

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	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°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

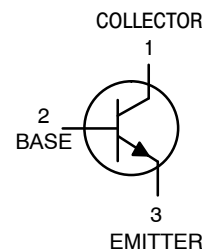
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

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.

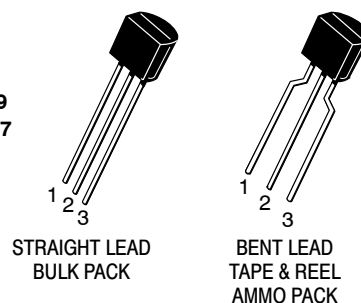


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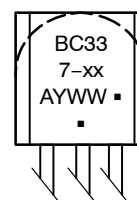
<http://onsemi.com>



TO-92
CASE 29
STYLE 17



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.

BC337, BC337-25, BC337-40

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
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 ($I_C = 100\text{ mA}$, $V_{CE} = 1.0\text{ V}$) ($I_C = 300\text{ mA}$, $V_{CE} = 1.0\text{ V}$)	BC337 BC337-25 BC337-40	h_{FE}	100	-	630	-
			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

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.

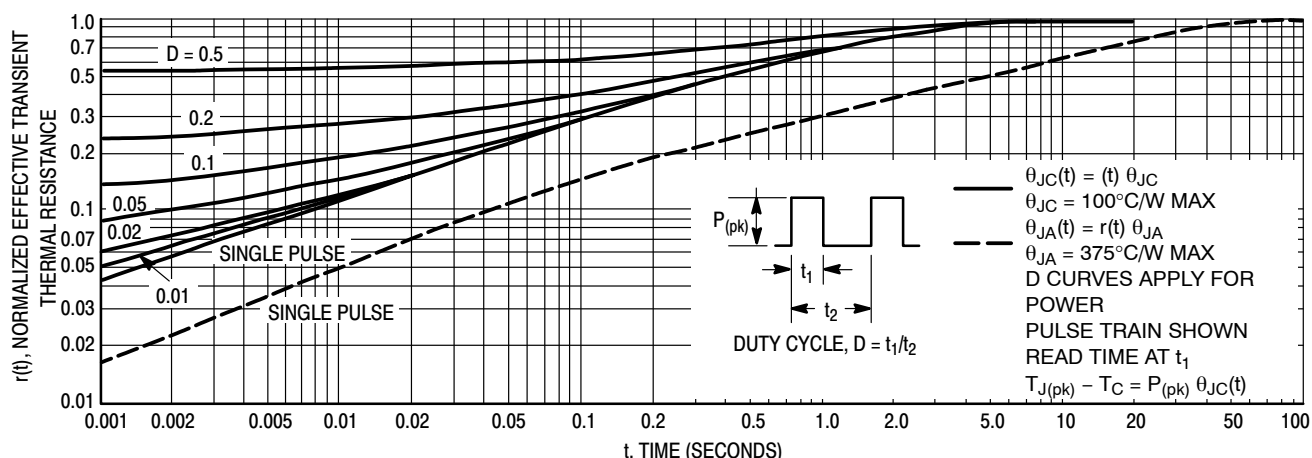


Figure 1. Thermal Response

BC337, BC337-25, BC337-40

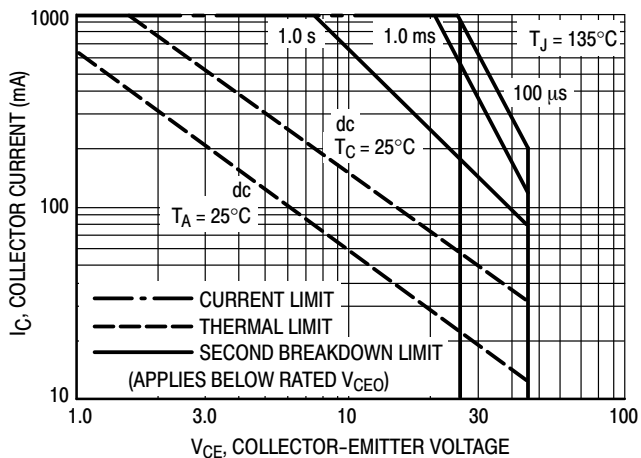


Figure 2. Active Region - Safe Operating Area

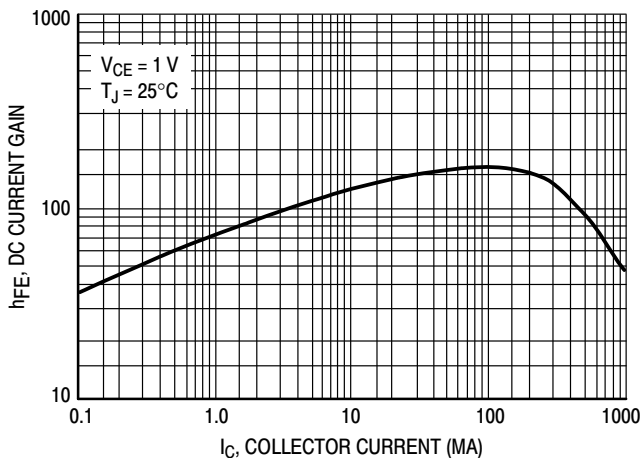


Figure 3. DC Current Gain

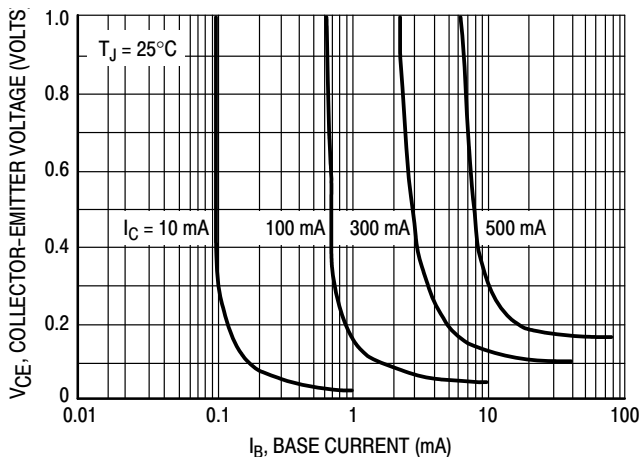


Figure 4. Saturation Region

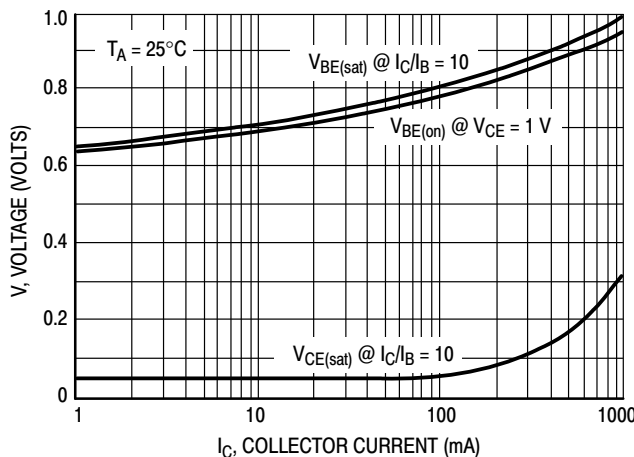


Figure 5. "On" Voltages

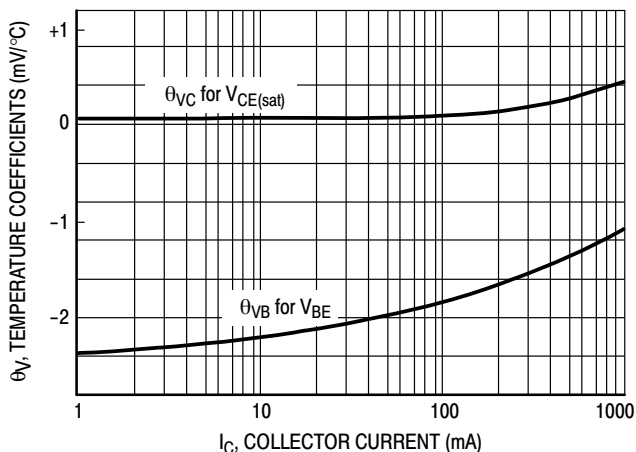


Figure 6. Temperature Coefficients

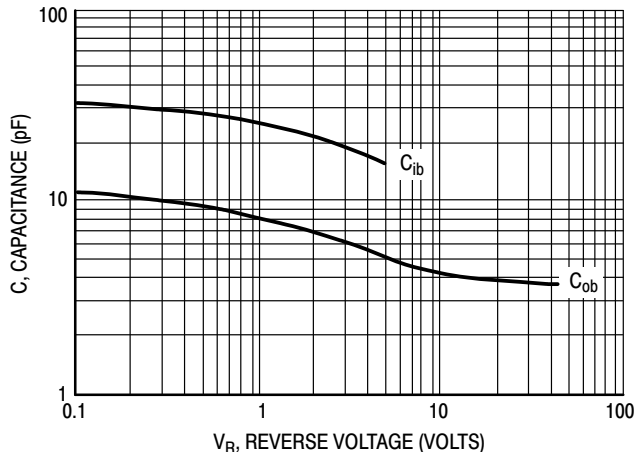


Figure 7. Capacitances

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.

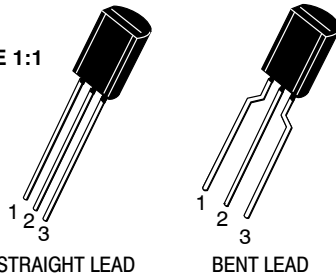
MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

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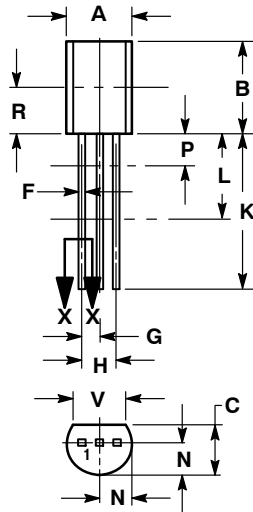


SCALE 1:1

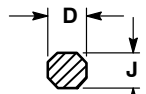


TO-92 (TO-226) 1 WATT
CASE 29-10
ISSUE A

DATE 08 MAY 2012



STRAIGHT LEAD

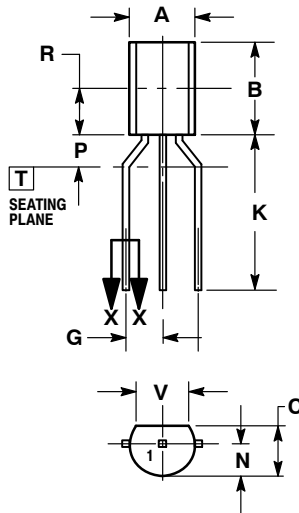


SECTION X-X

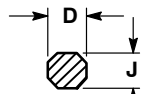
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN DIMENSIONS P AND L. DIMENSIONS D AND J APPLY BETWEEN DIMENSIONS L AND K MINIMUM. THE LEAD DIMENSIONS ARE UNCONTROLLED IN DIMENSION P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.44	5.21
B	0.290	0.310	7.37	7.87
C	0.125	0.165	3.18	4.19
D	0.018	0.021	0.46	0.53
F	0.016	0.019	0.41	0.48
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.018	0.024	0.46	0.61
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	0.135	---	3.43	---
V	0.135	---	3.43	---



BENT LEAD



SECTION X-X

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN DIMENSIONS P AND L. DIMENSIONS D AND J APPLY BETWEEN DIMENSIONS L AND K MINIMUM. THE LEAD DIMENSIONS ARE UNCONTROLLED IN DIMENSION P AND BEYOND DIMENSION K MINIMUM.

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C	0.125	0.165	3.18	4.19
D	0.018	0.021	0.46	0.53
G	0.094	0.102	2.40	2.80
J	0.018	0.024	0.46	0.61
K	0.500	---	12.70	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.135	---	3.43	---
V	0.135	---	3.43	---

STYLES ON PAGE 2

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CASE 29-10
ISSUE A**

DATE 08 MAY 2012

- | | | | | |
|---|--|--|---|---|
| <p>STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR</p> | <p>STYLE 2:
PIN 1. BASE
2. EMITTER
3. COLLECTOR</p> | <p>STYLE 3:
PIN 1. ANODE
2. ANODE
3. CATHODE</p> | <p>STYLE 4:
PIN 1. CATHODE
2. CATHODE
3. ANODE</p> | <p>STYLE 5:
PIN 1. DRAIN
2. SOURCE
3. GATE</p> |
| <p>STYLE 6:
PIN 1. GATE
2. SOURCE & SUBSTRATE
3. DRAIN</p> | <p>STYLE 7:
PIN 1. SOURCE
2. DRAIN
3. GATE</p> | <p>STYLE 8:
PIN 1. DRAIN
2. GATE
3. SOURCE & SUBSTRATE</p> | <p>STYLE 9:
PIN 1. BASE 1
2. EMITTER
3. BASE 2</p> | <p>STYLE 10:
PIN 1. CATHODE
2. GATE
3. ANODE</p> |
| <p>STYLE 11:
PIN 1. ANODE
2. CATHODE & ANODE
3. CATHODE</p> | <p>STYLE 12:
PIN 1. MAIN TERMINAL 1
2. GATE
3. MAIN TERMINAL 2</p> | <p>STYLE 13:
PIN 1. ANODE 1
2. GATE
3. CATHODE 2</p> | <p>STYLE 14:
PIN 1. EMITTER
2. COLLECTOR
3. BASE</p> | <p>STYLE 15:
PIN 1. ANODE 1
2. CATHODE
3. ANODE 2</p> |
| <p>STYLE 16:
PIN 1. ANODE
2. GATE
3. CATHODE</p> | <p>STYLE 17:
PIN 1. COLLECTOR
2. BASE
3. EMITTER</p> | <p>STYLE 18:
PIN 1. ANODE
2. CATHODE
3. NOT CONNECTED</p> | <p>STYLE 19:
PIN 1. GATE
2. ANODE
3. CATHODE</p> | <p>STYLE 20:
PIN 1. NOT CONNECTED
2. CATHODE
3. ANODE</p> |
| <p>STYLE 21:
PIN 1. COLLECTOR
2. EMITTER
3. BASE</p> | <p>STYLE 22:
PIN 1. SOURCE
2. GATE
3. DRAIN</p> | <p>STYLE 23:
PIN 1. GATE
2. SOURCE
3. DRAIN</p> | <p>STYLE 24:
PIN 1. EMITTER
2. COLLECTOR/ANODE
3. CATHODE</p> | <p>STYLE 25:
PIN 1. MT 1
2. GATE
3. MT 2</p> |
| <p>STYLE 26:
PIN 1. V_{CC}
2. GROUND 2
3. OUTPUT</p> | <p>STYLE 27:
PIN 1. MT
2. SUBSTRATE
3. MT</p> | <p>STYLE 28:
PIN 1. CATHODE
2. ANODE
3. GATE</p> | <p>STYLE 29:
PIN 1. NOT CONNECTED
2. ANODE
3. CATHODE</p> | <p>STYLE 30:
PIN 1. DRAIN
2. GATE
3. SOURCE</p> |
| <p>STYLE 31:
PIN 1. GATE
2. DRAIN
3. SOURCE</p> | <p>STYLE 32:
PIN 1. BASE
2. COLLECTOR
3. EMITTER</p> | <p>STYLE 33:
PIN 1. RETURN
2. INPUT
3. OUTPUT</p> | <p>STYLE 34:
PIN 1. INPUT
2. GROUND
3. LOGIC</p> | <p>STYLE 35:
PIN 1. GATE
2. COLLECTOR
3. EMITTER</p> |

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