



SOT-363 Plastic-Encapsulate Transistors

BC847PN Muti-Chip General Purpose TRANSISTOR

(PNP and NPN)

FEATURES

Power dissipation

$$P_{CM}: 200 \text{ mW (Tamb=25}^{\circ}\text{C)}$$

Collector current

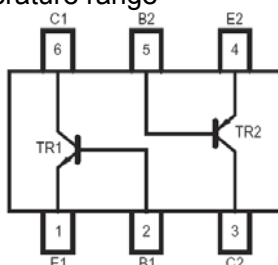
$$I_{CM}: 200/-200 \text{ mA}$$

Collector-base voltage

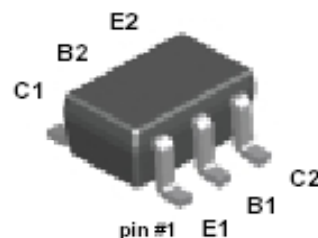
$$V_{(BR)CBO}: 50/-50 \text{ V}$$

Operating and storage junction temperature range

$$T_J, T_{stg}: -55^{\circ}\text{C to } +150^{\circ}\text{C}$$



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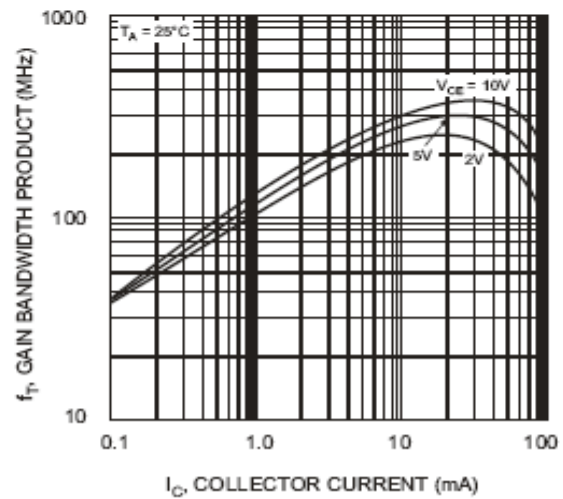
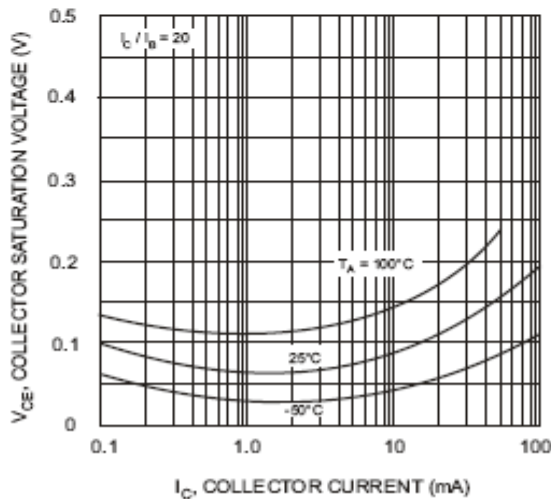
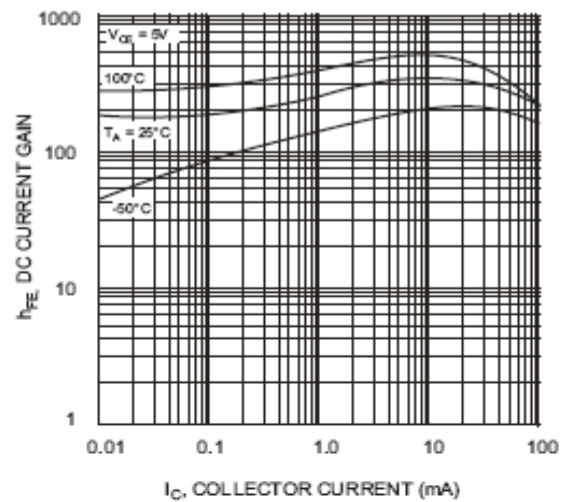
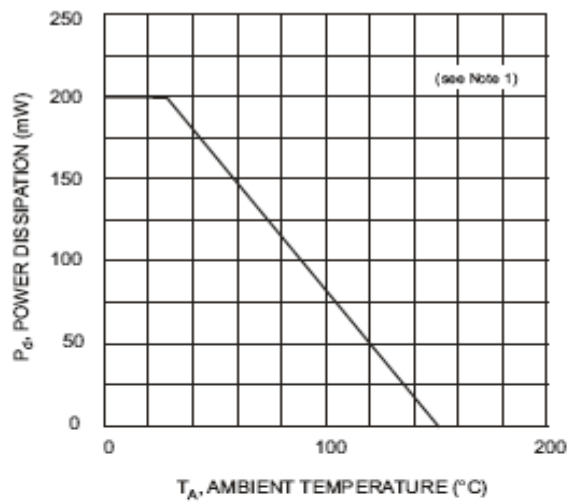
MAKING: 7P

CHARACTERISTICS of TR1 (NPN Transistor) (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1\mu A, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=30V, I_E=0$			15	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=5V, I_C=0$			100	nA
DC current gain	h_{FE1}	$V_{CE}=5V, I_C=2mA$	200		450	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$			0.25	V
	$V_{CE(sat)}$	$I_C=100mA, I_B=5mA$			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=0.5mA$		0.7		V
	$V_{BE(sat)}$	$I_C=100mA, I_B=5mA$		0.9		V
Base-emitter voltage	V_{BEon}	$V_{CE}=5V, I_C=2mA$	0.58		0.7	V
	V_{BEon}	$V_{CE}=5V, I_C=10mA$			0.72	V
Collector output capacitance	C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$			6.0	pF
Transition frequency	f_T	$V_{CE}=5V, I_C=10mA, f=100MHz$	100			MHz
Noise figure	NF	$V_{CE}=5V, I_C=0.2mA, f=1kHz, R_g=2K\Omega, \Delta f=200Hz$			10	dB

CHARACTERISTICS of TR2 (PNP Transistor) ($T_{amb}=25^{\circ}\text{C}$ 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	$V_{(BR)EBO}$	$I_E=-1\mu\text{A}, I_C=0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB}=-30\text{V}, I_E=0$			-15	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=-5\text{V}, I_C=0$			-100	nA
DC current gain	h_{FE1}	$V_{CE}=-5\text{V}, I_C=-2\text{mA}$	220		475	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-10\text{mA}, I_B=-0.5\text{mA}$			-0.3	V
	$V_{CE(sat)}$	$I_C=-100\text{mA}, I_B=-5\text{mA}$			-0.65	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-10\text{mA}, I_B=-0.5\text{mA}$		-0.7		V
	$V_{BE(sat)}$	$I_C=-100\text{mA}, I_B=-5\text{mA}$			-0.95	V
Base-emitter voltage	V_{BEon}	$V_{CE}=-5\text{V}, I_C=-2\text{mA}$	-0.6		-0.75	V
	V_{BEon}	$V_{CE}=-5\text{V}, I_C=-10\text{mA}$			-0.82	V
Collector output capacitance	C_{ob}	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$			4.5	pF
Transition frequency	f_T	$V_{CE}=-5\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	100			MHz
Noise figure	NF	$V_{CE}=-5\text{V}, I_C=-0.2\text{mA},$ $f=1\text{kHz}, R_g=2\text{K}\Omega, \Delta f=200\text{Hz}$			10	dB



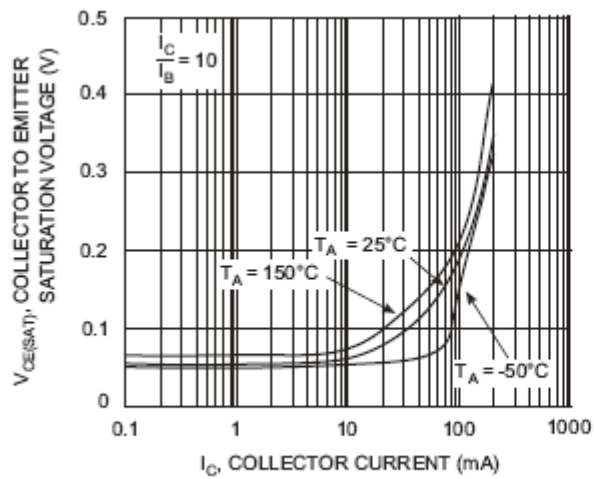


Fig. 5, Collector Emitter Saturation Voltage vs. Collector Current (BC857B)

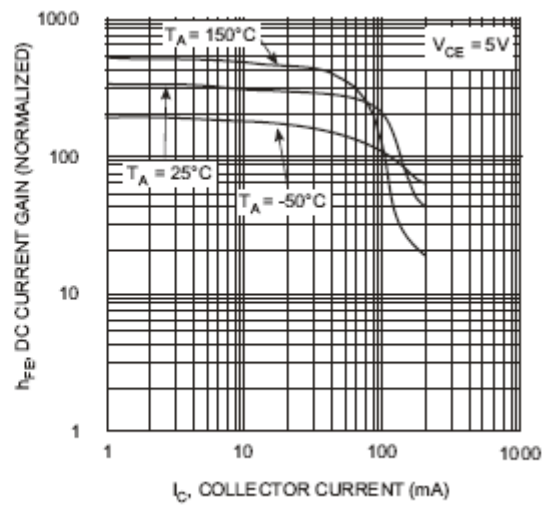


Fig. 6, DC Current Gain vs. Collector Current (BC857B)

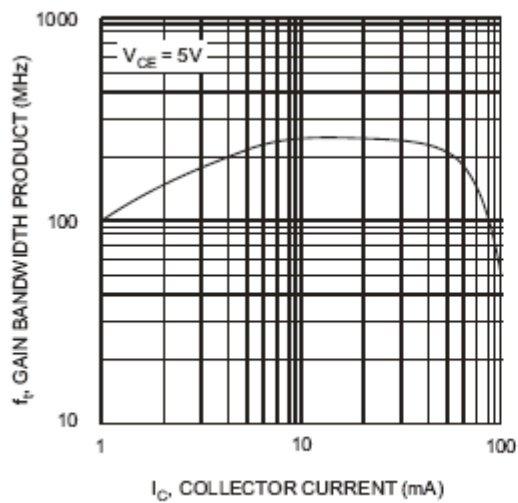


Fig. 7, Gain Bandwidth Product vs Collector Current (BC857B)