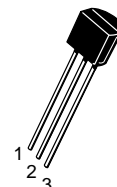
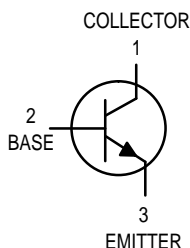


# Amplifier Transistors

## NPN Silicon

**BC182,A,B**  
**BC183**  
**BC184**



CASE 29-04, STYLE 17  
TO-92 (TO-226AA)

### MAXIMUM RATINGS

Rating	Symbol	BC 182	BC 183	BC 184	Unit
Collector–Emitter Voltage	$V_{CEO}$	50	30	30	Vdc
Collector–Base Voltage	$V_{CBO}$	60	45	45	Vdc
Emitter–Base Voltage	$V_{EBO}$	6.0			Vdc
Collector Current — Continuous	$I_C$	100			mA dc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	350 2.8			mW mW/°C
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.0 8.0			Watts 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	$R_{\theta JA}$	357	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	°C/W

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

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ( $I_C = 2.0\text{ mA}, I_B = 0$ )	BC182 BC183 BC184	$V_{(BR)CEO}$	50 30 30	— — —	— — —	V
Collector–Base Breakdown Voltage ( $I_C = 10\ \mu\text{A}, I_E = 0$ )	BC182 BC183 BC184	$V_{(BR)CBO}$	60 45 45	— — —	— — —	V
Emitter–Base Breakdown Voltage ( $I_E = 100\ \mu\text{A}, I_C = 0$ )		$V_{(BR)EBO}$	6.0	—	—	V
Collector Cutoff Current ( $V_{CB} = 50\text{ V}, V_{BE} = 0$ ) ( $V_{CB} = 30\text{ V}, V_{BE} = 0$ )	BC182 BC183 BC184	$I_{CBO}$	— — —	0.2 0.2 0.2	15 15 15	nA
Emitter–Base Leakage Current ( $V_{EB} = 4.0\text{ V}, I_C = 0$ )		$I_{EBO}$	—	—	15	nA

## BC182,A,B BC183 BC184

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

Characteristic	Symbol	Min	Typ	Max	Unit
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 10\ \mu\text{A}$ , $V_{CE} = 5.0\ \text{V}$ )	BC182 BC183 BC184	40 40 100	— — —	— — —	—
( $I_C = 2.0\ \text{mA}$ , $V_{CE} = 5.0\ \text{V}$ )	BC182 BC183 BC184	120 120 250	— — —	500 800 800	—
( $I_C = 100\ \text{mA}$ , $V_{CE} = 5.0\ \text{V}$ )	BC182 BC183 BC184	80 80 130	— — —	— — —	—
Collector–Emitter On Voltage ( $I_C = 10\ \text{mA}$ , $I_B = 0.5\ \text{mA}$ ) ( $I_C = 100\ \text{mA}$ , $I_B = 5.0\ \text{mA}$ ) <sup>(1)</sup>	$V_{CE(sat)}$	— —	0.07 0.2	0.25 0.6	V
Base–Emitter Saturation Voltage ( $I_C = 100\ \text{mA}$ , $I_B = 5.0\ \text{mA}$ ) <sup>(1)</sup>	$V_{BE(sat)}$	—	—	1.2	V
Base–Emitter On Voltage ( $I_C = 100\ \mu\text{A}$ , $V_{CE} = 5.0\ \text{V}$ ) ( $I_C = 2.0\ \text{mA}$ , $V_{CE} = 5.0\ \text{V}$ ) ( $I_C = 100\ \text{mA}$ , $V_{CE} = 5.0\ \text{V}$ ) <sup>(1)</sup>	$V_{BE(on)}$	— 0.55 —	0.5 0.62 0.83	— 0.7 —	V
<b>DYNAMIC CHARACTERISTICS</b>					
Current–Gain — Bandwidth Product ( $I_C = 0.5\ \text{mA}$ , $V_{CE} = 3.0\ \text{V}$ , $f = 100\ \text{MHz}$ )	BC182 BC183 BC184	— — —	100 120 140	— — —	MHz
( $I_C = 10\ \text{mA}$ , $V_{CE} = 5.0\ \text{V}$ , $f = 100\ \text{MHz}$ )	BC182 BC183 BC184	150 150 150	200 240 280	— — —	—
Common Base Output Capacitance ( $V_{CB} = 10\ \text{V}$ , $I_C = 0$ , $f = 1.0\ \text{MHz}$ )	$C_{ob}$	—	—	5.0	pF
Common Base Input Capacitance ( $V_{EB} = 0.5\ \text{V}$ , $I_C = 0$ , $f = 1.0\ \text{MHz}$ )	$C_{ib}$	—	8.0	—	pF
Small–Signal Current Gain ( $I_C = 2.0\ \text{mA}$ , $V_{CE} = 5.0\ \text{V}$ , $f = 1.0\ \text{kHz}$ )	BC182 BC183 BC184 BC182A BC182B	125 125 240 125 240	— — — — —	500 900 900 260 500	—
Noise Figure ( $I_C = 0.2\ \text{mA}$ , $V_{CE} = 5.0\ \text{V}$ , $R_S = 2.0\ \text{k}\Omega$ , $f = 1.0\ \text{kHz}$ ) ( $I_C = 0.2\ \text{mA}$ , $V_{CE} = 5.0\ \text{V}$ , $R_S = 2.0\ \text{k}\Omega$ , $f = 1.0\ \text{kHz}$ , $f = 200\ \text{Hz}$ )	BC184 BC182 BC183 BC184	— — — —	2.0 2.0 2.0 2.0	4.0 10 10 4.0	dB

1. Pulse Test:  $T_p$  300 s, Duty Cycle 2.0%.

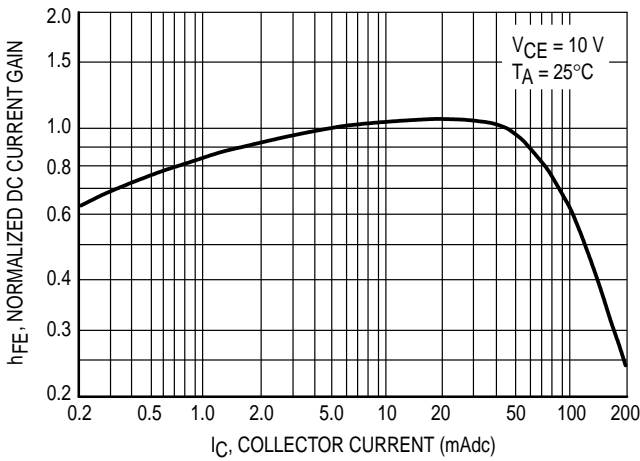


Figure 1. Normalized DC Current Gain

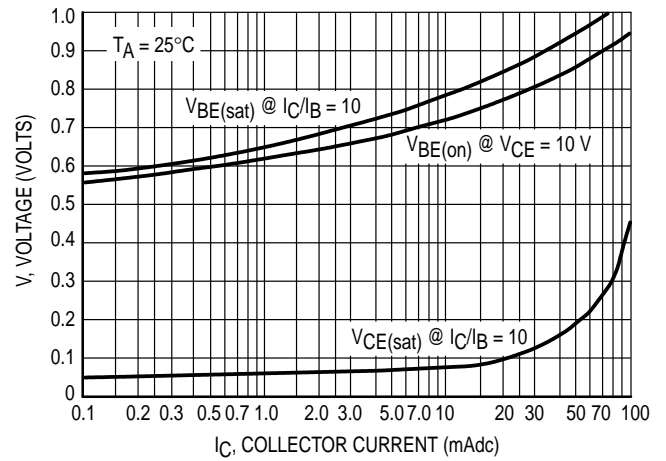


Figure 2. "Saturation" and "On" Voltages

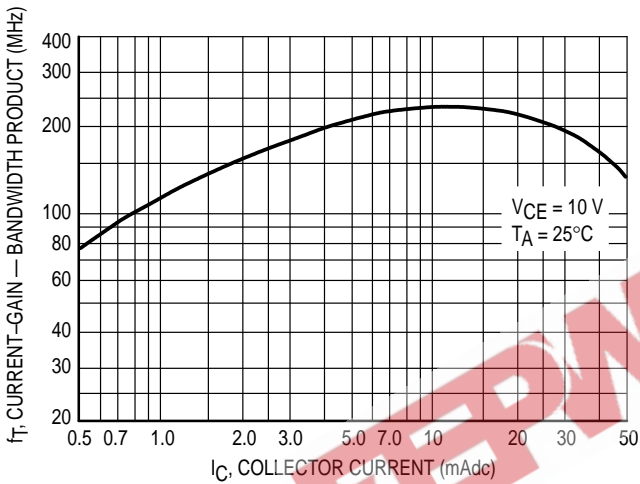


Figure 3. Current-Gain — Bandwidth Product

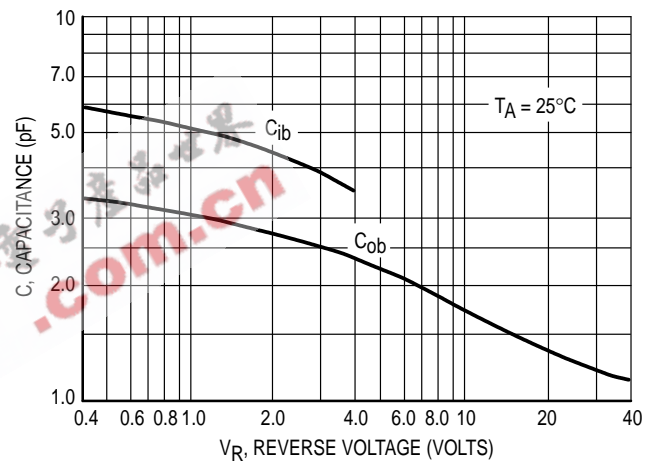


Figure 4. Capacitances

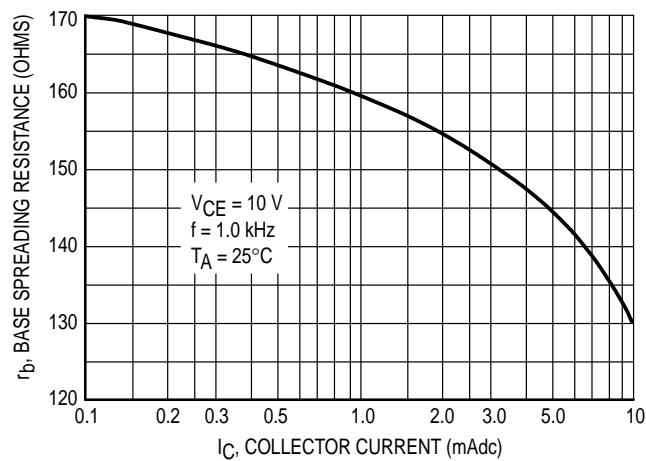
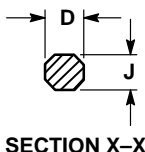
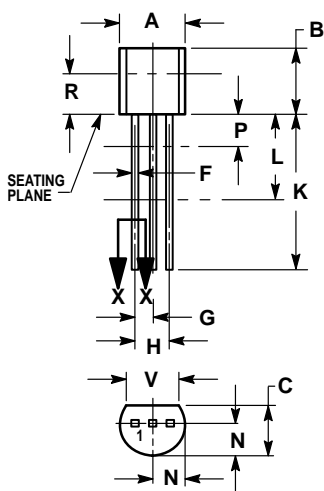


Figure 5. Base Spreading Resistance

**BC182,A,B BC183 BC184**

**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 17:**

1. COLLECTOR
2. BASE
3. EMITTER



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**JAPAN:** Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,  
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**MFAX:** RMFAX0@email.sps.mot.com - TOUCHTONE (602) 244-6609  
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51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

