figure 7. Capacitances

## BC337, BC337–25, BC337–40

### ORDERING INFORMATION

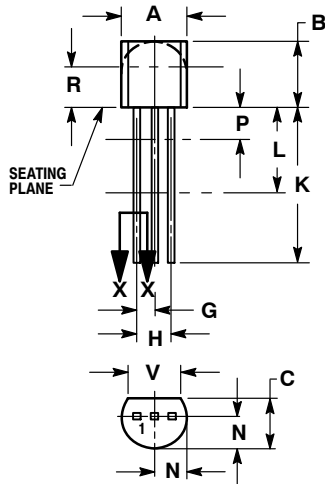
Device	Marking	Package	Shipping†
BC337G	7	TO-92 (Pb-Free)	5000 Units / Bulk
BC337RL1G	7		2000 / Tape & Reel
BC337–025G	7–25		5000 Units / Bulk
BC337–25RL1G	7–25		2000 / Tape & Reel
BC337–25RLRAG	7–25		2000 / Tape & Reel
BC337–25ZL1G	7–25		2000 / Ammo Box
BC337–040G	7–40		5000 Units / Bulk
BC337–40RL1G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

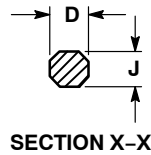
# BC337, BC337-25, BC337-40

## PACKAGE DIMENSIONS

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



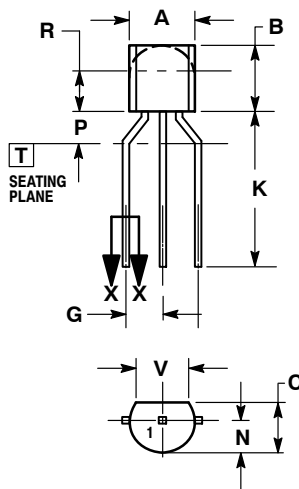
STRAIGHT LEAD  
BULK PACK



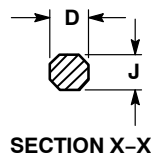
#### NOTES:

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.
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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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