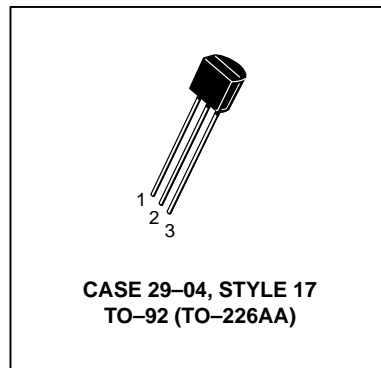


Amplifier Transistors

NPN Silicon

BC337,-16,-25,-40
BC338,-16,-25,-40



MAXIMUM RATINGS

Rating	Symbol	BC337	BC338	Unit
Collector–Emitter Voltage	V_{CEO}	45	25	Vdc
Collector–Base Voltage	V_{CBO}	50	30	Vdc
Emitter–Base Voltage	V_{EBO}	5.0		Vdc
Collector Current — Continuous	I_C	800		mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625	5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5	12	Watt mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150		$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

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 ($I_C = 10\text{ mA}, I_B = 0$)	BC337 BC338	$V_{(BR)CEO}$	45 25	— —	— —	Vdc
Collector–Emitter Breakdown Voltage ($I_C = 100\text{ }\mu\text{A}, I_E = 0$)	BC337 BC338	$V_{(BR)CES}$	50 30	— —	— —	Vdc
Emitter–Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{A}, I_C = 0$)		$V_{(BR)EBO}$	5.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 30\text{ V}, I_E = 0$) ($V_{CB} = 20\text{ V}, I_E = 0$)	BC337 BC338	I_{CBO}	— —	— —	100 100	nAdc
Collector Cutoff Current ($V_{CE} = 45\text{ V}, V_{BE} = 0$) ($V_{CE} = 25\text{ V}, V_{BE} = 0$)	BC337 BC338	I_{CES}	— —	— —	100 100	nAdc
Emitter Cutoff Current ($V_{EB} = 4.0\text{ V}, I_C = 0$)		I_{EBO}	—	—	100	nAdc

BC337,-16,-25,-40 BC338,-16,-25,-40

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

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
DC Current Gain (I _C = 100 mA, V _{CE} = 1.0 V)	BC337/BC338	100	—	630	—
	BC337-16/BC338-16	100	—	250	—
	BC337-25/BC338-25	160	—	400	—
	BC337-40/BC338-40	250	—	630	—
(I _C = 300 mA, V _{CE} = 1.0 V)		60	—	—	—
Base-Emitter On Voltage (I _C = 300 mA, V _{CE} = 1.0 V)	V _{BE(on)}	—	—	1.2	V _{dc}
Collector-Emitter Saturation Voltage (I _C = 500 mA, I _B = 50 mA)	V _{CE(sat)}	—	—	0.7	V _{dc}

SMALL-SIGNAL CHARACTERISTICS

Output Capacitance (V _{CB} = 10 V, I _E = 0, f = 1.0 MHz)	C _{ob}	—	15	—	pF
Current-Gain — Bandwidth Product (I _C = 10 mA, V _{CE} = 5.0 V, f = 100 MHz)	f _T	—	210	—	MHz

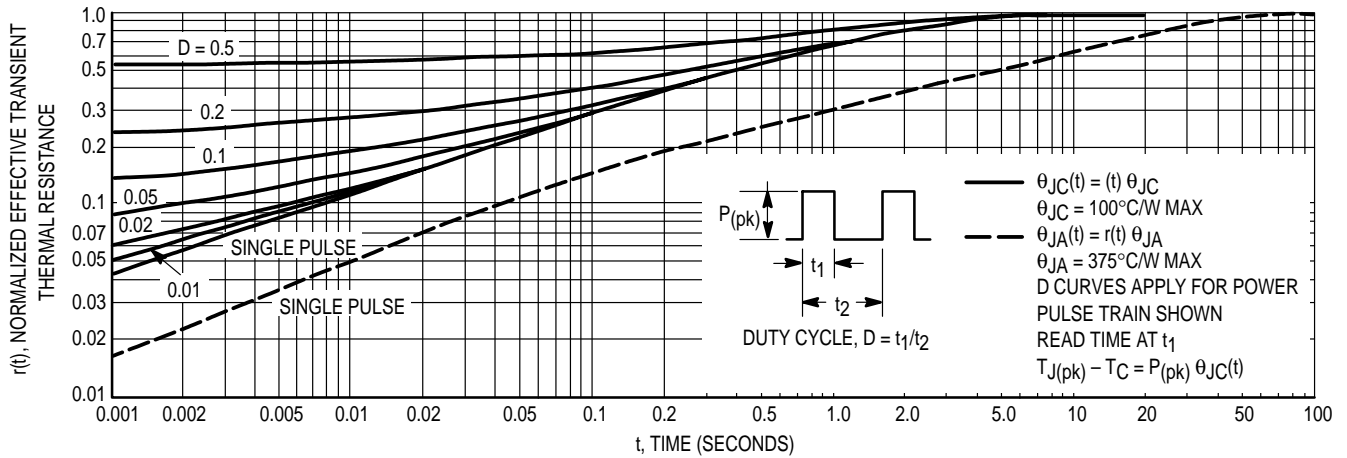


Figure 1. Thermal Response

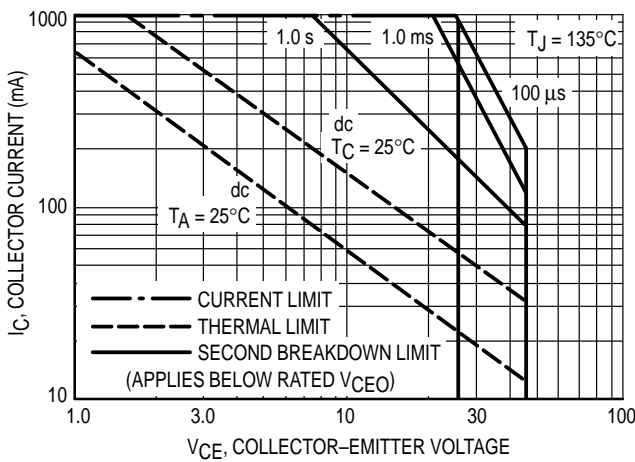


Figure 2. Active Region — Safe Operating Area

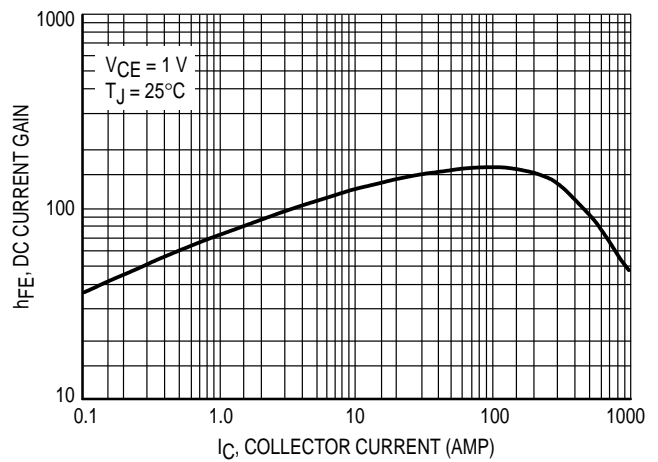


Figure 3. DC Current Gain

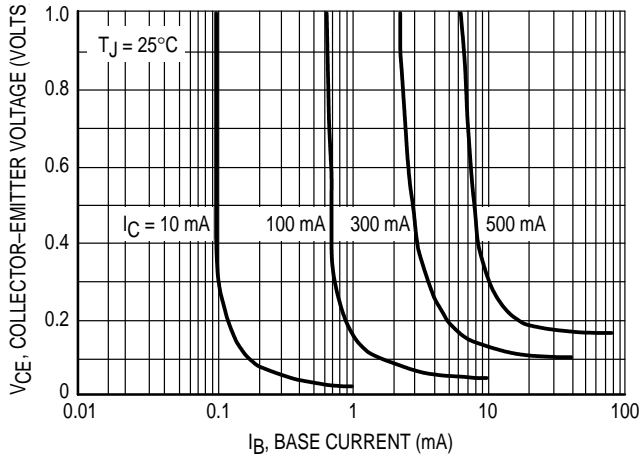


Figure 4. Saturation Region

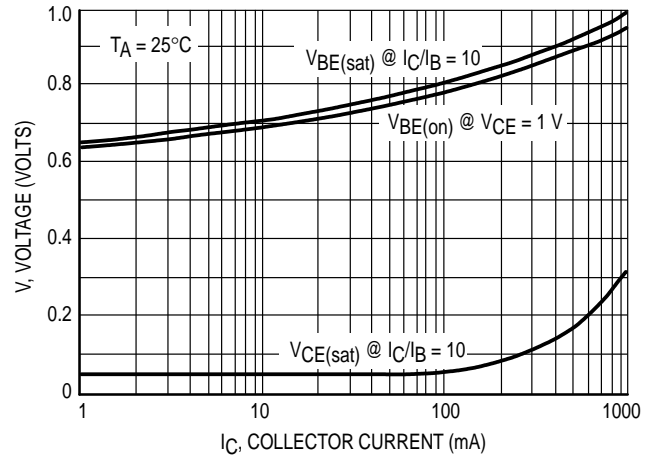


Figure 5. "On" Voltages

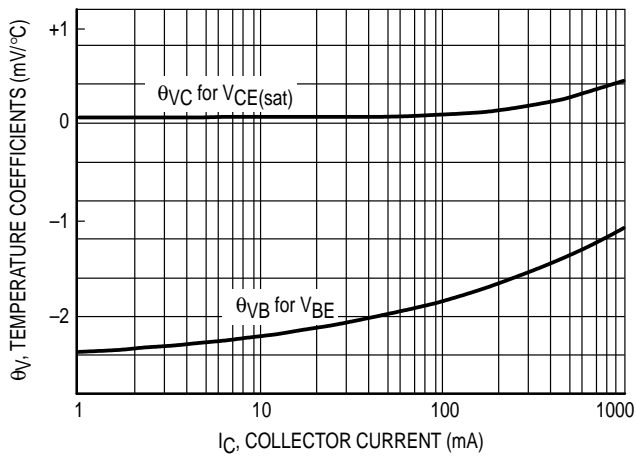


Figure 6. Temperature Coefficients

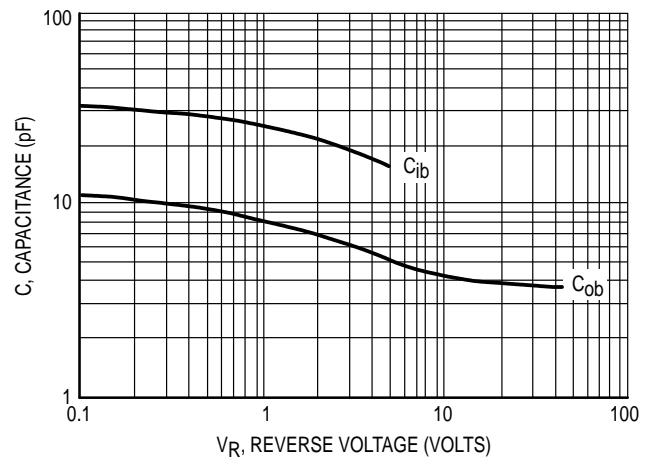


Figure 7. Capacitances

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:
1. COLLECTOR
 2. BASE
 3. EMITTER

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How to reach us:

USA/EUROPE: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,
6F Seibu-Butsuryu-Center, 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-3521-8315

MFAX: RMFAX0@email.sps.mot.com - TOUCHTONE (602) 244-6609
INTERNET: http://Design-NET.com

HONG KONG: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

