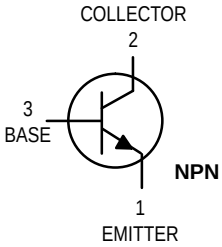
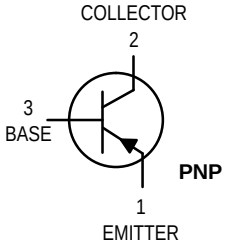
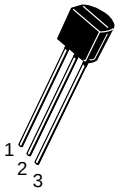
Amplifier Transistors





NPN
BC368, -25
PNP
BC369

Voltage and current are negative for PNP transistors



CASE 29–04, STYLE 14
TO–92 (TO–226AA)

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°C Derate above 25°C	P_D	625 5.0	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150	°C

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°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage (I_C = 10 mA, I_B = 0)		$V_{(BR)CEO}$	20	—	—	Vdc
Collector–Base Breakdown Voltage (I_C = 100 μA, I_E = 0)		$V_{(BR)CBO}$	25	—	—	Vdc
Emitter–Base Breakdown Voltage (I_E = 100 μA, I_C = 0)		$V_{(BR)EBO}$	5.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = 25 V, I_E = 0) (V_{CB} = 25 V, I_E = 0, T_J = 150°C)		I_{CBO}	 — —	 — —	 10 1.0	 μAdc mAdc
Emitter Cutoff Current (V_{EB} = 5.0 V, I_C = 0)		I_{EBO}	—	—	10	μAdc
ON CHARACTERISTICS						
DC Current Gain (V_{CE} = 10 V, I_C = 5.0 mA) (V_{CE} = 1.0 V, I_C = 0.5 A) (V_{CE} = 1.0 V, I_C = 1.0 A)	 BC368, 369 BC368–25 	h_{FE}	 50 85 170 60	 — — — —	 — 375 375 —	—
Bandwidth Product (I_C = 10 mA, V_{CE} = 5.0 V, f = 20 MHz)		f_T	65	—	—	MHz
Collector–Emitter Saturation Voltage (I_C = 1.0 A, I_B = 100 mA)		$V_{CE(sat)}$	—	—	0.5	V
Base–Emitter On Voltage (I_C = 1.0 A, V_{CE} = 1.0 V)		$V_{BE(on)}$	—	—	1.0	V

REV 1

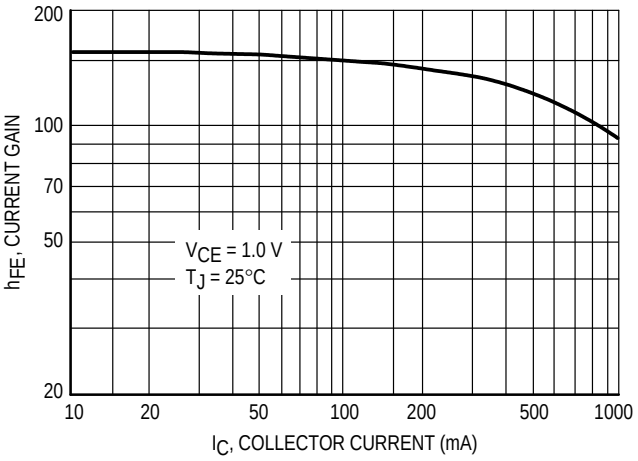


Figure 1. DC Current Gain

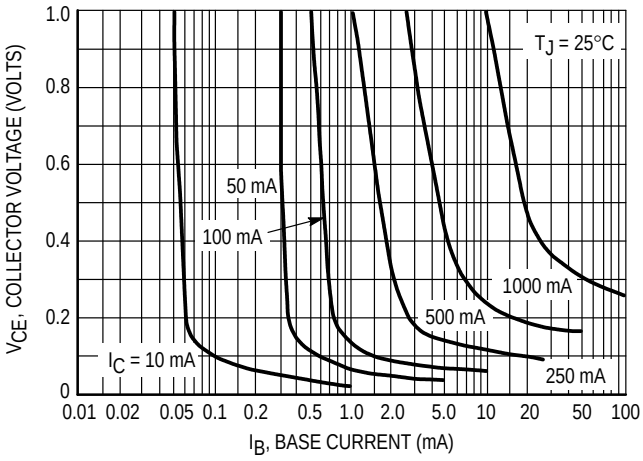


Figure 2. Collector Saturation Region

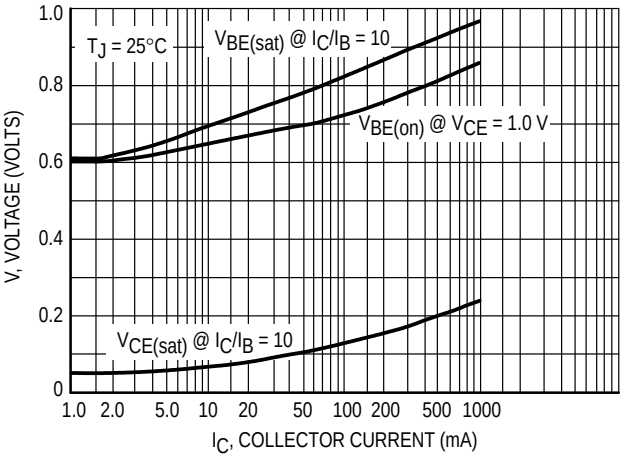


Figure 3. “On” Voltages

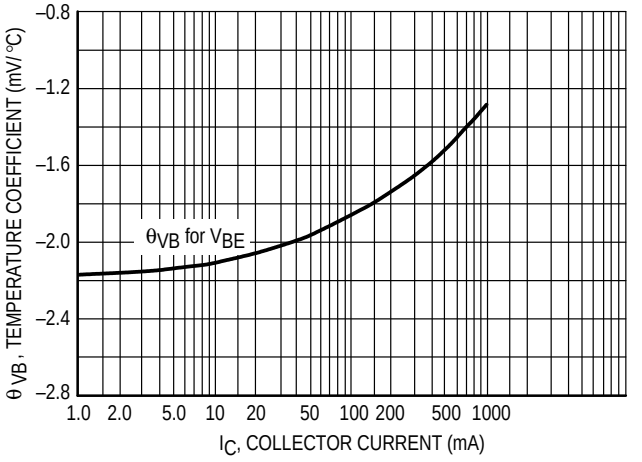


Figure 4. Temperature Coefficient

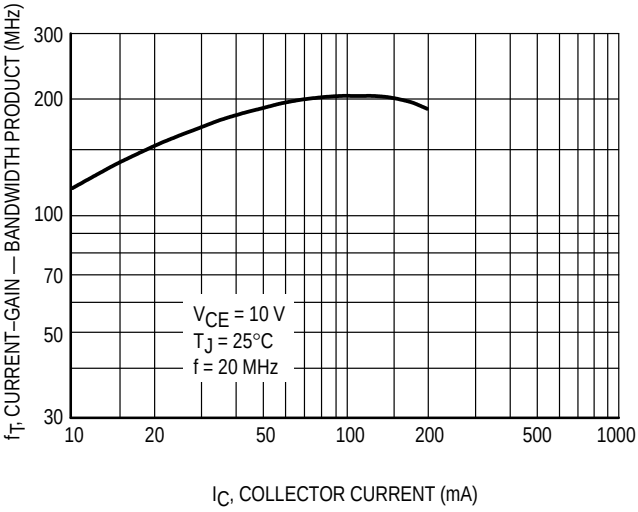


Figure 5. Current–Gain — Bandwidth Product

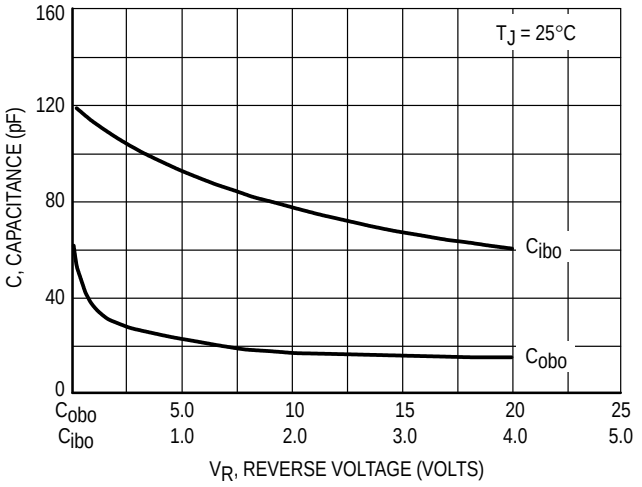
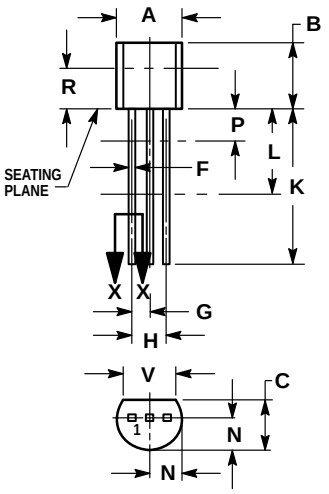
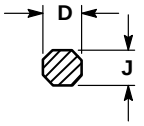


Figure 6. Capacitance

PACKAGE DIMENSIONS





SECTION X–X

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.

	INCHES		MILLIMETERS	
DIM	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	—

CASE 029–04
(TO–226AA)
ISSUE AD

STYLE 14:
PIN 1. EMITTER
2. COLLECTOR
3. BASE

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HOME PAGE: http://motorola.com/sps/

Associated Documents

Item	Short Desc	Size
Data Sheet	Amplifier Transistor NPN	109.6 k

Device BC368-25

Small Signal Plastic Transistor

NPN-PNP

Applications:

- ESD Protection
- Polarity Reversal Protection
- Data Line Protection
- Inductive Load Protection
- Steering Logic

Orderable Parts

Action	Orderable Part	Short Desc.	Package Desc.	Pin Count	Case Outline	St
N/A	BC368-25ZL1	Tape and Ammunition Box	TO-92 (TO-226)	3	29-11	A
N/A	BC368ZL1	Tape and	TO-92	3	29-11	A

Ammunition (TO-226)
Box