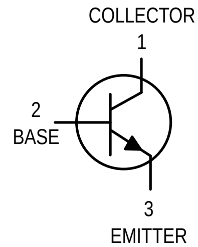
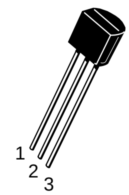
Amplifier Transistors
NPN Silicon

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			mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	350 2.8			mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°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°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage (I_C = 2.0 mA, I_B = 0)	BC182	$V_{(BR)CEO}$	50	—	—	V
	BC183		30	—	—	
	BC184		30	—	—	
Collector–Base Breakdown Voltage (I_C = 10 μA, I_E = 0)	BC182	$V_{(BR)CBO}$	60	—	—	V
	BC183		45	—	—	
	BC184		45	—	—	
Emitter–Base Breakdown Voltage (I_E = 100 μA, I_C = 0)		$V_{(BR)EBO}$	6.0	—	—	V
Collector Cutoff Current (V_{CB} = 50 V, V_{BE} = 0)	BC182	I_{CBO}	—	0.2	15	nA
(V_{CB} = 30 V, V_{BE} = 0)	BC183		—	0.2	15	
	BC184		—	0.2	15	
Emitter–Base Leakage Current (V_{EB} = 4.0 V, I_C = 0)		I_{EBO}	—	—	15	nA

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

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

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

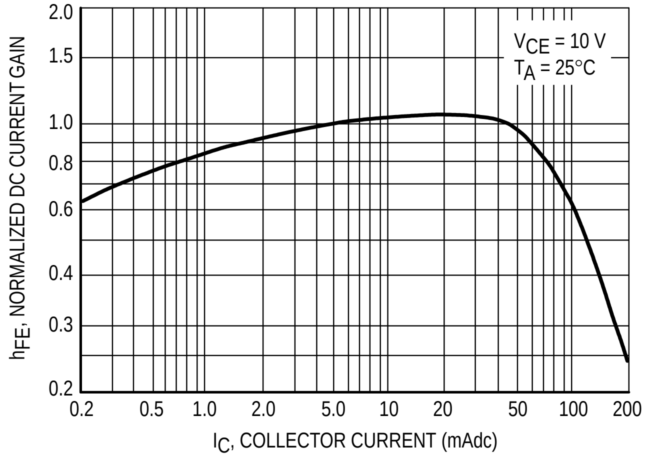


Figure 1. Normalized DC Current Gain

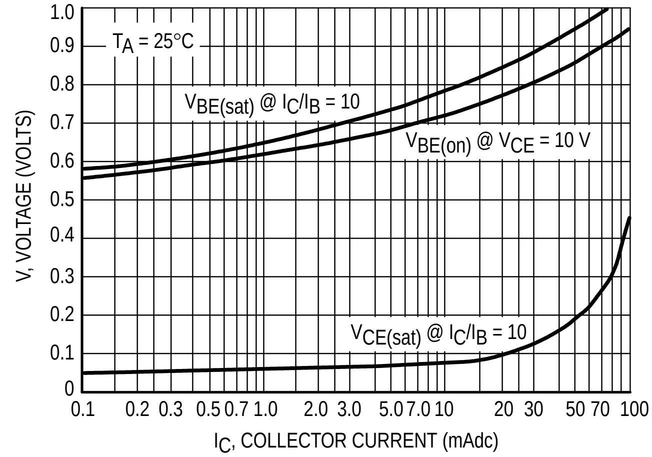


Figure 2. "Saturation" and "On" Voltages

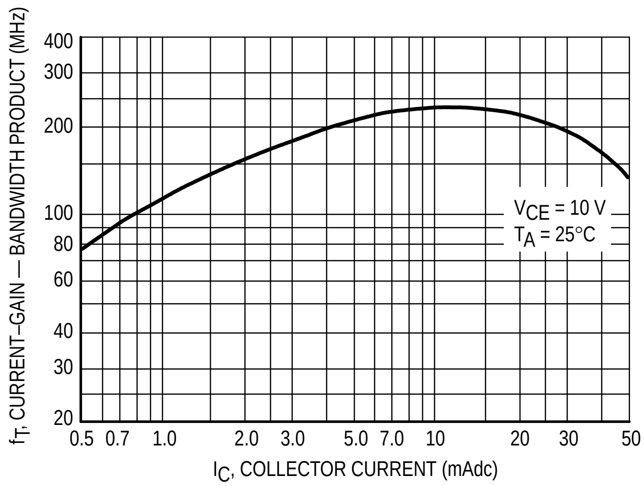


Figure 3. Current–Gain — Bandwidth Product

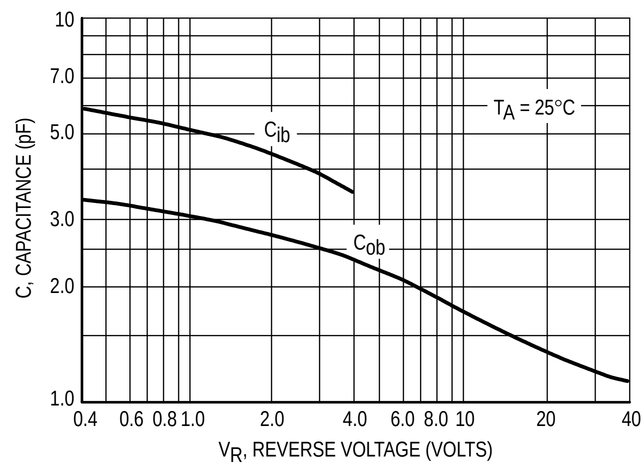


Figure 4. Capacitances

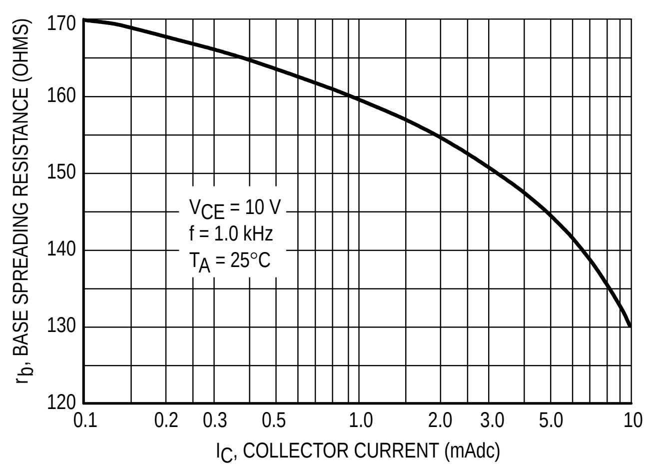
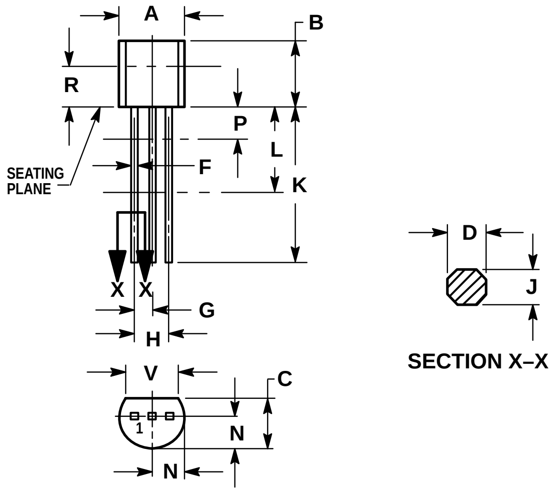


Figure 5. Base Spreading Resistance

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.

	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	—

STYLE 17:
PIN 1. COLLECTOR
2. BASE
3. EMITTER

CASE 029–04
(TO–226AA)
ISSUE AD

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