

# BC337, BC337-25, BC337-40

## Amplifier Transistors

### NPN Silicon

#### Features

- Pb-Free Packages are Available\*

#### 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	mAdc
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

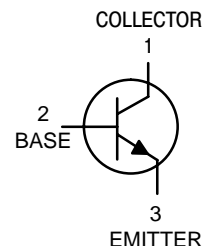
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

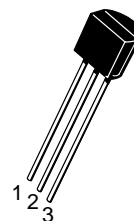


ON Semiconductor®

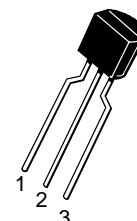
<http://onsemi.com>



TO-92  
CASE 29  
STYLE 17

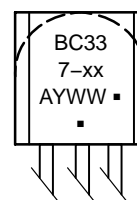


STRAIGHT LEAD  
BULK PACK



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)

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

#### ORDERING INFORMATION

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

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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 ( $I_C = 100\ \mu\text{A}$ , $I_E = 0$ )	$V_{(BR)CES}$	50	-	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10\ \mu\text{A}$ , $I_C = 0$ )	$V_{(BR)EBO}$	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	-
( $I_C = 300\text{ mA}$ , $V_{CE} = 1.0\text{ V}$ )			160	-	400	
			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

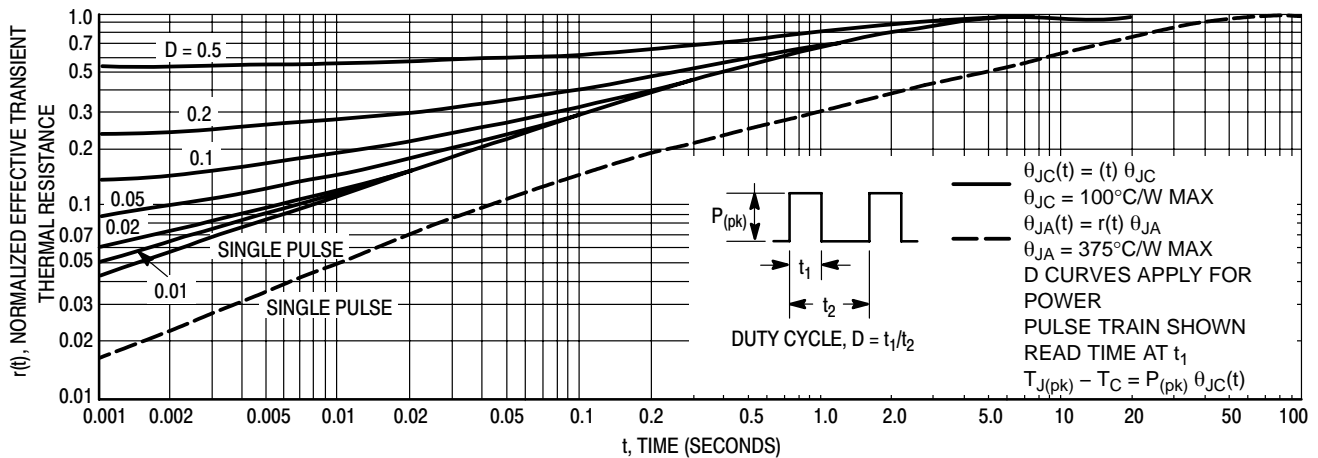


Figure 1. Thermal Response

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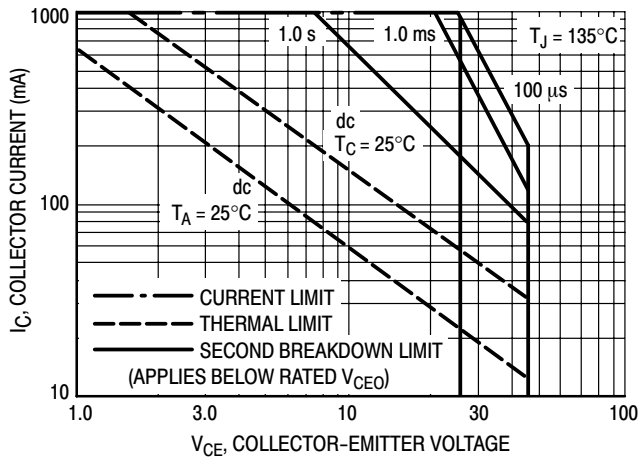


Figure 2. Active Region – Safe Operating Area

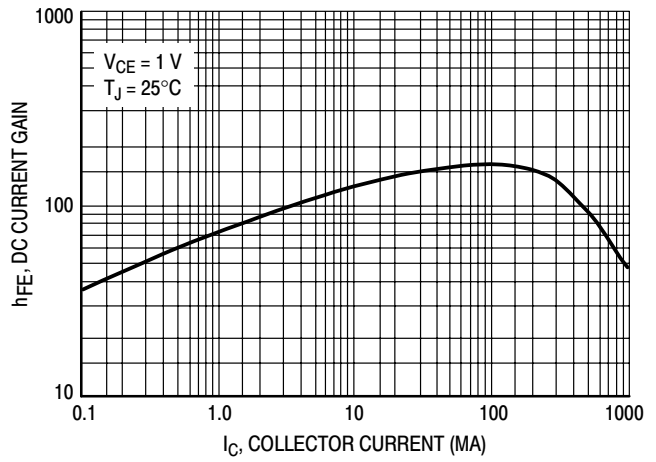


Figure 3. DC Current Gain

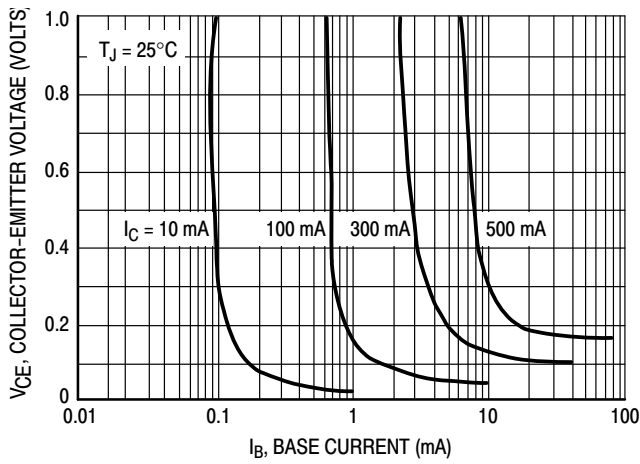


Figure 4. Saturation Region

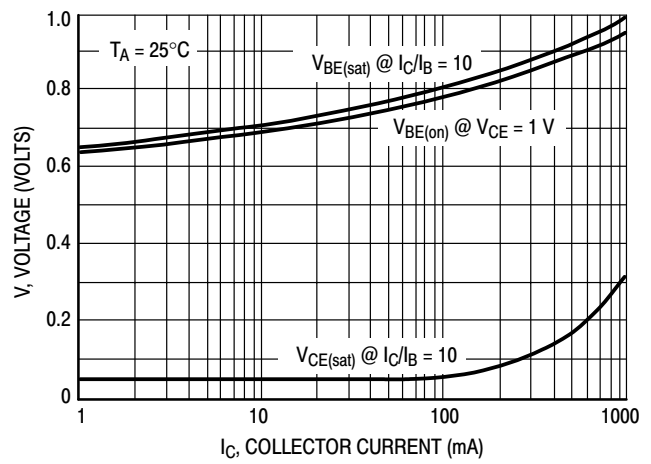


Figure 5. "On" Voltages

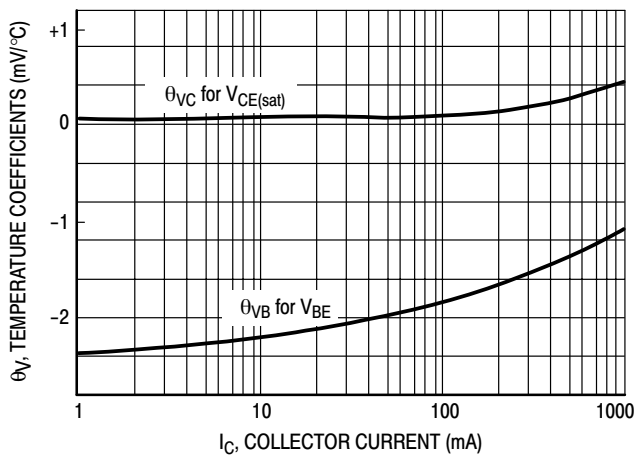


Figure 6. Temperature Coefficients

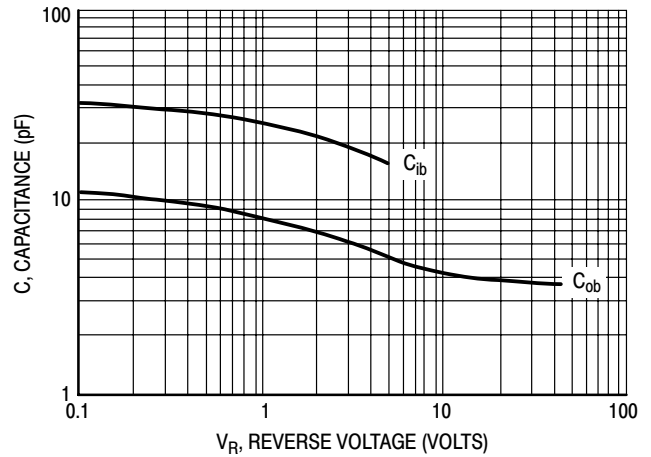


Figure 7. Capacitances

## BC337, BC337-25, BC337-40

### ORDERING INFORMATION

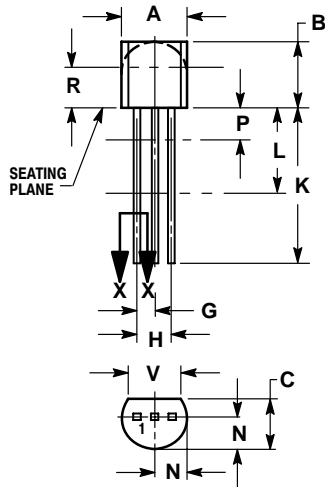
Device	Marking	Package	Shipping†
BC337	7	TO-92	5000 Units / Bulk
BC337G	7	TO-92 (Pb-Free)	5000 Units / Bulk
BC337RL1G	7	TO-92 (Pb-Free)	2000 / Tape & Reel
BC337-25G	7-25	TO-92 (Pb-Free)	5000 Units / Bulk
BC337-25RL1	7-25	TO-92	2000 / Tape & Reel
BC337-25RL1G	7-25	TO-92 (Pb-Free)	2000 / Tape & Reel
BC337-25ZL1G	7-25	TO-92 (Pb-Free)	2000 / Ammo Box
BC337-40G	7-40	TO-92 (Pb-Free)	5000 Units / Bulk
BC337-40RL1G	7-40	TO-92 (Pb-Free)	2000 / Tape & Reel
BC337-40ZL1G	7-40	TO-92 (Pb-Free)	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.

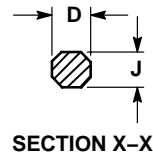
# BC337, BC337-25, BC337-40

## PACKAGE DIMENSIONS

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



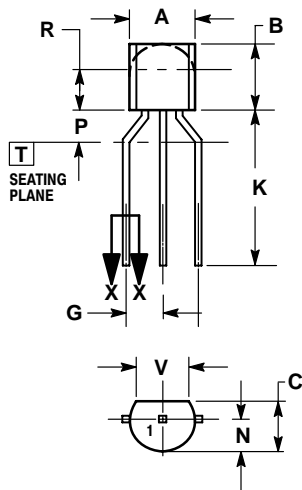
STRAIGHT LEAD  
BULK PACK



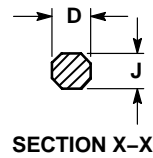
NOTES:

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.
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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