

Amplifier Transistors NPN Silicon

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



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

MAXIMUM RATINGS

Rating	Symbol	BC337	BC338	Unit
Collector-Emitter Voltage	V_{CE}	45	25	Vdc
Collector-Base Voltage	V_{CB}	50	30	Vdc
Emitter-Base Voltage	V_{EB}	5.0		Vdc
Collector Current - Continuous	I_C	800		mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$	P_D	625		mW
Derate above 25°C		5.0		mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$	P_D	1.5		Watt
Derate above 25°C		12		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_{JA}	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	R_{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
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage ($I_C = 10\text{ mA}, I_E = 0$)	$V_{(BR)CEO}$	45	—	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 100\text{ }\mu\text{A}, I_E = 0$)	$V_{(BR)CES}$	50	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{A}, I_C = 0$)	$V_{(BR)EBO}$	5.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 30\text{ V}, I_E = 0$)	I_{CBO}	—	—	100	nAdc
Collector Cutoff Current ($V_{CE} = 45\text{ V}, V_{BE} = 0$)	I_{CES}	—	—	100	nAdc
Emitter Cutoff Current ($V_{EB} = 4.0\text{ V}, I_C = 0$)	I_{EBO}	—	—	100	nAdc

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

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
DC Current Gain ($I_C = 100\text{ mA}, V_{CE} = 1.0\text{ V}$)	h_{FE}	100	—	630	—
		100	—	250	—
		160	—	400	—
		250	—	630	—
		60	—	—	—
Base-Emitter On Voltage ($I_C = 300\text{ mA}, V_{CE} = 1.0\text{ V}$)	$V_{BE(on)}$	—	—	1.2	Vdc
Collector-Emitter Saturation Voltage ($I_C = 500\text{ mA}, I_B = 50\text{ mA}$)	$V_{CE(sat)}$	—	—	0.7	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Output Capacitance ($V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$)	C_{ob}	—	15	—	pF
Current-Gain — Bandwidth Product ($I_C = 10\text{ mA}, V_{CE} = 5.0\text{ V}, f = 100\text{ MHz}$)	f_T	—	210	—	MHz

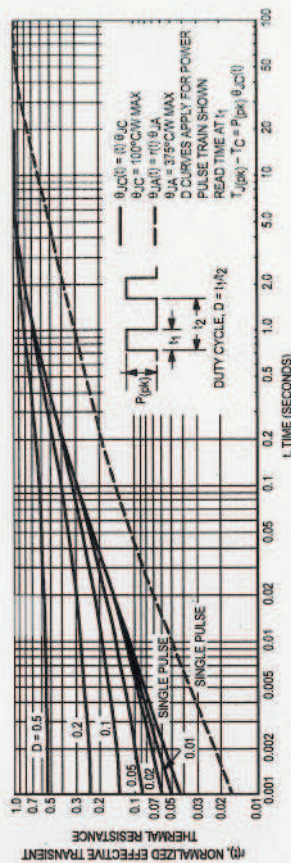


Figure 1. Thermal Response

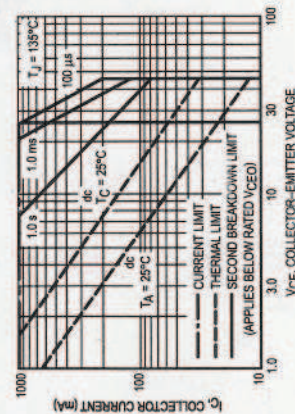


Figure 2. Active Region — Safe Operating Area

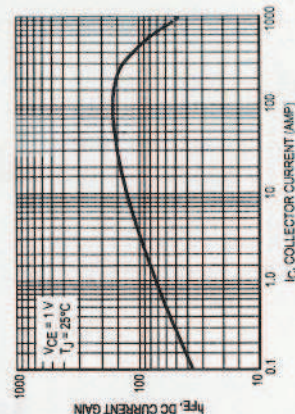
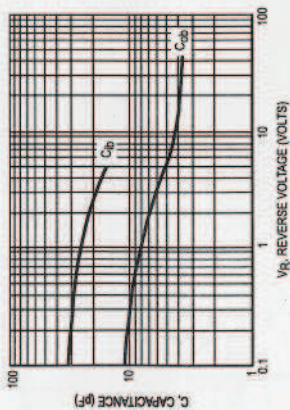
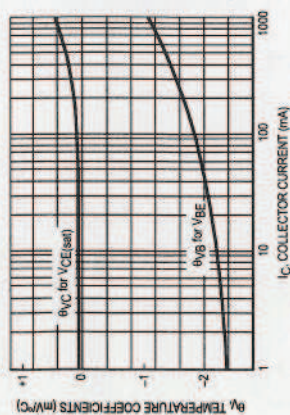
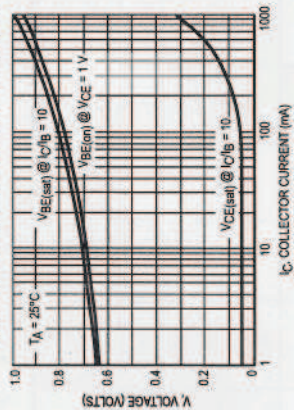
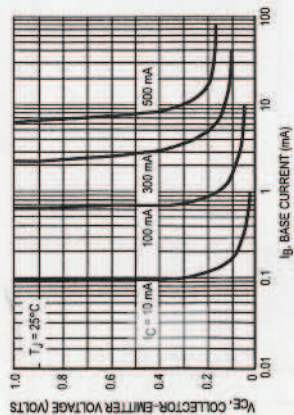
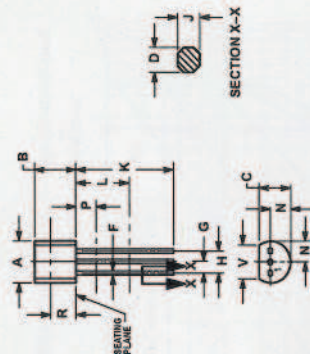


Figure 3. DC Current Gain

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PACKAGE DIMENSIONS



	D.M.	INCHES		MILLIMETERS	
		MIN.	MAX.	MIN.	MAX.
A	B	0.175	0.058	4.43	1.48
B	A	0.150	0.175	3.83	4.43
C	C	0.175	0.165	4.43	4.19
D	C	0.076	0.022	1.91	0.56
E	F	0.018	0.015	0.46	0.38
F	E	0.045	0.045	1.15	1.15
G	H	0.025	0.175	0.64	4.43
H	G	0.015	0.020	0.39	0.51
I	K	0.500	—	12.70	—
L	L	0.250	—	6.35	—
M	N	0.500	0.175	12.70	4.43
P	P	—	0.100	—	2.54
R	R	0.175	—	4.43	—
S	S	0.175	—	4.43	—

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

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

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION K IS UNCONTROLLED.
4. DIMENSION T APPLIES BETWEEN P AND L. DIMENSION D TO APPLY BETWEEN L AND K. MINIMUM LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

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