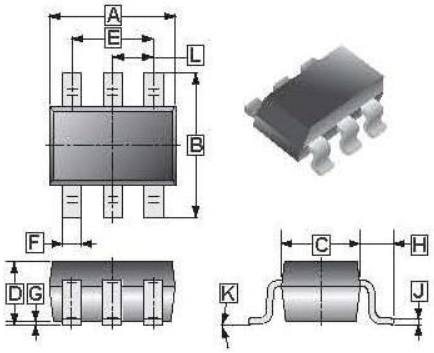
Elektronische Bauelemente

BC847PN

NPN - PNP Silicon
Multi-Chip Transistor

RoHS Compliant Product

SOT-363

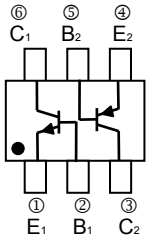


FEATURE

- Epitaxial Die Construction
- Two internal isolated NPN/PNP transistors in one package
- Power Dissipation
  P_{CM} : 0.2 W (Temp. = 25°C)
- Collector Current
  I_{CM} : 0.1A
- Collector-base Voltage
  $V_{(BR)CBO}$: 50/-50 V
- Operating & Storage Junction Temperature
  T_J, T_{STG} : -55°C~+150°C

MARKING

7P



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.00	2.20	G	0.100 REF.	
B	2.15	2.45	H	0.525 REF.	
C	1.15	1.35	J	0.08	0.15
D	0.90	1.10	K	8°	
E	1.20	1.40	L	0.650 TYP.	
F	0.15	0.35			

ABSOLUTE MAXIMUM RATINGS OF TR1 at Ta = 25°C

PARAMETER	SYMBOL	VALUE	UNITS
Collector to Base Voltage	V_{CBO}	50	V
Collector to Emitter Voltage	V_{CEO}	45	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Currrent – Continuous	I_C	100	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

ELECTRICAL CHARACTERISTICS OF TR1 (NPN Transister) at Ta = 25°C

CHARACTERISTIC	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector-Base Breakdown Voltage	I_C=10μA, I_E=0	$V_{(BR)CBO}$	50			V
Collector-Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	$V_{(BR)CEO}$	45			V
Emitter-Base Breakdown Voltage	I_E=1μA, I_C=0	$V_{(BR)EBO}$	6			V
Collector Cutoff Current	V_{CB}=30V, I_E=0	I_{CBO}			15	nA
Emitter Cutoff Current	V_{EB}=5V, I_C=0	I_{EBO}			15	nA
DC Current Gain	V_{CE}=5V, I_C=2mA	h_{FE}	200		450	
Collector-emitter Saturation Voltage	I_C=10mA, I_B=0.5mA	$V_{CE(sat)}$			0.25	V
	I_C=100mA, I_B=5mA	$V_{CE(sat)}$			0.6	V
Base-Emitter Saturation Voltage	I_C=10mA, I_B=0.5mA	$V_{BE(sat)}$		0.7		V
	I_C=100mA, I_B=5mA	$V_{BE(sat)}$		0.9		V
Base-Emitter Voltage	I_C=10mA, V_{CE}=5V	$V_{BE(On)}$	0.58		0.7	V
	I_C=10mA, V_{CE}=5V	$V_{BE(On)}$			0.72	V
Collector Output Capacitance	V_{CB}=10V, I_E=0, f=1MHz	C_{ob}			6.0	pF
Transition Frequency	V_{CE}=5V, I_C=10mA, f=100MHz	f_T	100			MHz
Noise Figure	V_{CE}=5V, I_C=0.2mA, f=1kHz Rg=2KΩ, △f=200Hz	NF			10	dB

Elektronische Bauelemente

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ABSOLUTE MAXIMUM RATINGS OF TR2 at Ta = 25°C

PARAMETER	SYMBOL	VALUE	UNITS
Collector to Base Voltage	V_{CBO}	-50	V
Collector to Emitter Voltage	V_{CEO}	-45	V
Emitter to Base Voltage	V_{EBO}	-5	V
Collector Currrent – Continuous	I_C	-100	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	$R_{\theta JA}$	150	℃
Storage Temperature	T_{STG}	-55 ~ -150	℃

ELECTRICAL CHARACTERISTICS OF TR2 (PNP Transister) at Ta = 25°C

CHARACTERISTIC	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector-Base Breakdown Voltage	I_C=-10μA, I_E=0	$V_{(BR)CBO}$	-50			V
Collector-Emitter Breakdown Voltage	I_C = -10 mA, I_B = 0	$V_{(BR)CEO}$	-45			V
Emitter=Base Breakdown Voltage	I_E=-1μA, I_C=0	$V_{(BR)EBO}$	-5			V
Collector Cutoff Current	V_{CB}=-30V, I_E=0	I_{CBO}			-15	nA
Emitter Cutoff Current	V_{EB}=-5V, I_C=0	I_{EBO}			-15	nA
DC Current Gain	V_{CE}=-5V, I_C=-2mA	h_{FE}	220		475	
Collector-emitter Saturation Voltage	I_C=-10mA, I_B=-0.5mA	$V_{CE(sat)}$			-0.3	V
	I_C=-100mA, I_B=-5mA	$V_{CE(sat)}$			-0.65	V
Base-Emitter Saturation Voltage	I_C=-10mA, I_B=-0.5mA	$V_{BE(sat)}$		-0.7		V
	I_C=-100mA, I_B=-5mA	$V_{BE(sat)}$			-0.95	V
Base-Emitter Voltage	I_C=-2mA, V_{CE}=-5V	$V_{BE(On)}$	-0.6		-0.75	V
	I_C=-10mA, V_{CE}=-5V	$V_{BE(On)}$			-0.82	V
Collector Output Capacitance	V_{CB}=-10V, I_E=0, f=1MHz	C_{ob}			4.5	pF
Transition Frequency	V_{CE}=-5V, I_C=-10mA, f=100MHz	f_T	100			MHz
Noise Figure	V_{CE}=-5V, I_C=-0.2mA, f=1kHz Rg=2KΩ, △f=200Hz	NF			10	dB

CHARACTERISTIC CURVES

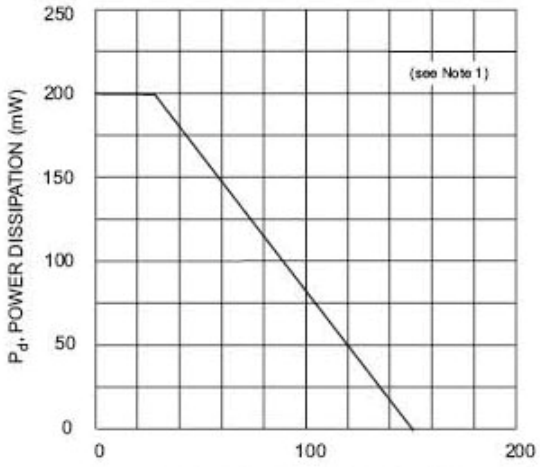

Fig. 1, Power Derating Curve (Total Device)

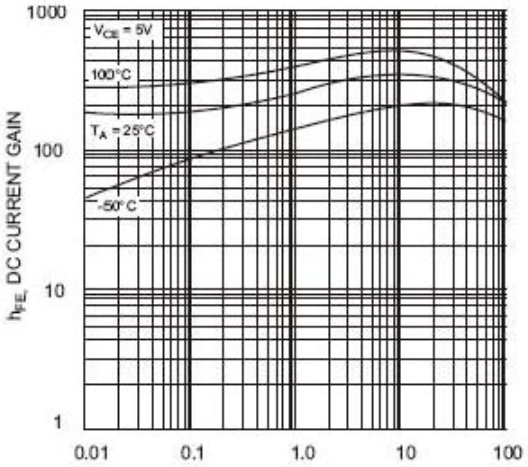

Fig. 2, DC Current Gain vs Collector Current (BC847B)

CHARACTERISTIC CURVES

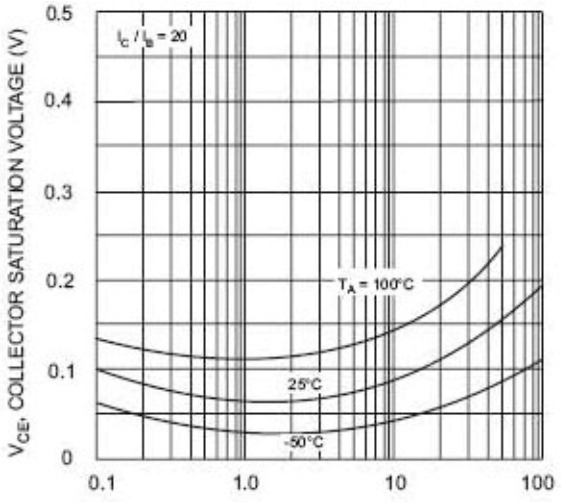

Fig. 3, Collector Saturation Voltage vs Collector Current (BC847B)

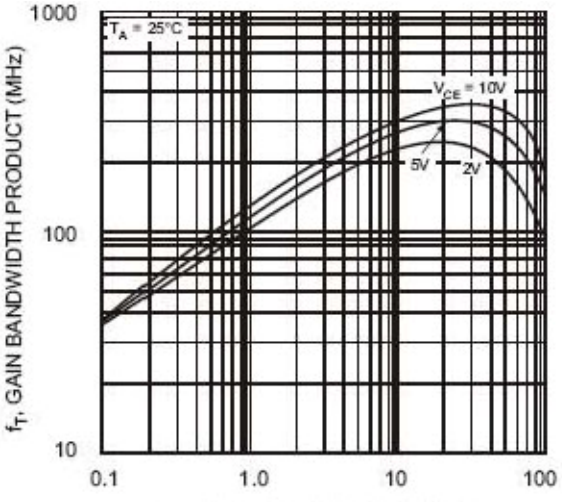

Fig. 4, Gain Bandwidth Product vs Collector Current (BC847B)

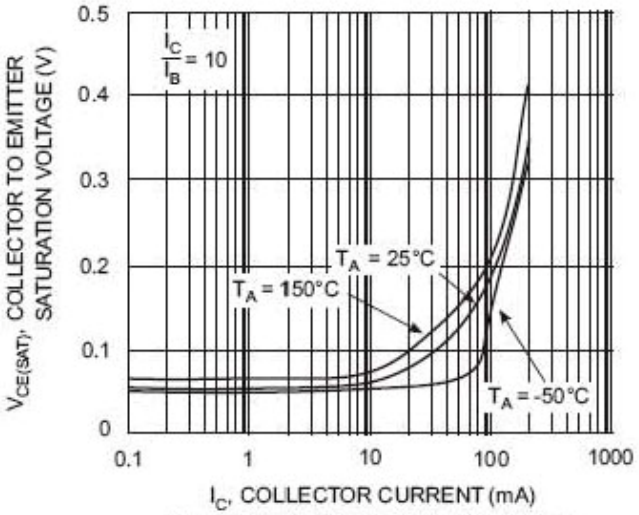

Fig. 5, Collector Emitter Saturation Voltage vs. Collector Current (BC857B)

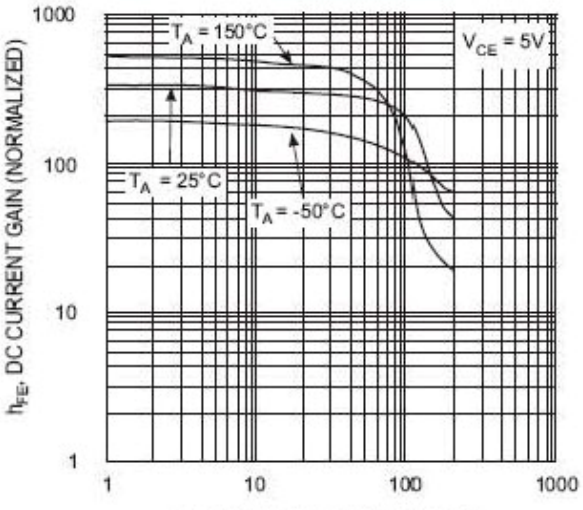

Fig. 6, DC Current Gain vs. Collector Current (BC857B)

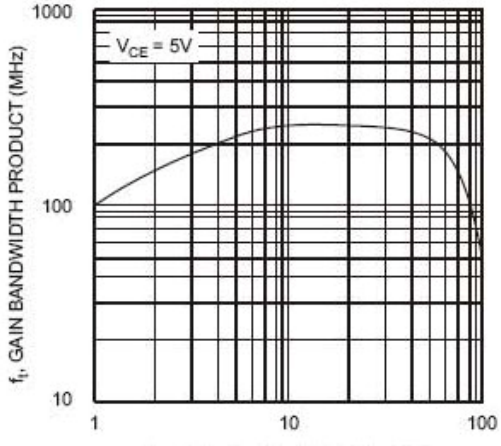

Fig. 7, Gain Bandwidth Product vs Collector Current (BC857B)