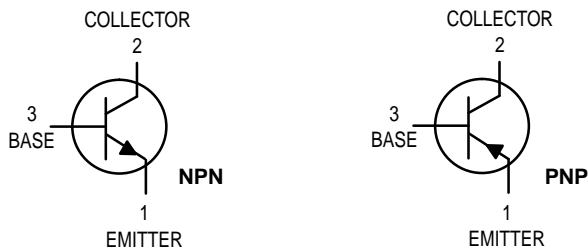


# Amplifier Transistors

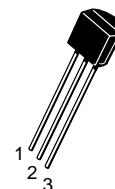


**NPN**  
**BC368**  
**PNP**  
**BC369**

Voltage and current are negative  
for PNP transistors

## 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 5.0	mW mW/°C
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.5 12	Watt mW/°C
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	°C



CASE 29-04, STYLE 14  
TO-92 (TO-226AA)

## THERMAL CHARACTERISTICS

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

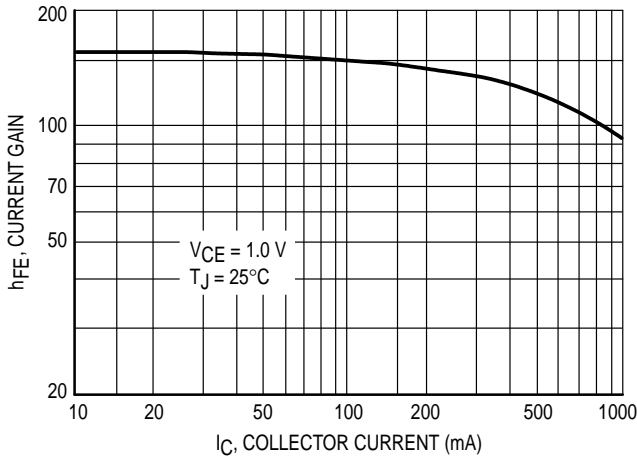
## OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ( $I_C = 10\text{ mA}, I_B = 0$ )	$V_{(BR)CEO}$	20	—	—	Vdc
Collector–Base Breakdown Voltage ( $I_C = 100\text{ }\mu\text{A}, I_E = 0$ )	$V_{(BR)CBO}$	25	—	—	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 100\text{ }\mu\text{A}, I_C = 0$ )	$V_{(BR)EBO}$	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	$\mu\text{Adc}$ mAdc
Emitter Cutoff Current ( $V_{EB} = 5.0\text{ V}, I_C = 0$ )	$I_{EBO}$	—	—	10	$\mu\text{Adc}$

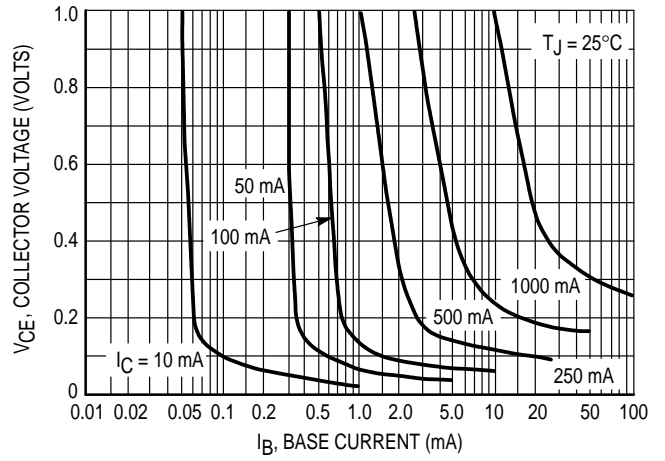
## ON CHARACTERISTICS

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 60	— — —	— 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

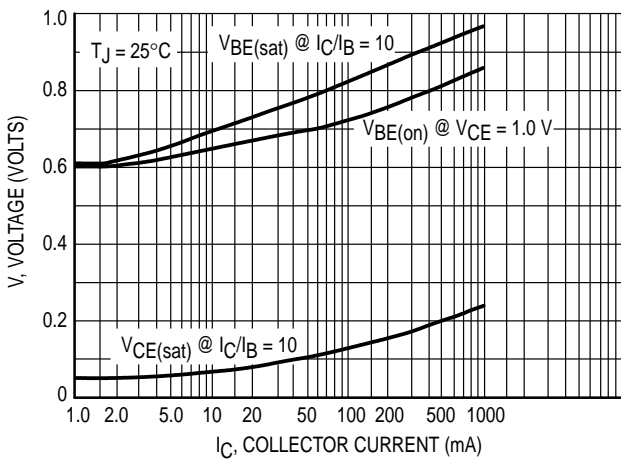
**NPN BC368 PNP BC369**



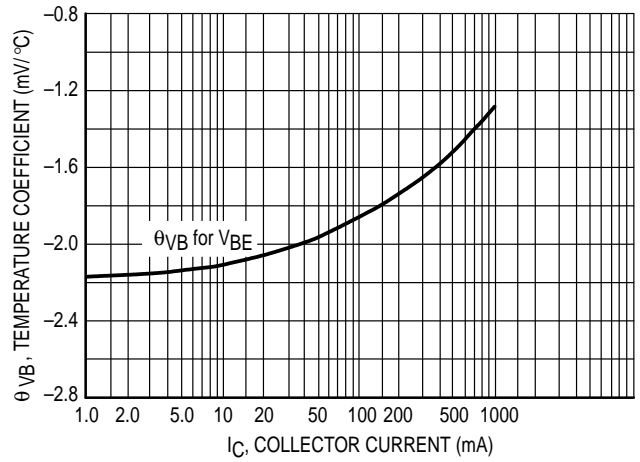
**Figure 1. DC Current Gain**



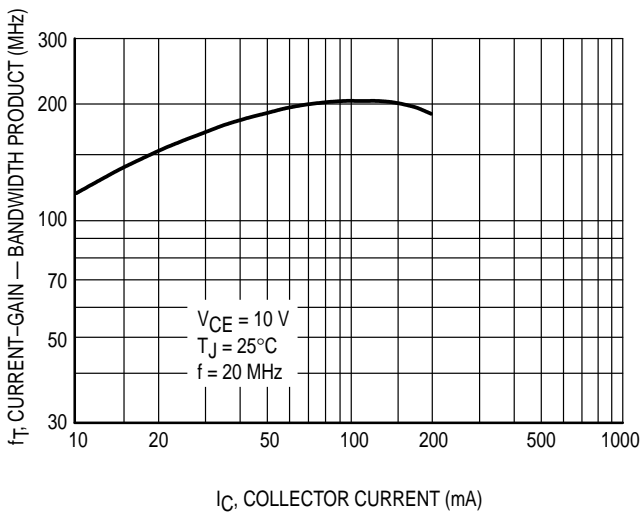
**Figure 2. Collector Saturation Region**



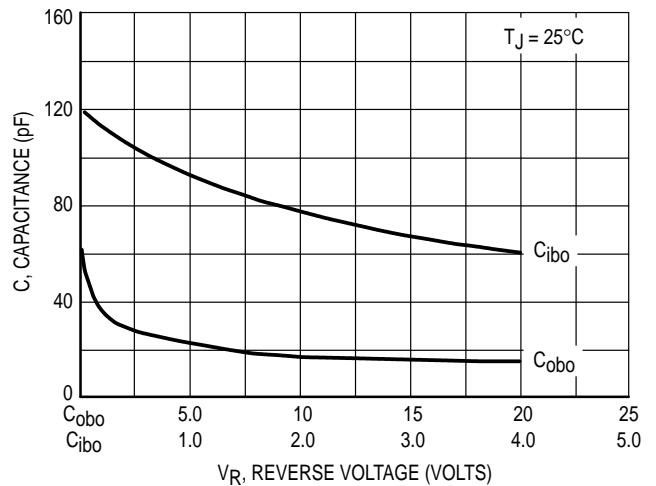
**Figure 3. "On" Voltages**



**Figure 4. Temperature Coefficient**

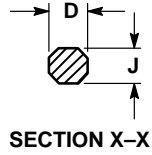
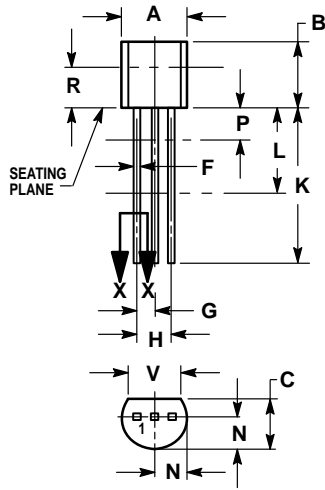


**Figure 5. Current-Gain — Bandwidth Product**



**Figure 6. Capacitance**

PACKAGE DIMENSIONS



CASE 029-04  
(TO-226AA)  
ISSUE AD

NOTES:


1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K. MINIMUM 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	0.022	0.41	0.55
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	0.015	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:

- PIN 1. EMITTER
2. COLLECTOR
3. BASE

# NPN BC368 PNP BC369

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