

Small Signal Surface Mount Transistor

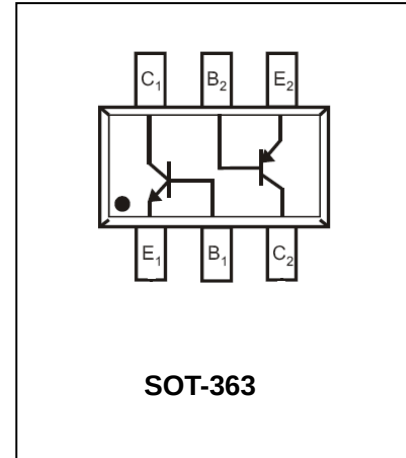
BC847PN

FEATURES

- Epitaxial planar die construction.
- Two internal isolated NPN/PNP Transistors In one package.
- Ultra-small surface mount package.



Lead-free



SOT-363

APPLICATIONS

- Ideal for low power amplification and switching.

ORDERING INFORMATION

Type No.	Marking	Package Code
BC847PN	7P	SOT-363

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	NPN	PNP	Unit
V_{CBO}	Collector-Base Voltage	50	-50	V
V_{CEO}	Collector-Emitter Voltage	45	-45	V
V_{EBO}	Emitter-Base Voltage	6	-5	V
I_C	Collector Current -Continuous	100	-100	mA
I_{CM}	Collector Current -Peak	200	-200	mA
I_{EM}	Emitter Current -Peak	200	-200	mA
P_D	Power Dissipation	200		mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	625		°C/W
T_j, T_{stg}	Operating and Storage Temperature	-65 to +150		°C

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Electrical Characteristics Of TR1 NPN Transistor @ Ta=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
DC current gain	h_{FE}	$V_{CE}=5V$ $I_C=2mA$	200	290	450	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10mA$ $I_B=0.5mA$ $I_C=100mA$ $I_B=5mA$		0.09 0.2	0.25 0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10mA$ $I_B=0.5mA$ $I_C=100mA$ $I_B=5mA$		0.7 0.9		V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=5V$, $I_C=2mA$ $V_{CE}=5V$, $I_C=10mA$	0.58	0.66	0.7 0.72	V
Transition frequency	f_T	$V_{CE}=5V$, $I_C=10mA$, $f=100MHz$	100	300		MHz
Output Capacitance	C_{obo}	$V_{CB}=10V$, $f=1.0MHz$		3.5	6.0	pF
Noise Figure	NF	$V_{CE}=5V$, $f=1.0MHz$, $I_C=200\mu A$ $R_g=2K\Omega$		2.0	10	dB

Electrical Characteristics Of TR2 PNP Transistor @ Ta=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	$V_{(BR)EBO}$	$I_E=-1\mu A$ $I_C=0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB}=-30V$ $I_E=0$			-15	nA
DC current gain	h_{FE}	$V_{CE}=-5V$ $I_C=-2mA$	220	290	475	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-10mA$ $I_B=-0.5mA$ $I_C=-100mA$ $I_B=-5mA$		-0.075 -0.25	-0.3 -0.65	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-10mA$ $I_C=-0.5mA$ $I_C=-100mA$ $I_C=-5mA$		-0.7 -0.85	-0.95	V
Base-emitter on voltage	$V_{BE(on)}$	$V_{CE}=-5V$ $I_B=-2.0mA$ $V_{CE}=-5V$ $I_B=-10mA$	-0.6	-0.65	-0.75 -0.82	V
Transition frequency	f_T	$V_{CE}=-5V$, $I_C=-10mA$, $f=100MHz$	100	200		MHz
Output Capacitance	C_{obo}	$V_{CB}=-10V$, $f=1.0MHz$		3	4.5	pF
Noise Figure	NF	$V_{CE}=-5V$, $f=1.0kHz$, $I_C=-0.2mA$ $R_g=2K\Omega$,			10	dB

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

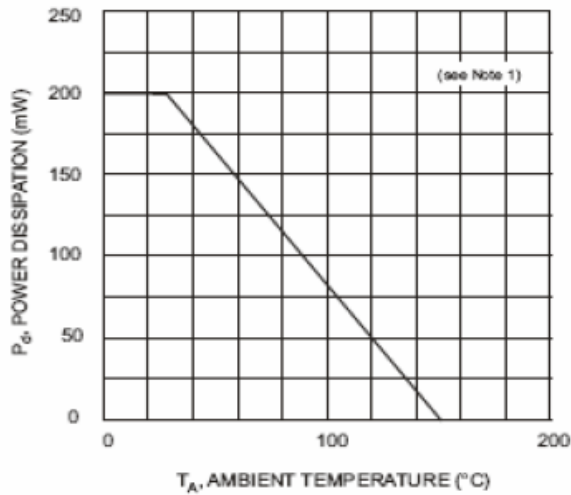


Fig. 1, Power Derating Curve (Total Device)

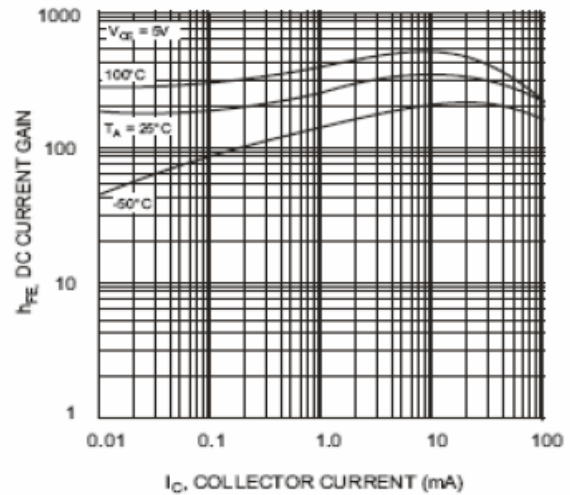


Fig. 2, DC Current Gain vs Collector Current (BC847B)

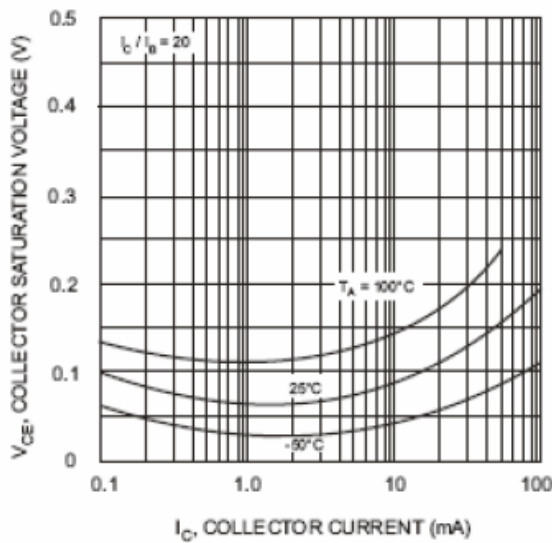


Fig. 3, Collector Saturation Voltage vs Collector Current (BC847B)

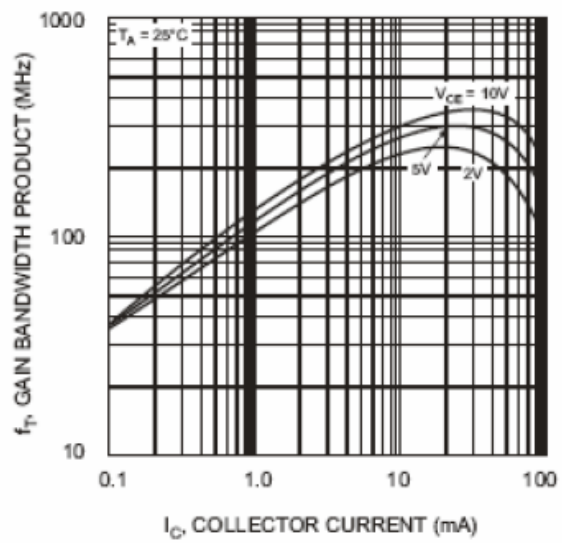


Fig. 4, Gain Bandwidth Product vs Collector Current (BC847B)

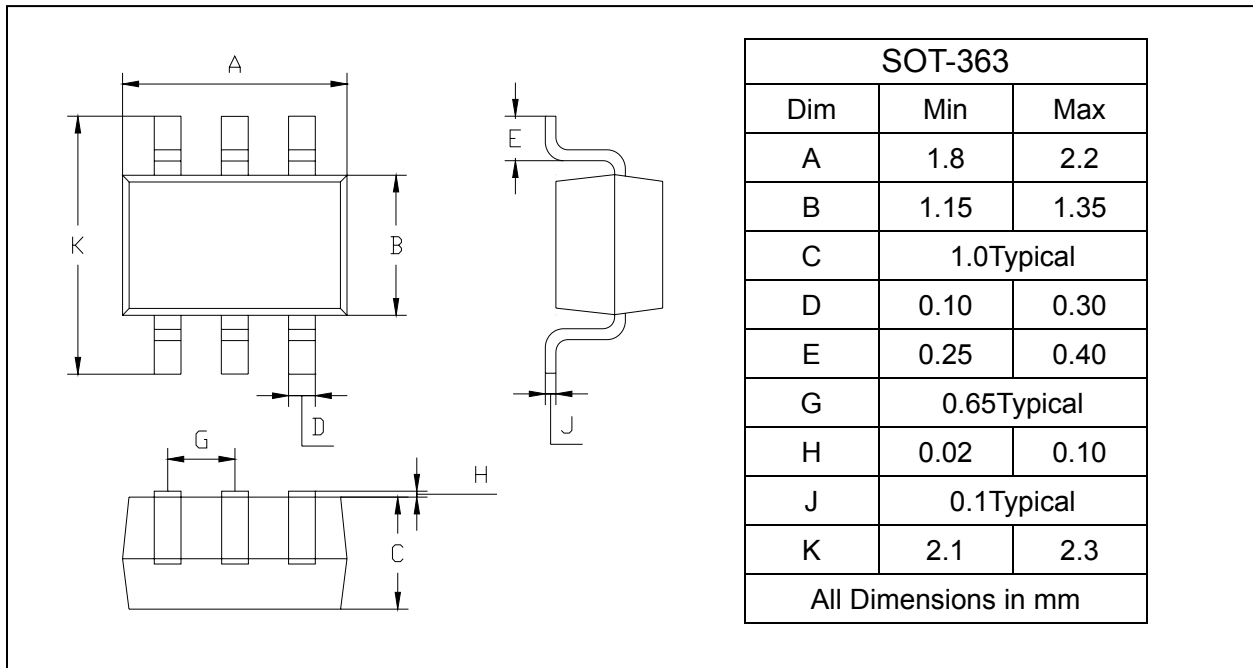
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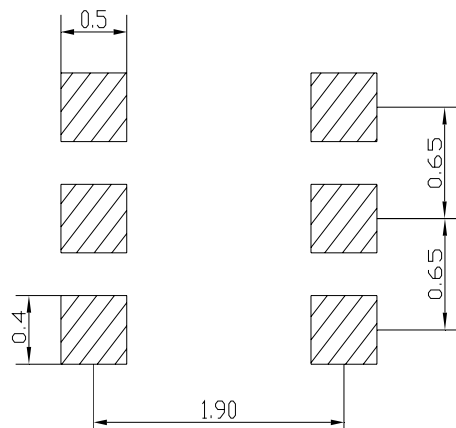
PACKAGE OUTLINE

Plastic surface mounted package

SOT-363



SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
BC847PN	SOT-363	3000/Tape&Reel