Elektronische Bauelemente

BC847PNW

NPN / PNP

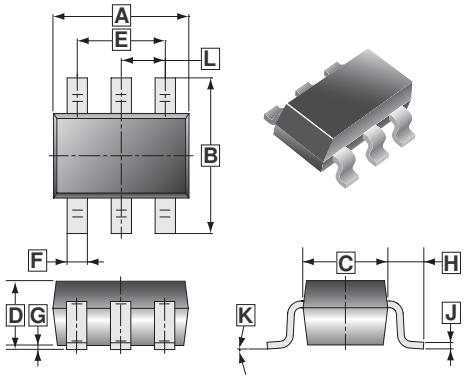
Multi-Chip Transistor

RoHS Compliant Product
A suffix of "-C" indicates halogen-free.

FEATURE

- Epitaxial Die Construction

SOT-363

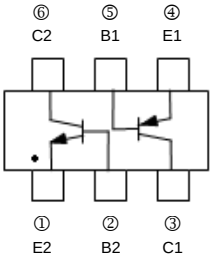


MARKING

BF

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-363	3K	7 inch



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.100 REF.	
B	2.00	2.45	H	0.525 REF.	
C	1.15	1.35	J	0.08	0.25
D	0.80	1.10	K	8°	
E	1.10	1.50	L	0.650 TYP.	
F	0.10	0.35			

ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

PARAMETER			SYMBOL	VALUE	UNITS
Collector to Base Voltage		NPN	V_{CBO}	50	V
		PNP		-50	
Collector to Emitter Voltage		NPN	V_{CEO}	45	V
		PNP		-45	
Emitter to Base Voltage		NPN	V_{EBO}	6	V
		PNP		-5	
Collector Currrent – Continuous		NPN	I_C	0.1	A
		PNP		-0.1	
Collector Power Dissipation	Per Device		P_D	380	mW
	FR-5 Board, T_A=25°C [1]			250	
	Derate Above 25˚C			3	℃/W
Thermal Resistance, Junction to Ambient			$R_{\theta JA}$	328	℃/W
Junction Temperature			T_J	-55~150	℃
Storage Temperature			T_{STG}	-55~150	℃

Note:
1. FR-5 = 1.0 x 0.75 x 0.062 in

ELECTRICAL CHARACTERISTICS OF NPN (T_A=25°C unless otherwise noted)

CHARACTERISTIC	SYMBOL	MIN.	Min.	MAX.	UNIT	TEST CONDITION
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50	-	-	V	I_C=10μA
Collector–Emitter Breakdown Voltage	$V_{(BR)CES}$	50	-	-	V	I_C=10μA, V_{EB} = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45	-	-	V	I_C=10mA
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	-	-	V	I_E=1μA
Collector Cutoff Current	I_{CBO}	-	-	15	nA	V_{CB}=30V
		-	-	5	μA	V_{CB}=30V, T_A=150°C
DC Current Gain	$h_{FE(1)}$	-	150	-		V_{CE}=5V, I_C=10μA
	$h_{FE(2)}$	200	290	475		V_{CE}=5V, I_C=2mA
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	-	-	0.25	V	I_C=10mA, I_B=0.5mA
		-	-	0.6	V	I_C=100mA, I_B=5mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	-	0.7	-	V	I_C=10mA, I_B=0.5mA
		-	0.9	-	V	I_C=100mA, I_B=5mA
Base–Emitter Voltage	$V_{BE(ON)}$	580	660	700	mV	I_C=2mA, V_{CE} =5V
		-	-	770		I_C=10mA, V_{CE} =5V
Transition Frequency	f_T	100	-	-	MHz	V_{CE}=5V, I_C=10mA, f=100MHz
Output Capacitance	C_{obo}	-	-	4.5	pF	V_{CB}=10V, f=1MHz
Noise Figure	NF	-	-	10	dB	V_{CE}=5V, I_C=0.2mA, f=1kHz Rs=2KΩ, BW=200Hz

ELECTRICAL CHARACTERISTICS OF PNP (T_A=25°C unless otherwise noted)

CHARACTERISTIC	SYMBOL	MIN.	Min.	MAX.	UNIT	TEST CONDITION
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-50	-	-	V	I_C= -10μA
Collector–Emitter Breakdown Voltage	$V_{(BR)CES}$	-50	-	-	V	I_C= -10μA, V_{EB} = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-45	-	-	V	I_C= -10mA
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-	-	V	I_E= -1μA
Collector Cutoff Current	I_{CBO}	-	-	-15	nA	V_{CB}= -30V
		-	-	-4	μA	V_{CB}= -30V, T_A=150°C
DC Current Gain	$h_{FE(1)}$	-	150	-		V_{CE}= -5V, I_C= -10μA
	$h_{FE(2)}$	200	290	475		V_{CE}= -5V, I_C= -2mA
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	-	-	-0.3	V	I_C= -10mA, I_B= -0.5mA
		-	-	-0.65	V	I_C= -100mA, I_B= -5mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	-	-0.7	-	V	I_C= -10mA, I_B= -0.5mA
		-	-0.9	-	V	I_C= -100mA, I_B= -5mA
Base–Emitter Voltage	$V_{BE(ON)}$	-600	-	-750	mV	I_C= -2mA, V_{CE} = -5V
		-	-	-820		I_C= -10mA, V_{CE} = -5V
Transition Frequency	f_T	100	-	-	MHz	V_{CE}= -5V, I_C= -10mA, f=100MHz
Output Capacitance	C_{obo}	-	-	4.5	pF	V_{CB}= -10V, f=1MHz
Noise Figure	NF	-	-	10	dB	V_{CE}= -5V, I_C= -0.2mA, f=1kHz Rs=2KΩ, BW=200Hz

CHARACTERISTIC CURVES

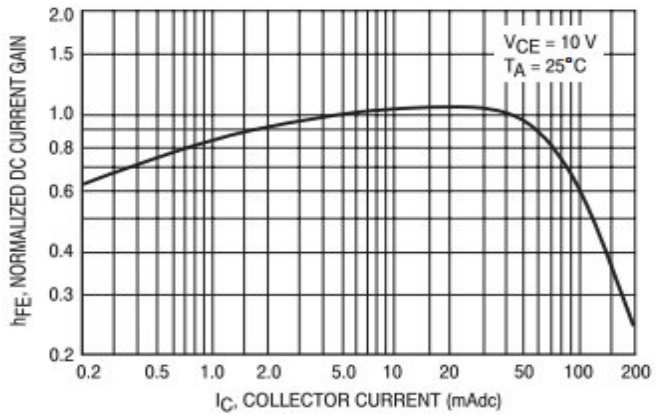


Figure 1. Normalized DC Current Gain

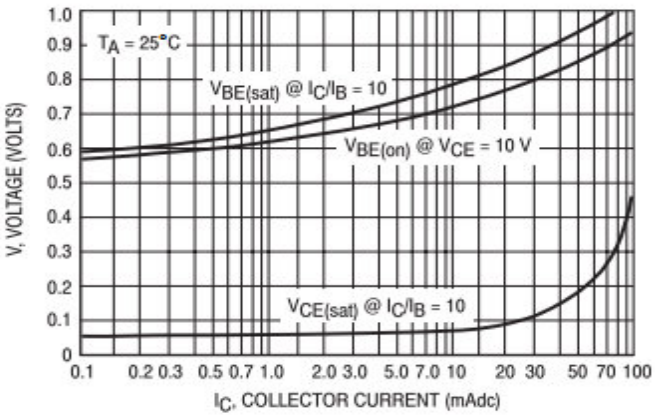


Figure 2. "Saturation" and "On" Voltages

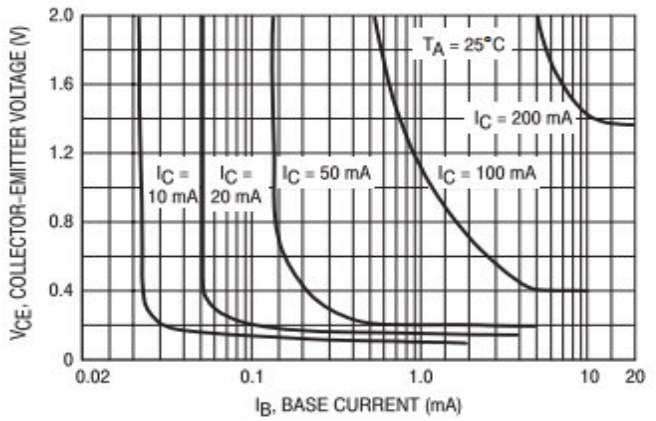


Figure 3. Collector Saturation Region

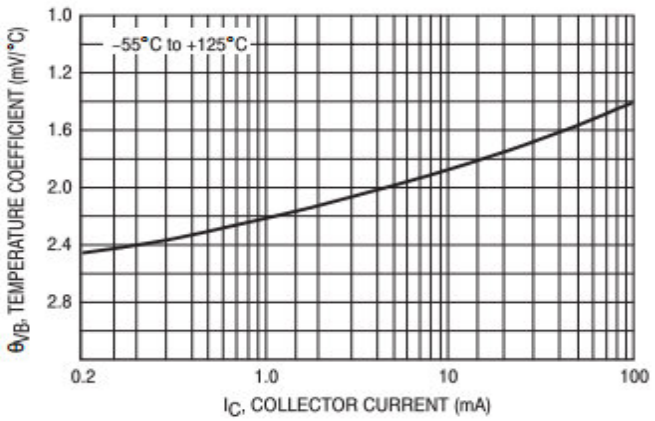


Figure 4. Base–Emitter Temperature Coefficient

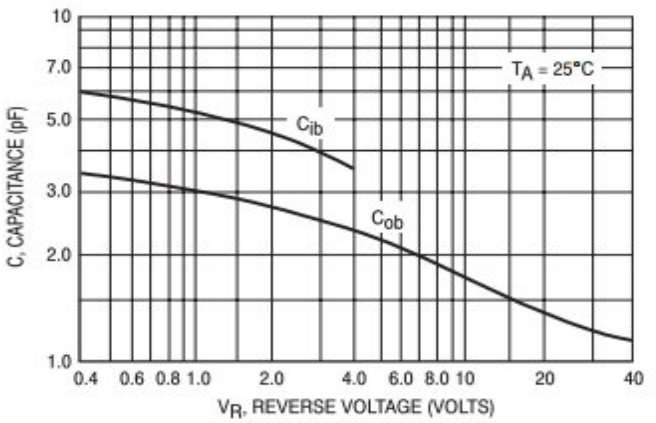


Figure 5. Capacitances

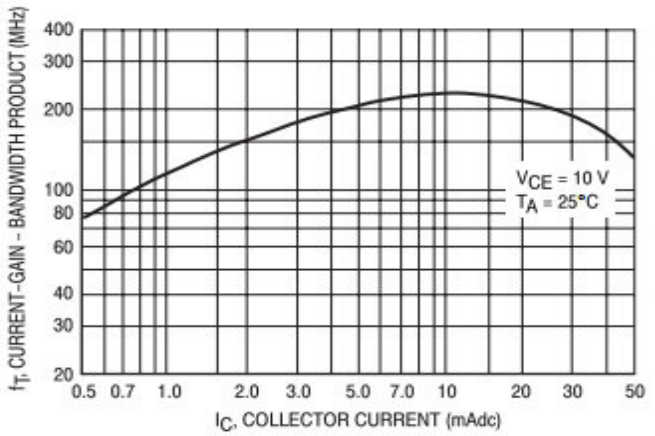


Figure 6. Current–Gain – Bandwidth Product

CHARACTERISTIC CURVES

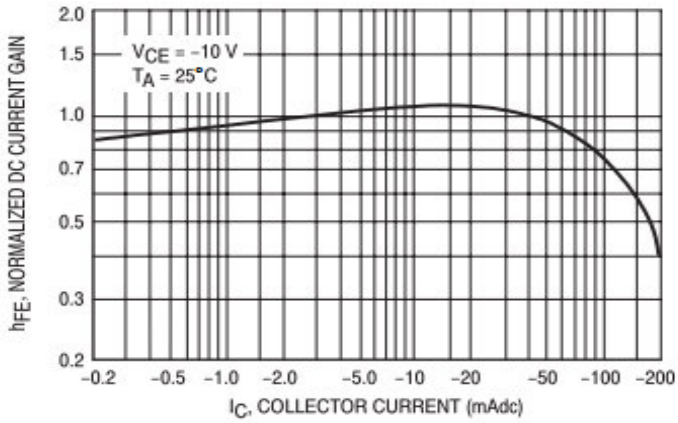


Figure 7. Normalized DC Current Gain

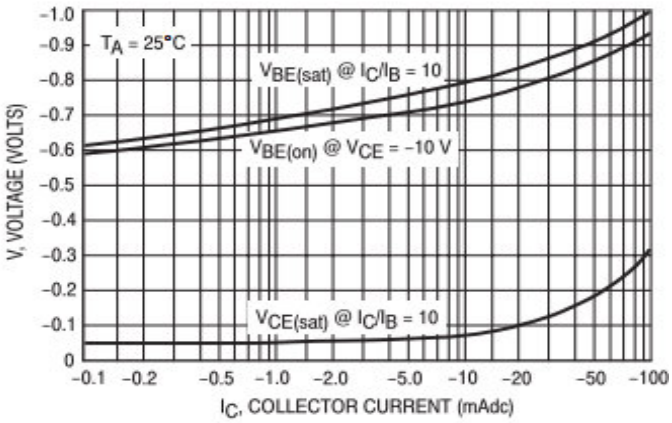


Figure 8. "Saturation" and "On" Voltages

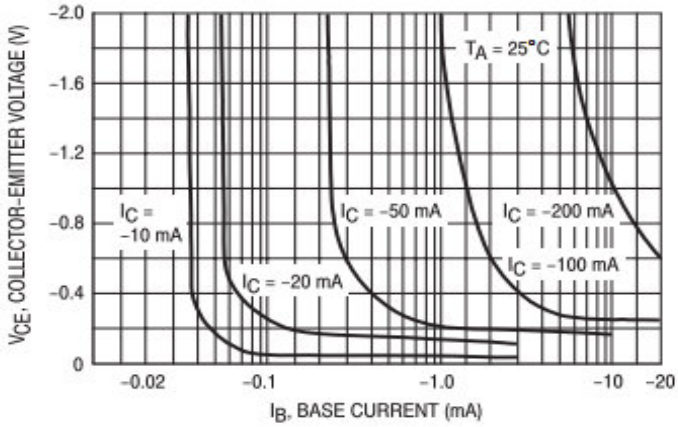


Figure 9. Collector Saturation Region

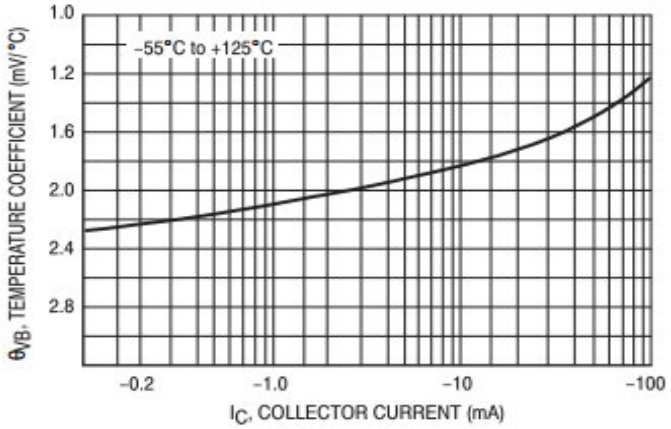


Figure 10. Base–Emitter Temperature Coefficient

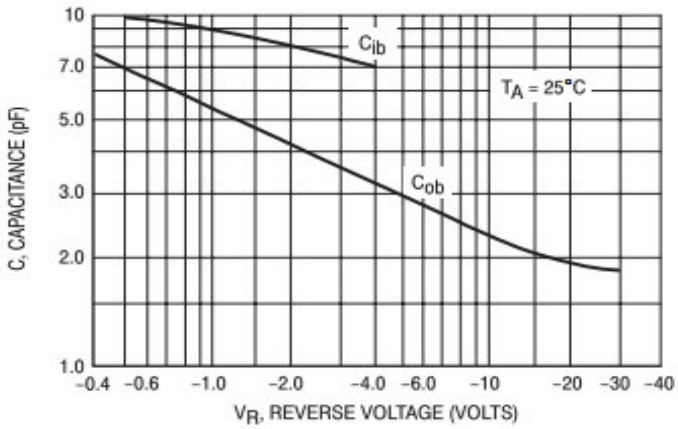


Figure 11. Capacitances

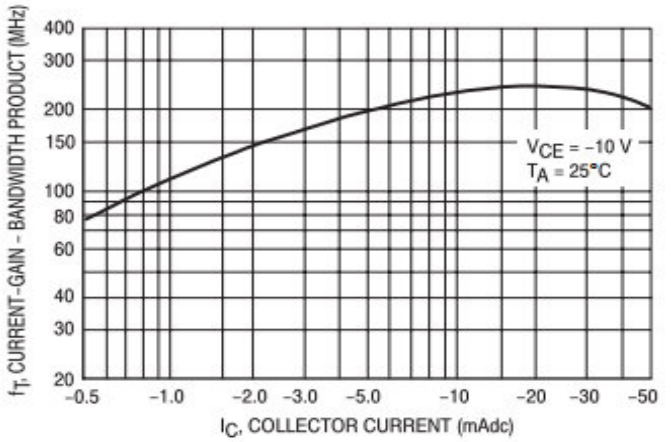


Figure 12. Current–Gain – Bandwidth Product

CHARACTERISTIC CURVES

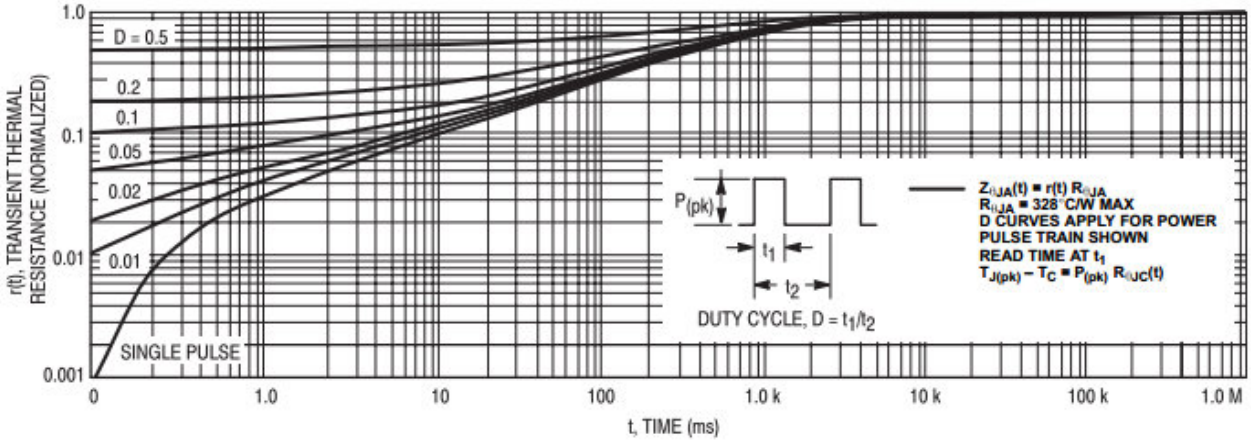


Figure 13. Thermal Response