

# BC368 (NPN), BC369 (PNP)

## Amplifier Transistors

Voltage and Current are Negative for PNP Transistors

### Features

- Pb-Free Packages are Available\*

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	$V_{CEO}$	20	Vdc
Collector–Emitter Voltage	$V_{CES}$	25	Vdc
Emitter–Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current – Continuous	$I_C$	1.0	Adc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625	mW
		5.0	mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.5	Watt
		12	mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS

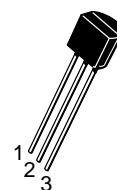
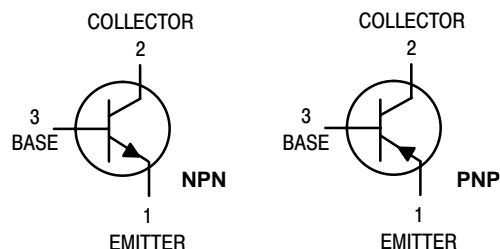
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction–to–Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

\*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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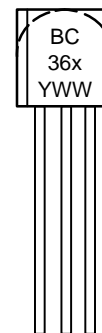
<http://onsemi.com>



CASE 29  
TO-92  
STYLE 14

BC36x = Specific Device Code  
x = 8 or 9  
Y = Year  
WW = Work Week

### MARKING DIAGRAM



### ORDERING INFORMATION

Device	Package	Shipping†
BC368	TO-92	5000 Units/Box
BC368ZL1	TO-92	2000/Ammo Pack
BC368ZL1G	TO-92 (Pb-Free)	2000/Ammo Pack
BC369	TO-92	5000 Units/Box
BC369ZL1	TO-92	2000/Ammo Pack
BC369ZL1G	TO-92 (Pb-Free)	2000/Ammo Pack

†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.

## BC368 (NPN), BC369 (PNP)

### 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 ( $I_C = 10\text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	20	–	–	Vdc
Collector–Base Breakdown Voltage ( $I_C = 100\ \mu\text{A}$ , $I_E = 0$ )	$V_{(BR)CBO}$	25	–	–	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 100\ \mu\text{A}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0	–	–	Vdc
Collector Cutoff Current ( $V_{CB} = 25\text{ V}$ , $I_E = 0$ ) ( $V_{CB} = 25\text{ V}$ , $I_E = 0$ , $T_J = 150^\circ\text{C}$ )	$I_{CBO}$	–	–	10 1.0	$\mu\text{A}_{dc}$ $\text{mA}_{dc}$
Emitter Cutoff Current ( $V_{EB} = 5.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$	–	–	10	$\mu\text{A}_{dc}$
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $V_{CE} = 10\text{ V}$ , $I_C = 5.0\text{ mA}$ ) ( $V_{CE} = 1.0\text{ V}$ , $I_C = 0.5\text{ A}$ )  ( $V_{CE} = 1.0\text{ V}$ , $I_C = 1.0\text{ A}$ )	$h_{FE}$	50 85 170 60	– – – –	– 375 375 –	–
Bandwidth Product ( $I_C = 10\text{ mA}$ , $V_{CE} = 5.0\text{ V}$ , $f = 20\text{ MHz}$ )	$f_T$	65	–	–	MHz
Collector–Emitter Saturation Voltage ( $I_C = 1.0\text{ A}$ , $I_B = 100\text{ mA}$ )	$V_{CE(sat)}$	–	–	0.5	V
Base–Emitter On Voltage ( $I_C = 1.0\text{ A}$ , $V_{CE} = 1.0\text{ V}$ )	$V_{BE(on)}$	–	–	1.0	V

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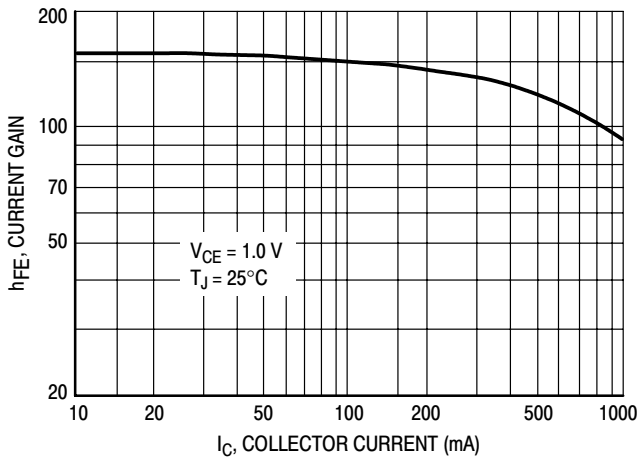


Figure 1. DC Current Gain

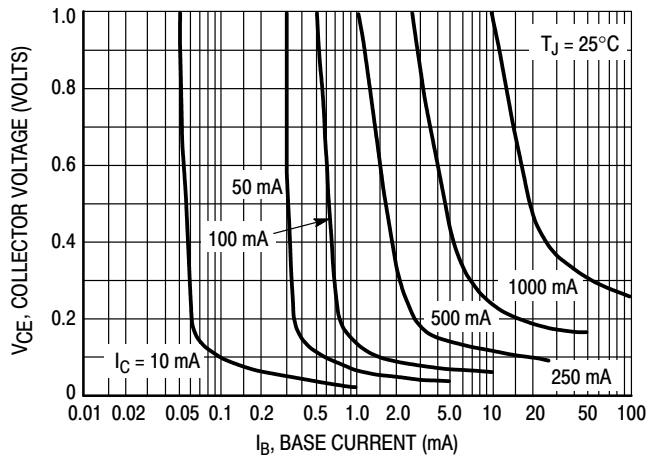


Figure 2. Collector Saturation Region

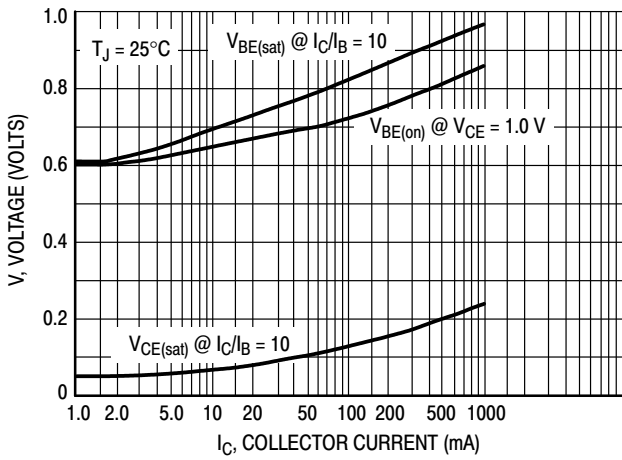


Figure 3. "On" Voltages

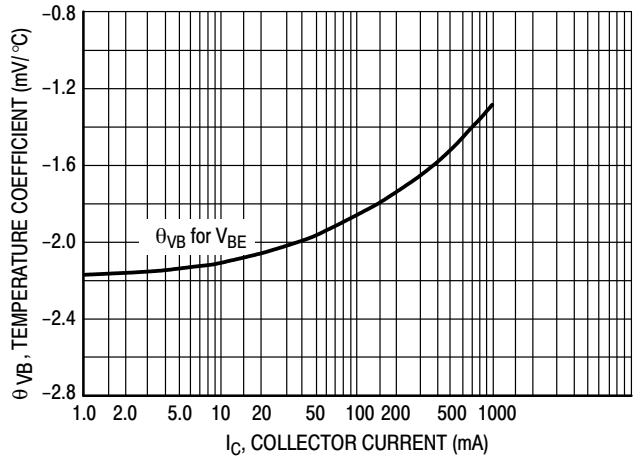


Figure 4. Temperature Coefficient

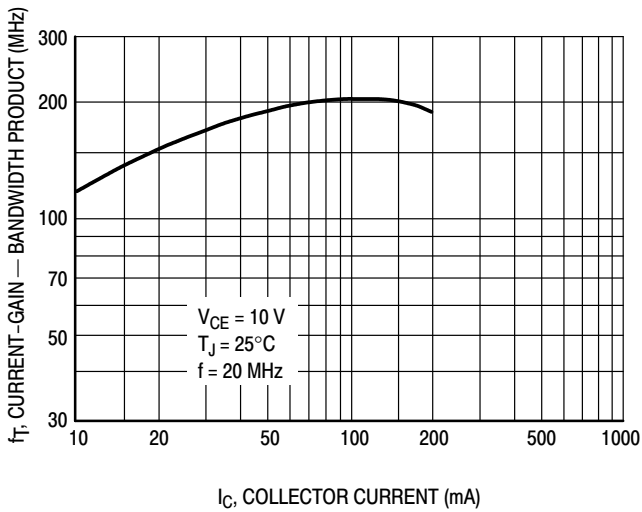


Figure 5. Current-Gain — Bandwidth Product

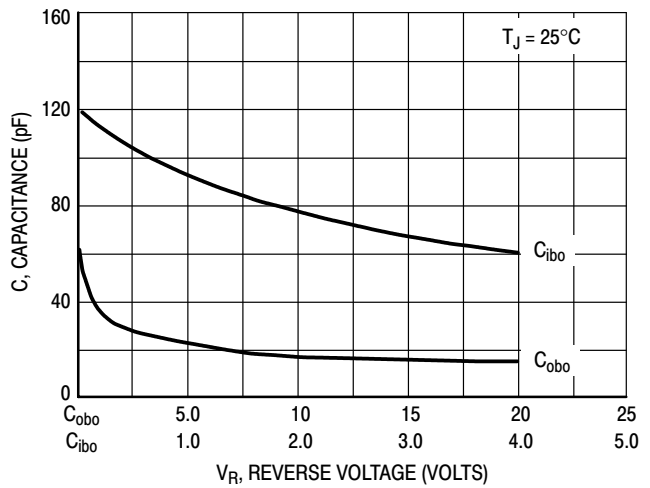
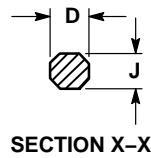
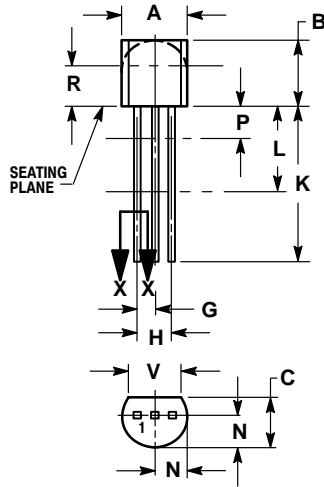


Figure 6. Capacitance

# BC368 (NPN), BC369 (PNP)

## PACKAGE DIMENSIONS

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



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	---

STYLE 14:

1. EMITTER
2. COLLECTOR
3. BASE

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