



SOT-523 Plastic-Encapsulate Transistors

BC847AT, BT, CT TRANSISTOR (NPN)

FEATURES

- Ideally suited for automatic insertion
- For Switching and AF Amplifier Applications

SOT-523



1. BASE
2. EMITTER
3. COLLECTOR

MARKING: BC847AT=1E; BC847BT=1F; BC847CT=1G

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current –Continuous	0.1	A
P_{C^*}	Collector Power Dissipation	150	mW
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55-150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$, $I_E = 0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$	45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\mu\text{A}$, $I_C = 0$	6			V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$			15	nA
DC current gain	h_{FE}	$V_{CE} = 5\text{V}$, $I_C = 2\text{mA}$	110 200 420		220 450 800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}$, $I_B = 0.5\text{mA}$ $I_C = 100\text{mA}$, $I_B = 5\text{mA}$			0.25 0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}$, $I_B = 0.5\text{mA}$ $I_C = 100\text{mA}$, $I_B = 5\text{mA}$		0.7 0.9		V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE} = 5\text{V}$, $I_C = 2\text{mA}$ $V_{CE} = 5\text{V}$, $I_C = 10\text{mA}$	580	660	700 770	V
Transition frequency	f_T	$V_{CE} = 5\text{V}$, $I_C = 10\text{mA}$ $f = 100\text{MHz}$	100			MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$			4.5	pF
Noise figure	NF	$V_{CE} = 5\text{V}$, $f = 1\text{KHz}$, $R_S = 2\text{K}\Omega$, $BW = 200\text{Hz}$			10 4	dB

Typical Characteristics

BC847AT,BT,CT

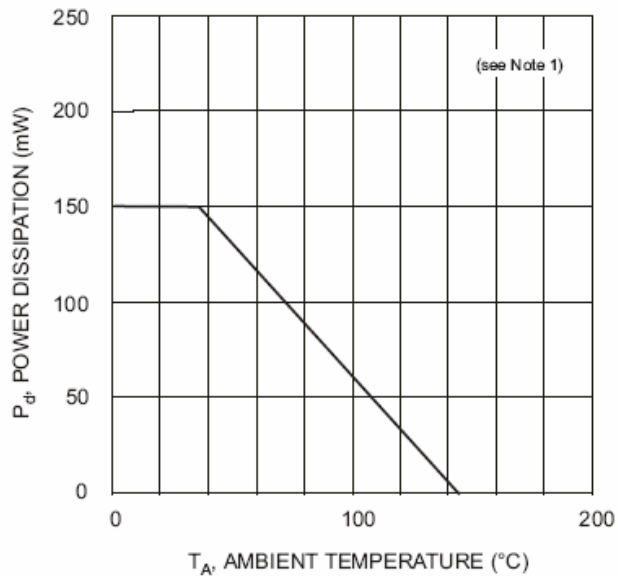


Fig. 1, Power Derating Curve

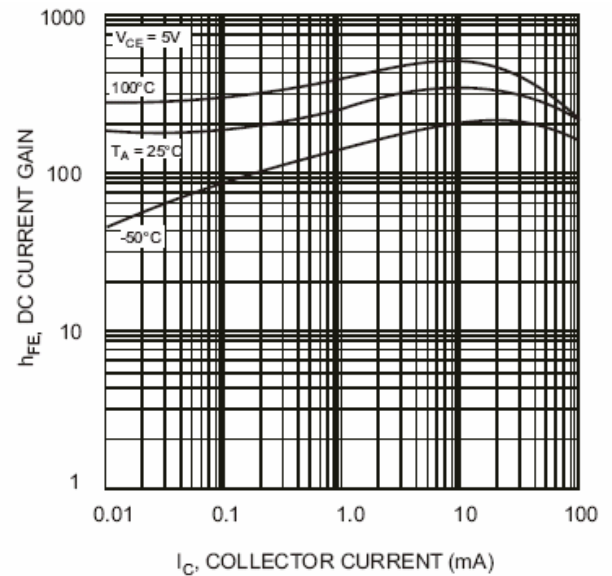


Fig. 2, DC Current Gain vs. Collector Current

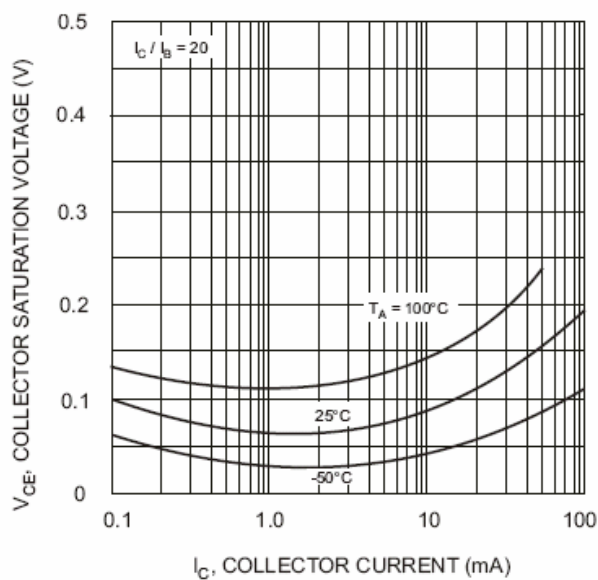


Fig. 3, Collector Saturation Voltage vs. Collector Current

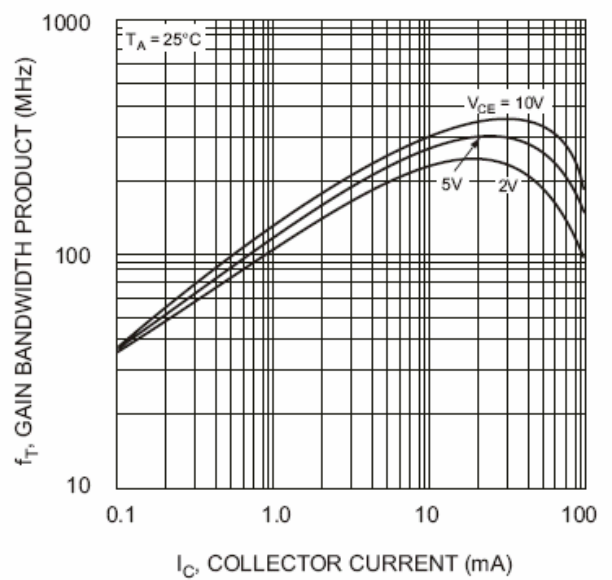


Fig. 4, Gain Bandwidth Product vs. Collector Current