

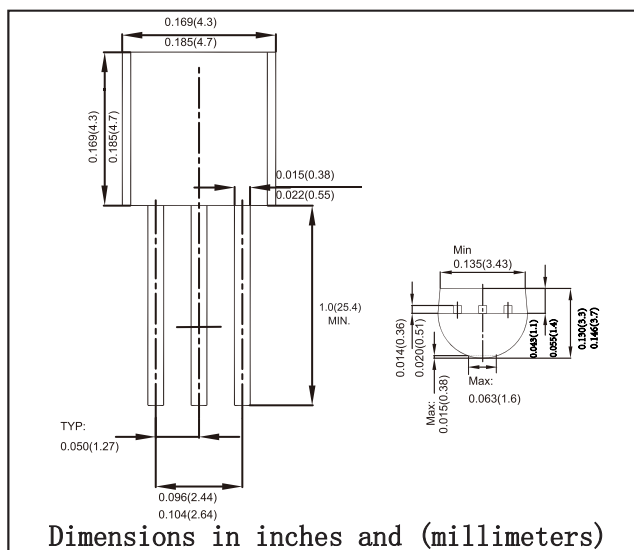
TO-92 Plastic-Encapsulate Transistors

FEATURES

- Amplifier dissipation NPN Silicon

MECHANICAL DATA

- Case style: TO-92 molded plastic
- Mounting position: any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector-Emitter Voltage	BC237	45
		BC238/239	25
V_{EBO}	Emitter-Base Voltage	BC237	6
		BC238/239	5
I_C	Collector Current -Continuous	0.1	A
P_C	Collector Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C /W
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	°C /W
T_j	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55~150	°C

ELECTRICAL CHARACTERISTICS $T_a=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$ BC237 BC238/239	50 30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=2\text{mA}$, $I_B=0$ BC237 BC238/239	45 25			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$, $I_C=0$ BC237 BC238/239	6 5			V
Collector cut-off current	I_{CBO}	$V_{CE}=50\text{V}$, $V_{BE}=0$ $V_{CB}=30\text{V}$, $I_E=0$ BC237 BC238/239			15	nA
DC current gain	$h_{FE(1)}$	$V_{CE}=5\text{V}$, $I_C=10\mu\text{A}$ BC237A BC237B/238B BC237C/238C/239C		90 150 270		
	$h_{FE(2)}$	$V_{CE}=5\text{V}$, $I_C=2\text{mA}$ BC237 BC239 BC237A BC237B/238B BC237C/238C/239C	120 120 120 200 380		800 800 220 460 800	
	$h_{FE(3)}$	$V_{CE}=5\text{V}$, $I_C=100\text{mA}$ BC237A BC237B/238B BC237C/238C/239C		120 180 300		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10\text{mA}$, $I_B=0.5\text{mA}$ BC237/238/239 $I_C=100\text{mA}$, $I_B=5\text{mA}$ BC237/239 BC238			0.2 0.6 0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10\text{mA}$, $I_B=0.5\text{mA}$ $I_C=100\text{mA}$, $I_B=5\text{mA}$			0.83 1.05	V
Base-emitter voltage	V_{BE}	$V_{CE}=5\text{V}$, $I_C=0.1\text{mA}$ $V_{CE}=5\text{V}$, $I_C=2\text{mA}$ $V_{CE}=5\text{V}$, $I_C=100\text{mA}$	0.55	0.5 0.83	0.7	V
Transition frequency	f_T	$V_{CE}=3\text{V}$, $I_C=0.5\text{mA}$, $f=100\text{MHz}$ BC237 BC238 BC239 $V_{CE}=5\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$ BC237 BC238 BC239	150 150 150	100 120 140 200 240 280		MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$			4.5	pF
Emitter-base capacitance	C_{ib}	$V_{EB}=0.5\text{V}$, $I_C=0$, $f=1\text{MHz}$		8		Pf
Noise figure	NF	$V_{CE}=5\text{V}$, $I_C=0.2\text{mA}$, $f=1\text{kHz}$, $R_s=2\text{K}\Omega$ BC239 $V_{CE}=5\text{V}$, $I_C=0.2\text{mA}$, $f=1\text{kHz}$, $R_s=2\text{K}\Omega$, $\Delta f=200\text{Hz}$ BC237 BC238 BC239		2 2 2	4 10 10 4	dB

RATINGS AND CHARACTERISTIC CURVES

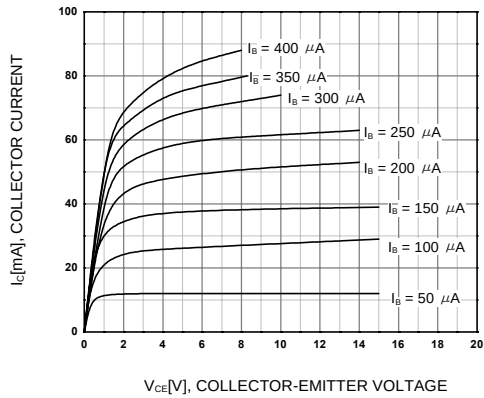


Figure 1. Static Characteristic

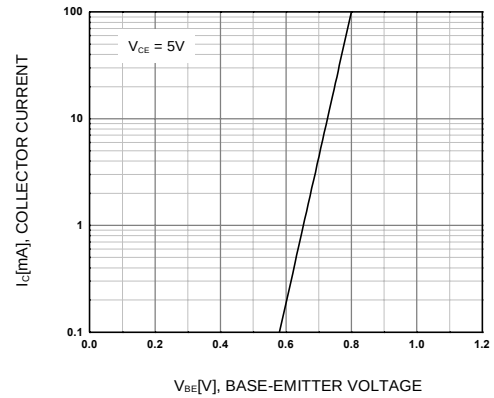


Figure 2. Transfer Characteristic

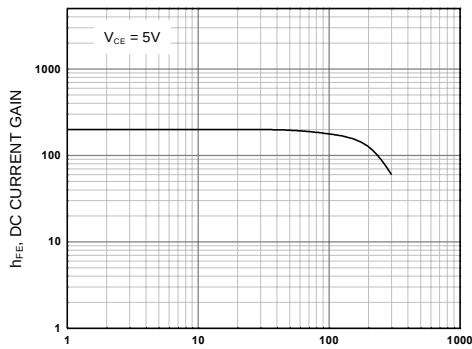


Figure 3. DC current Gain

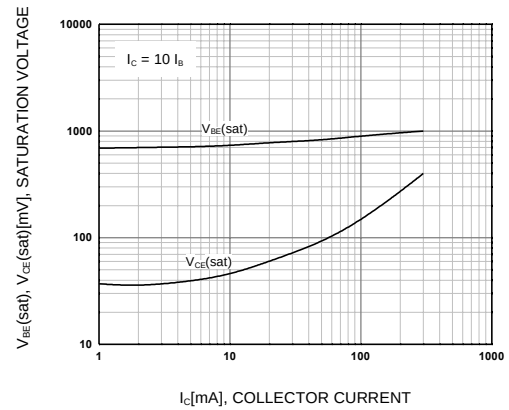


Figure 4. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

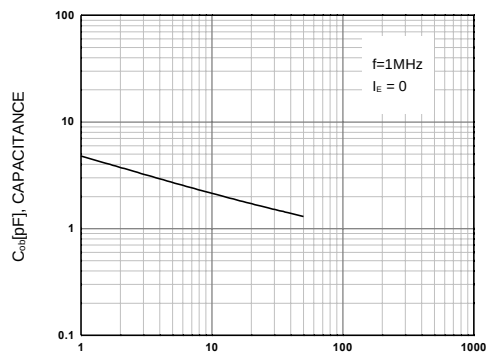


Figure 5. Output Capacitance

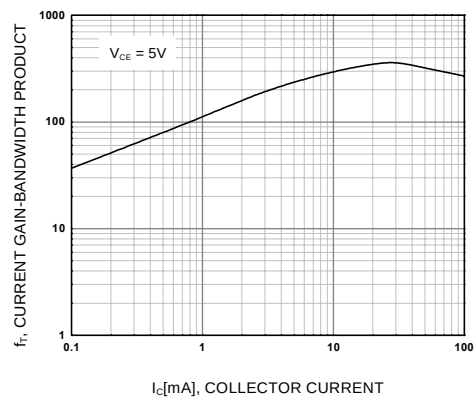


Figure 6. Current Gain Bandwidth Product