



BC847BFN3

NPN GENERAL PURPOSE TRANSISTORS

VOLTAGE 45 Volts **CURRENT** 250 mWatts

DFN 3L Unit : inch(mm)

FEATURES

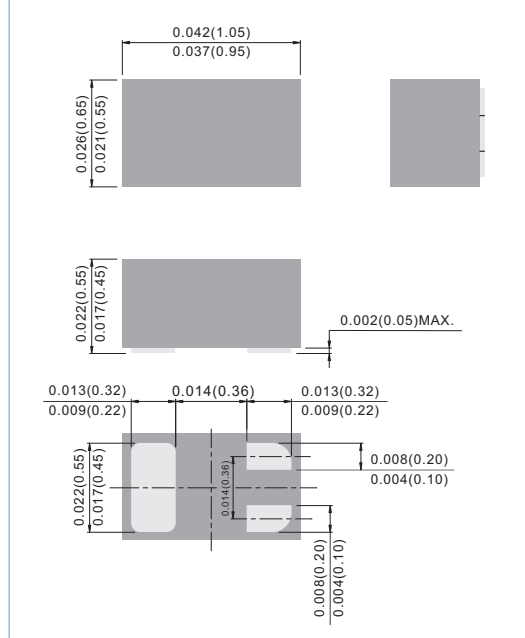
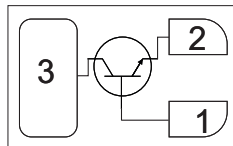
- General purpose amplifier applications
- NPN epitaxial silicon, planar design
- Collector current IC = 100mA

MECHANICAL DATA

Case: DFN 3L, Plastic

Terminals: Solderable per MIL-STD-750, Method 2026

Marking: AE



ABSOLUTE RATINGS

Parameter	Symbol	Value	Units
Collector - Emitter Voltage	V _{CEO}	45	V
Collector - Base Voltage	V _{CBO}	50	V
Emitter - Base Voltage	V _{EBO}	6.0	V
Collector Current - Continuous	I _C	100	mA

THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Units
Max Power Dissipation (Note 1)	P _{TOT}	250	mW
Thermal Resistance , Junction to Ambient	R _{θJA}	500	°C/W
Junction Temperature	T _J	-55 to +150	°C
Storage Temperature	T _{STG}	-55 to +150	°C

Note 1: Transistor mounted on FR-4 board 70 x 60 x 1mm.

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ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$, unless otherwise noted)

PARAMETER	Symbol	Test Condition	MIN.	TYP.	MAX.	Unit
OFF CHARACTERISTICS						
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$	45	-	-	V
Collector - Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = 10\mu\text{A}, V_{EB} = 0$	50	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$	50	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$	6.0	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V},$ $V_{CB} = 30\text{V}, T_A = 150^\circ\text{C}$	-	-	15 5.0	nA uA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	$I_C = 2.0\text{mA}, V_{CE} = 5\text{V}$	200	-	450	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5.0\text{mA}$	-	-	0.25 0.6	V
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5.0\text{mA}$	0.6 0.8	-	0.9 1.0	V
Base - Emitter Voltage	$V_{BE(ON)}$	$I_C = 2\text{mA}, V_{CE} = 5.0\text{V}$ $I_C = 10\text{mA}, V_{CE} = 5.0\text{V}$	580 -	660 -	700 770	mV
SMALL-SIGNAL CHARACTERISTICS						
Current-Gain-Bandwidth Product	f_T	$I_C = 10\text{mA}, V_{CE} = 5.0\text{Vdc}, f = 100\text{MHz}$	100	-	-	MHz
Output Capacitance	C_{obo}	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$	-	-	4.5	pF
Noise Figure	NF	$I_C = 0.2\text{mA}, V_{CE} = 5.0\text{Vdc},$ $R_S = 2.0\text{k}\Omega, f = 1.0\text{kHz},$ $BW = 200\text{Hz}$	-	-	10	dB



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ELECTRICAL CHARACTERISTICS CURVE

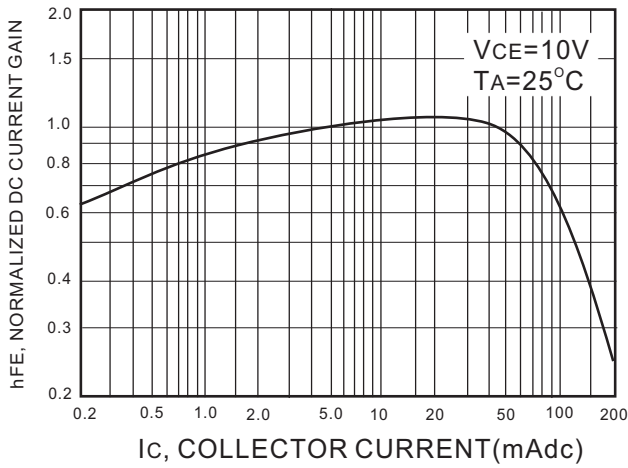


Figure 1. Normalized DC Current Gain

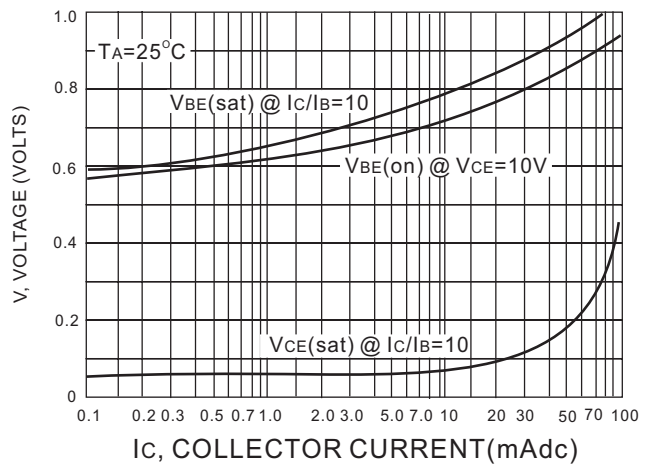


Figure 2. "Saturation" and "On" Voltages

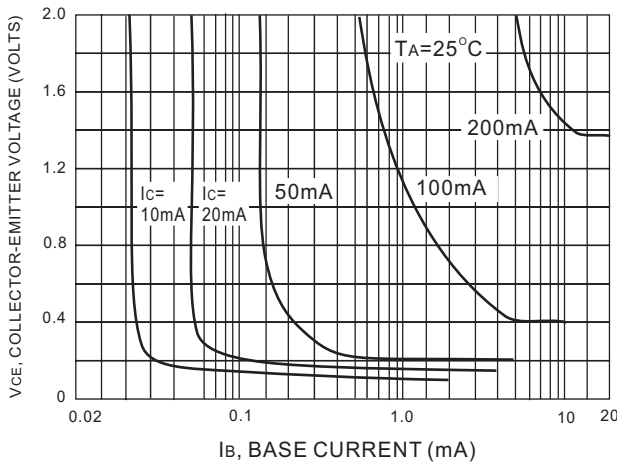


Figure 3. Collector Saturation Region

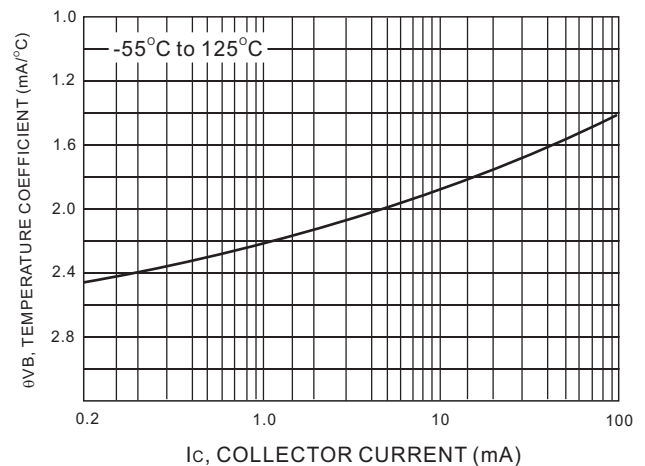


Figure 4. Base-Emitter Temperature Coefficient

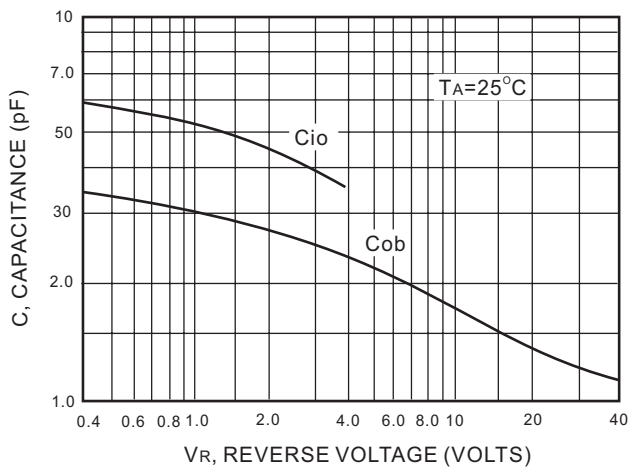


Figure 5. Capacitance

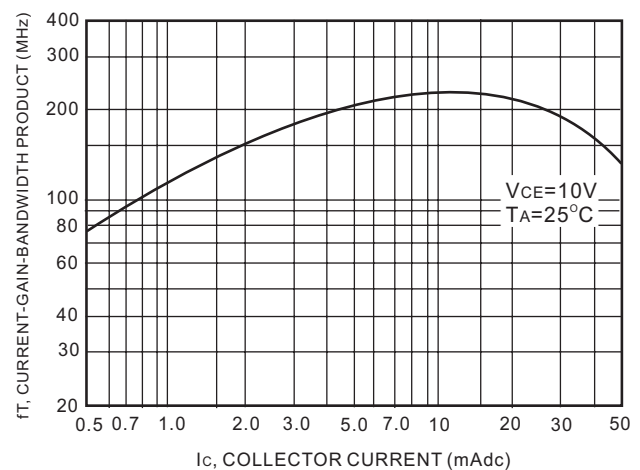


Figure 6. Current-Gain-Bandwidth Product



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ELECTRICAL CHARACTERISTICS CURVE

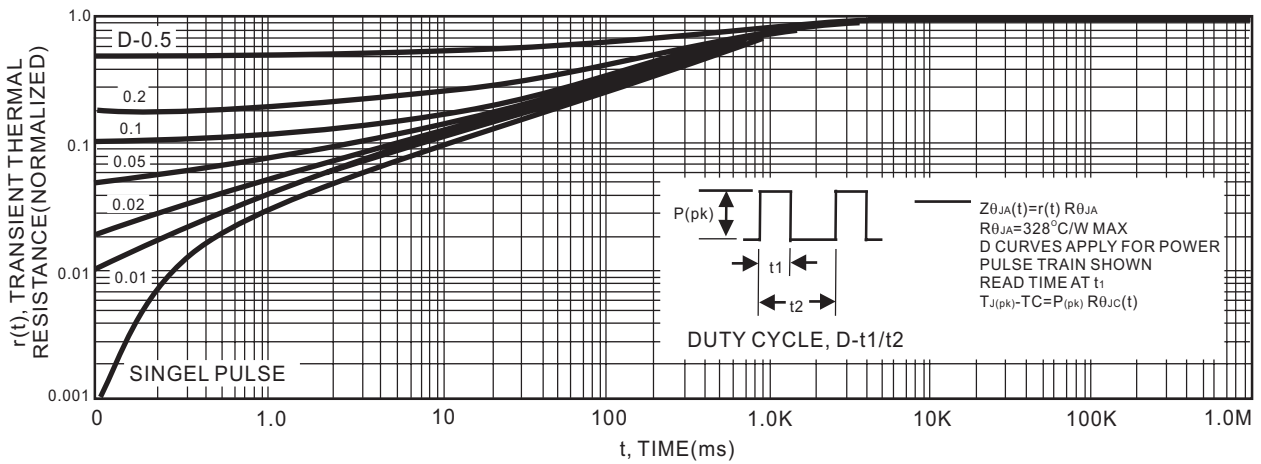


Figure 7. Thermal Response

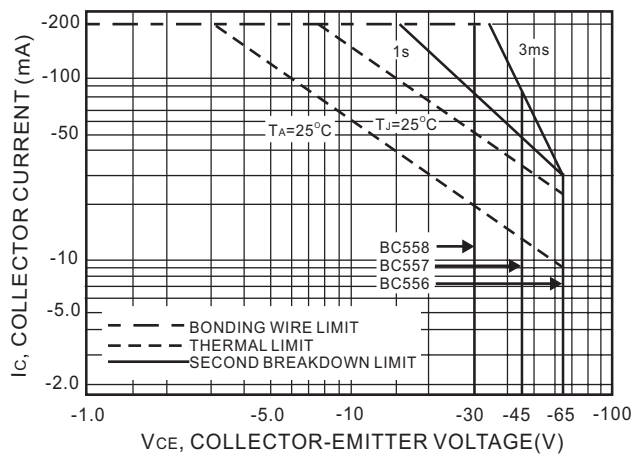


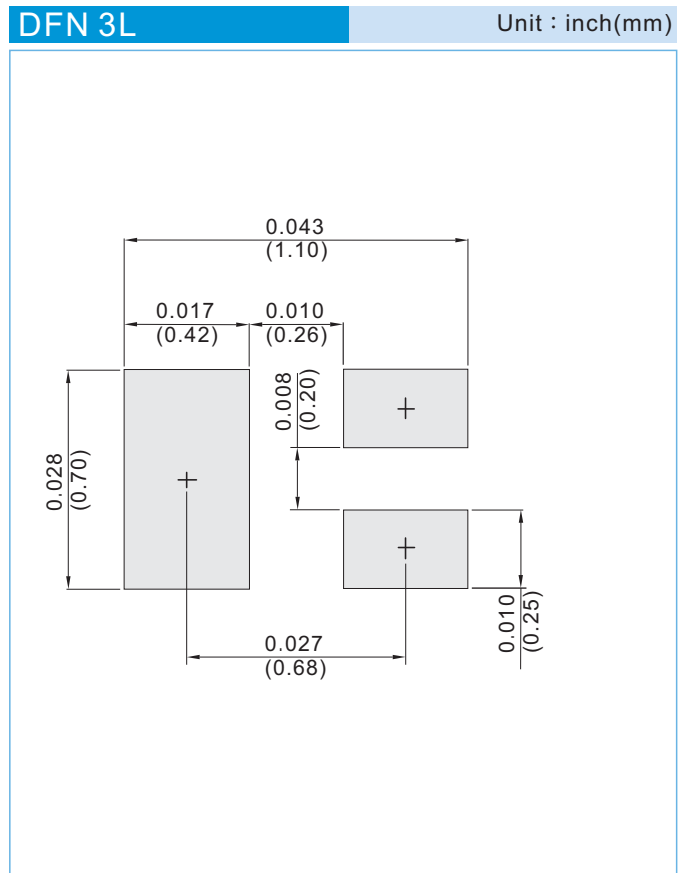
Figure 8. Active Region Safe Operating Area

The safe operating area curves indicate I_c - V_{ce} limits of the transistor that must be observed for reliable operation. Collector load lines for specific circuits must fall below the limits indicated by the applicable curve. The data of Figure 26 is based upon $T_j(pk)=150^\circ C$; T_c or T_a is variable depending upon conditions. Pulse curves are valid for duty cycles to 10% provided $T_j(pk) < 150^\circ C$. $T_j(pk)$ may be calculated from the data in Figure 25. At high case or ambient temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by the secondary break-down.



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MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information
T/R - 8K per 7" plastic Reel

LEGAL STATEMENT

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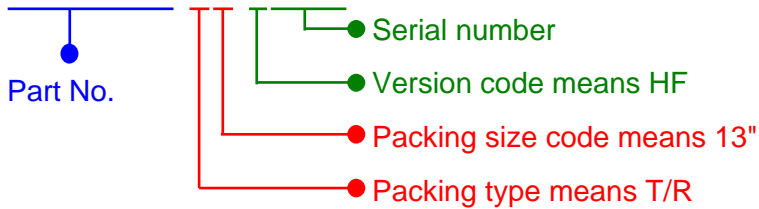
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For example :

RB500V-40_R2_00001



Part No_packing code_Version

BC847BFN3_R1_00001

BC847BFN3_R1_10001

Packing Code XX				Version Code XXXXX		
Packing type	1st Code	Packing size code	2nd Code	HF or RoHS	1st Code	2nd~5th Code
T/B	A	N/A	0	HF	0	serial number
T/R	R	7"	1	RoHS	1	serial number
B/P	B	13"	2			
T/P	T	26mm	X			
TRR	S	52mm	Y			
TRL	L	PBCU	U			
FORMING	F	PBCD	D			