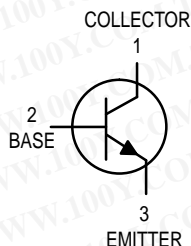


Amplifier Transistors

NPN Silicon

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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			mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	350			mW
		2.8			mW/°C
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0			Watts
		8.0			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 ($I_C = 10\text{ }\mu\text{A}, I_E = 0$)	BC182 BC183 BC184	$V_{(BR)CBO}$	60 45 45	— — —	— — —	V
Emitter–Base Breakdown Voltage ($I_E = 100\text{ }\mu\text{A}, I_C = 0$)		$V_{(BR)EBO}$	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
ON CHARACTERISTICS					
DC Current Gain ($I_C = 10\ \mu\text{A}$, $V_{CE} = 5.0\ \text{V}$) ($I_C = 2.0\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$) ($I_C = 100\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$)	BC182	40	—	—	—
	BC183	40	—	—	—
	BC184	100	—	—	—
	BC182	120	—	500	—
	BC183	120	—	800	—
	BC184	250	—	800	—
	BC182	80	—	—	—
	BC183	80	—	—	—
	BC184	130	—	—	—
Collector–Emitter On Voltage ($I_C = 10\ \text{mA}$, $I_B = 0.5\ \text{mA}$) ($I_C = 100\ \text{mA}$, $I_B = 5.0\ \text{mA}$) ⁽¹⁾	$V_{CE(sat)}$	—	0.07 0.2	0.25 0.6	V
Base–Emitter Saturation Voltage ($I_C = 100\ \text{mA}$, $I_B = 5.0\ \text{mA}$) ⁽¹⁾	$V_{BE(sat)}$	—	—	1.2	V
Base–Emitter On Voltage ($I_C = 100\ \mu\text{A}$, $V_{CE} = 5.0\ \text{V}$) ($I_C = 2.0\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$) ($I_C = 100\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$) ⁽¹⁾	$V_{BE(on)}$	—	0.5 0.62 0.83	— 0.7 —	V

DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 0.5\ \text{mA}$, $V_{CE} = 3.0\ \text{V}$, $f = 100\ \text{MHz}$) ($I_C = 10\ \text{mA}$, $V_{CE} = 5.0\ \text{V}$, $f = 100\ \text{MHz}$)	BC182	f_T	—	100	—	MHz
	BC183	—	—	120	—	
	BC184	—	—	140	—	
	BC182	150	200	—	—	
	BC183	150	240	—	—	
	BC184	150	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	h_{fe}	125	—	500	—
	BC183	125	—	900	—	
	BC184	240	—	900	—	
	BC182A	125	—	260	—	
	BC182B	240	—	500	—	
	BC184	—	2.0	4.0	—	
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	NF	—	2.0	4.0	dB
	BC182	—	2.0	10	—	
	BC183	—	2.0	10	—	
	BC184	—	2.0	4.0	—	
	BC184	—	2.0	4.0	—	

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

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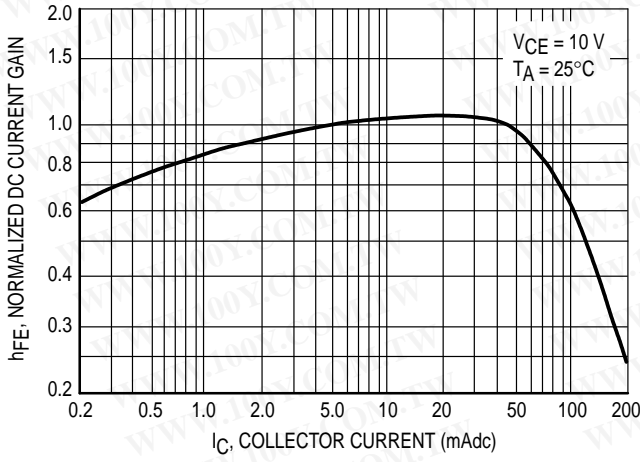


Figure 1. Normalized DC Current Gain

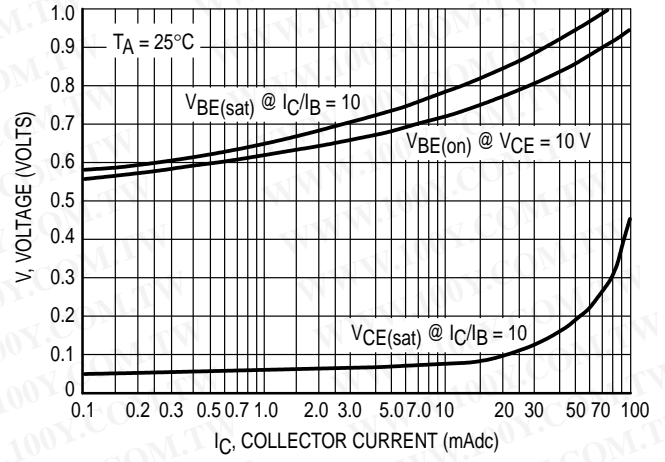


Figure 2. "Saturation" and "On" Voltages

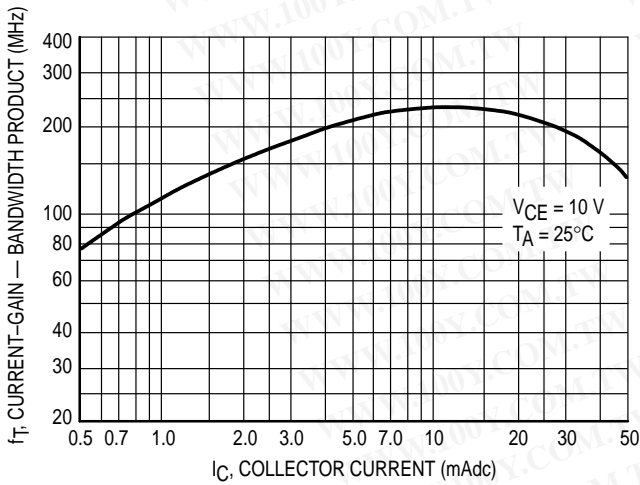


Figure 3. Current-Gain — Bandwidth Product

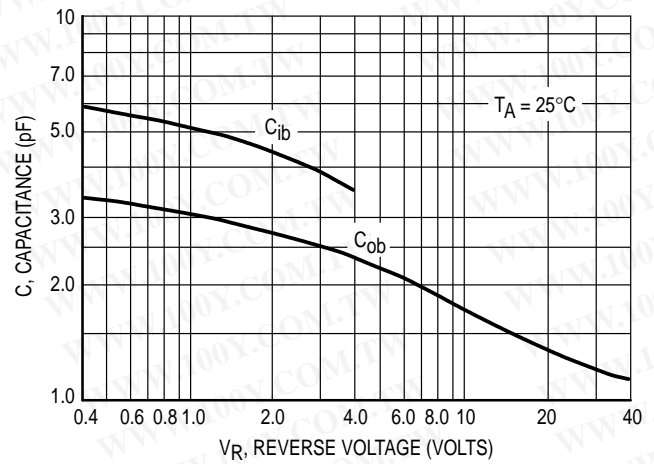


Figure 4. Capacitances

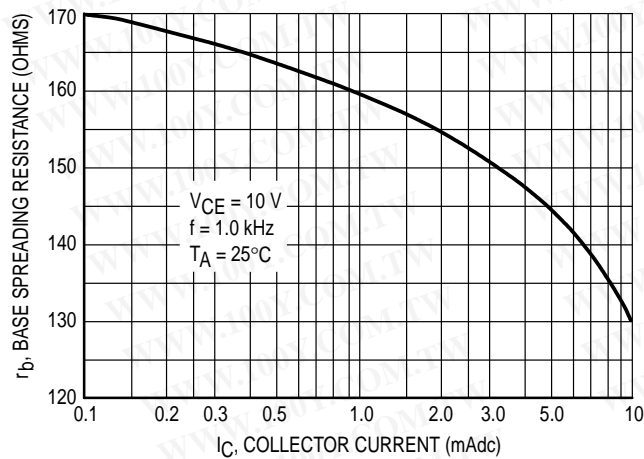
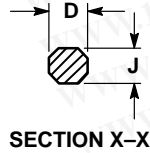
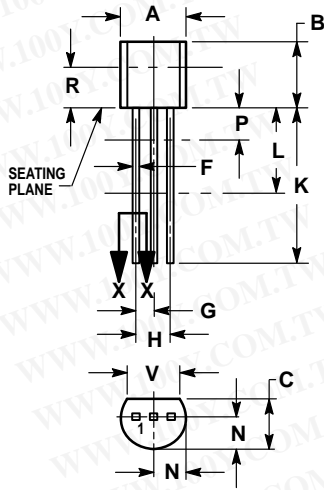


Figure 5. Base Spreading Resistance

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PACKAGE DIMENSIONS



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	—

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

STYLE 17:

- PIN 1: COLLECTOR
- 2: BASE
- 3: EMITTER

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