

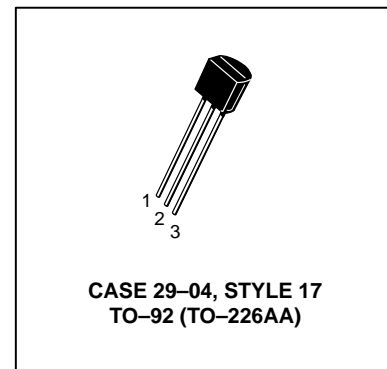
Amplifier Transistors

NPN Silicon

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

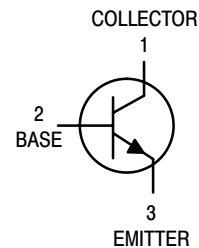
MAXIMUM RATINGS

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
DC Current Gain ($I_C = 100\text{ mA}$, $V_{CE} = 1.0\text{ V}$)	BC337	100	—	630	—
	BC337-16	100	—	250	—
	BC337-25/BC338-25	160	—	400	—
	BC337-40	250	—	630	—
($I_C = 300\text{ mA}$, $V_{CE} = 1.0\text{ V}$)		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

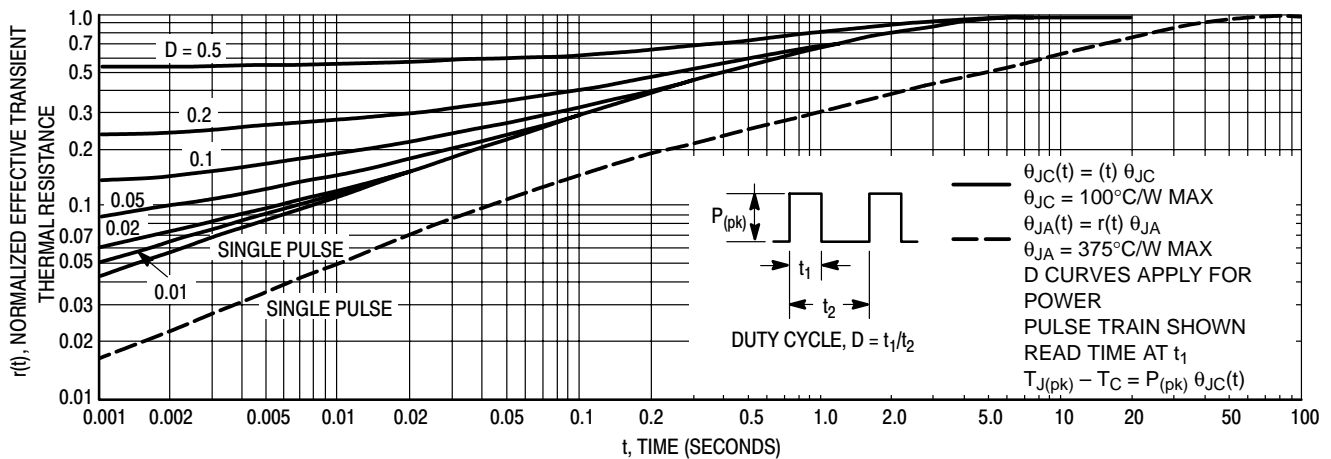


Figure 1. Thermal Response

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

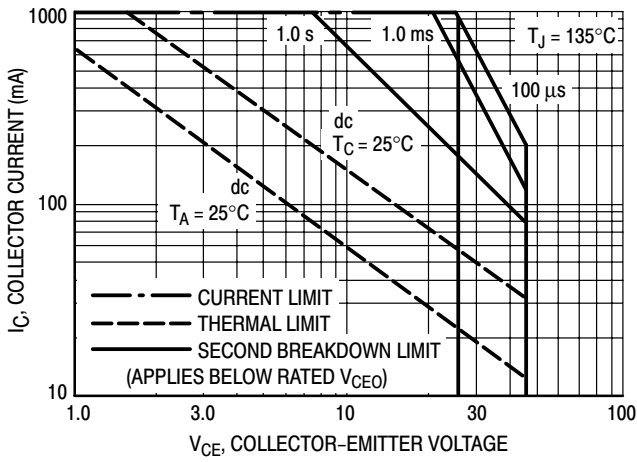


Figure 2. Active Region – Safe Operating Area

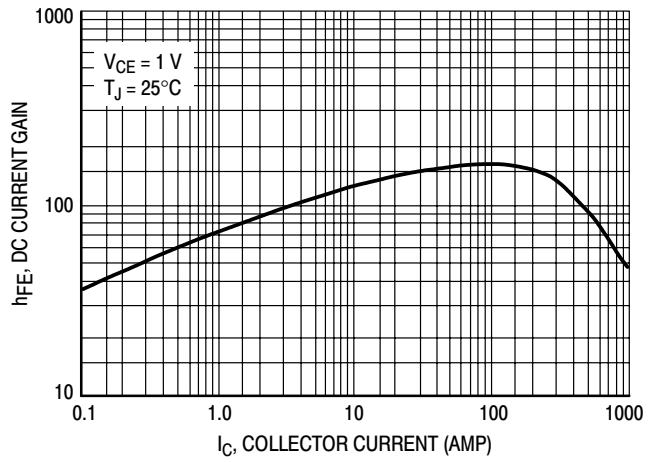


Figure 3. DC Current Gain

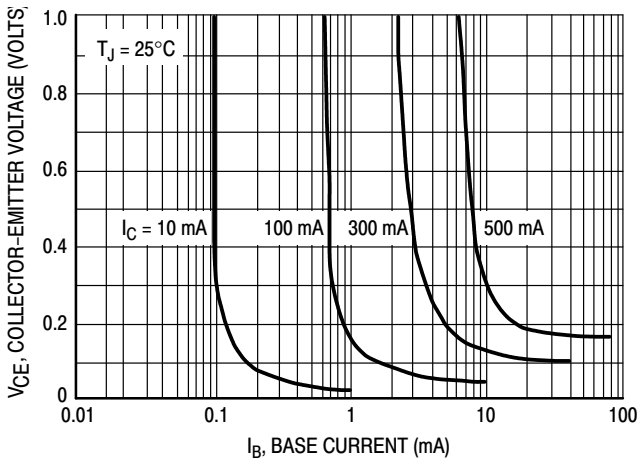


Figure 4. Saturation Region

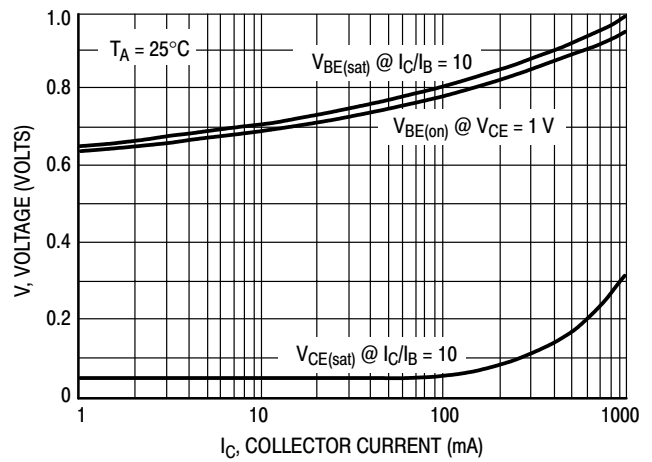


Figure 5. "On" Voltages

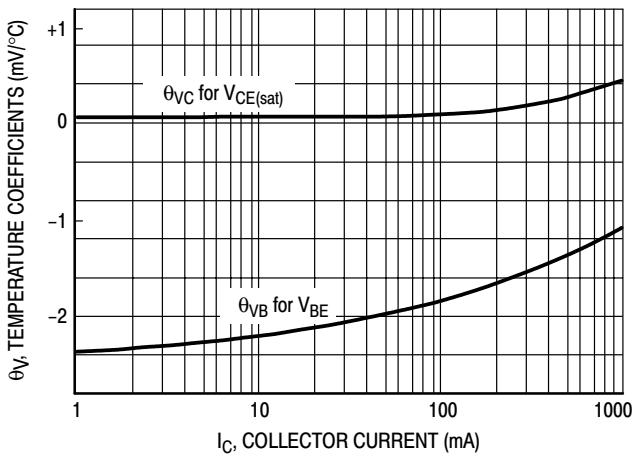


Figure 6. Temperature Coefficients

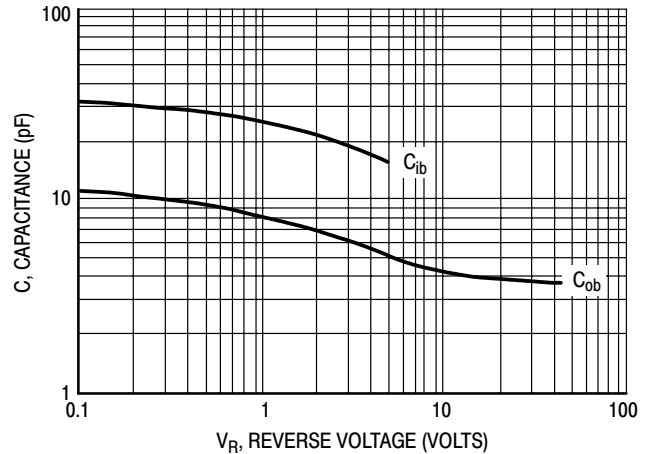


Figure 7. Capacitances