



BC847BFN3

NPN GENERAL PURPOSE TRANSISTORS

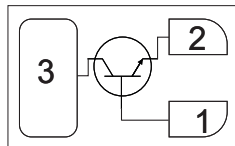
VOLTAGE 45 Volt **DCK 9F** 250 mWatt

FEATURES

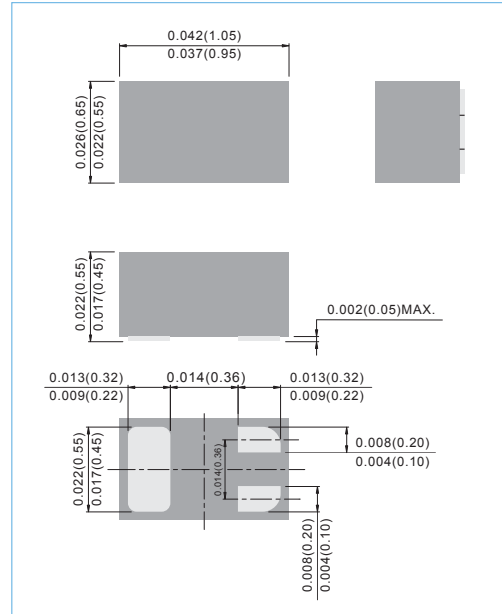
- General purpose amplifier applications
- NPN epitaxial silicon, planar design
- Collector current IC = 100mA
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)

MECHANICAL DATA

- Case: DFN 3L, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Marking: AE



DFN 3L Unit : inch(mm)



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

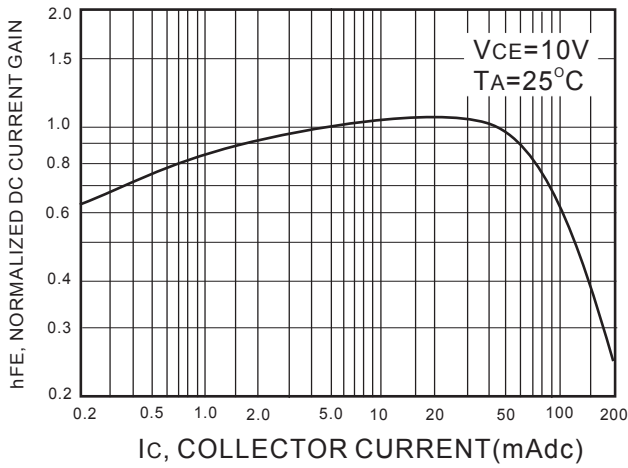


Figure 1. Normalized DC Current Gain

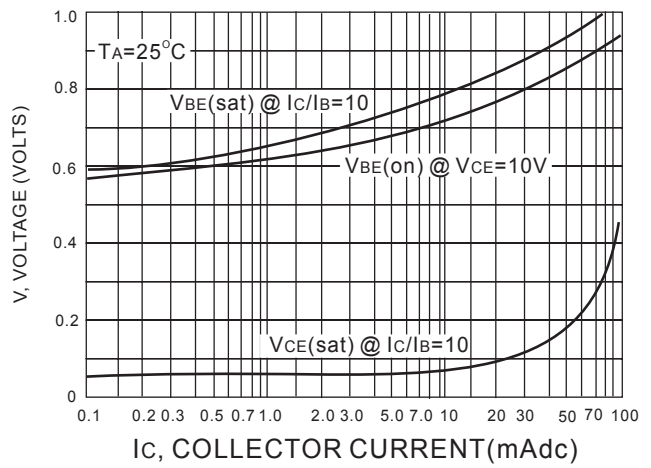


Figure 2. "Saturation" and "On" Voltages

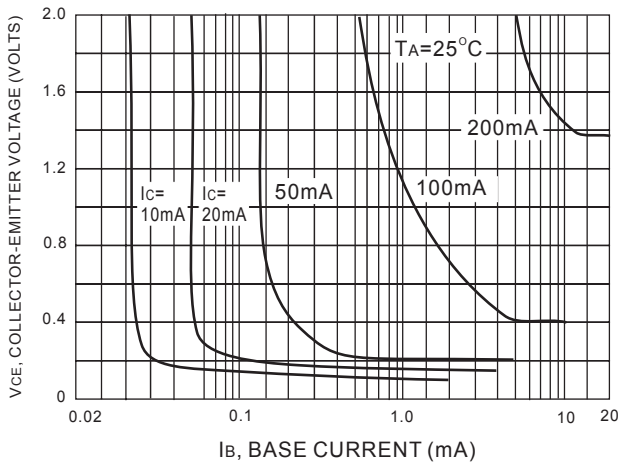


Figure 3. Collector Saturation Region

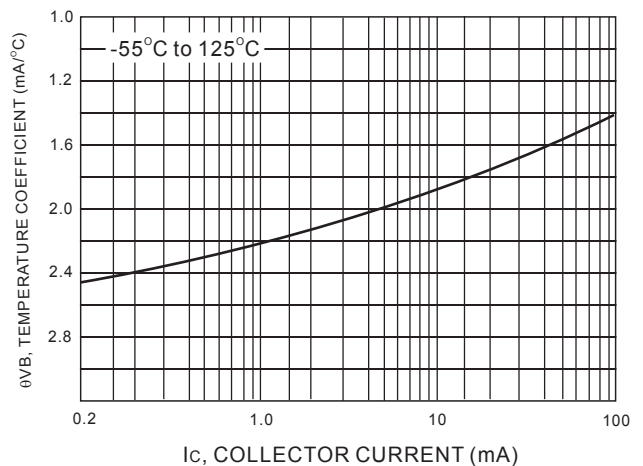


Figure 4. Base-Emitter Temperature Coefficient

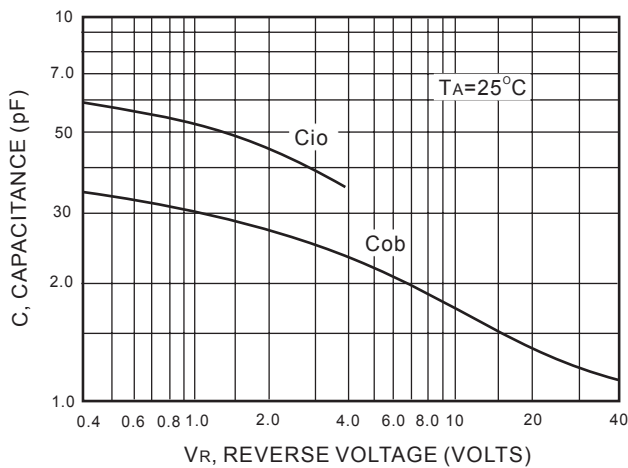


Figure 5. Capacitance

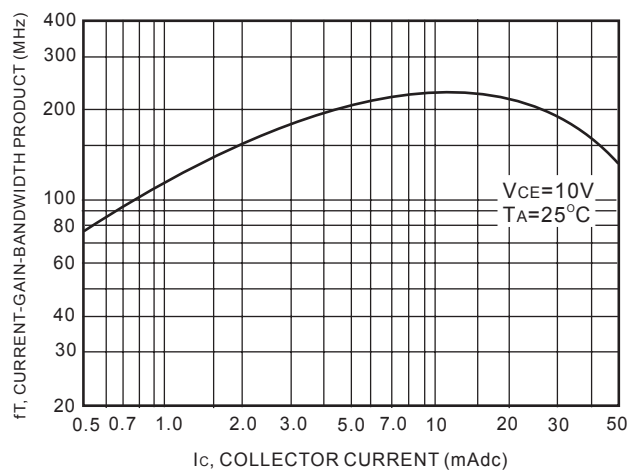


Figure 6. Current-Gain-Bandwidth Product



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ELECTRICAL CHARACTERISTICS CURVE

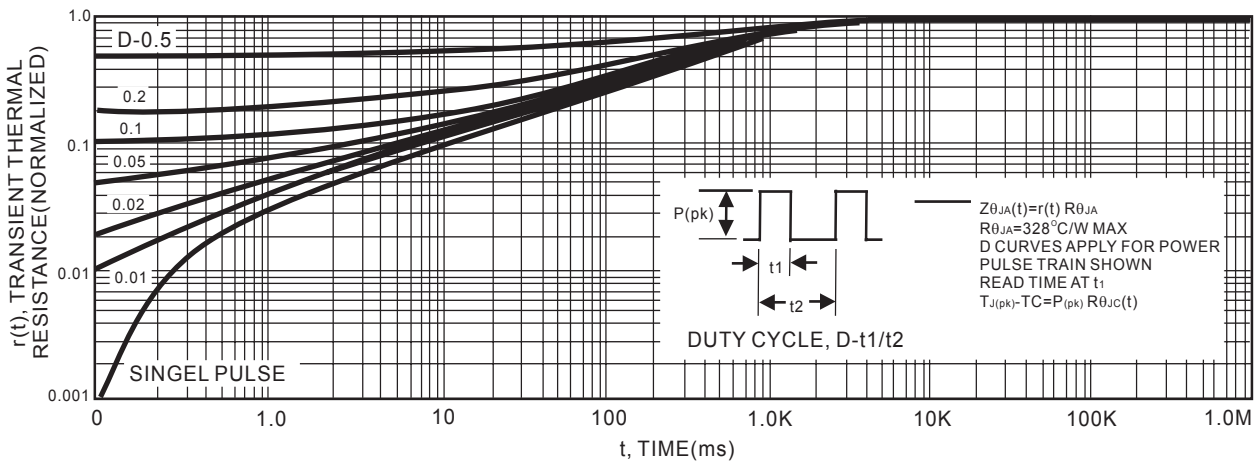


Figure 7. Thermal Response

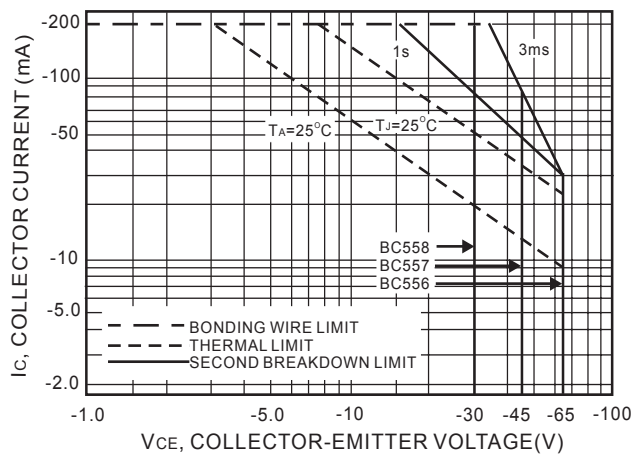


Figure 8. Active Region Safe Operating Area

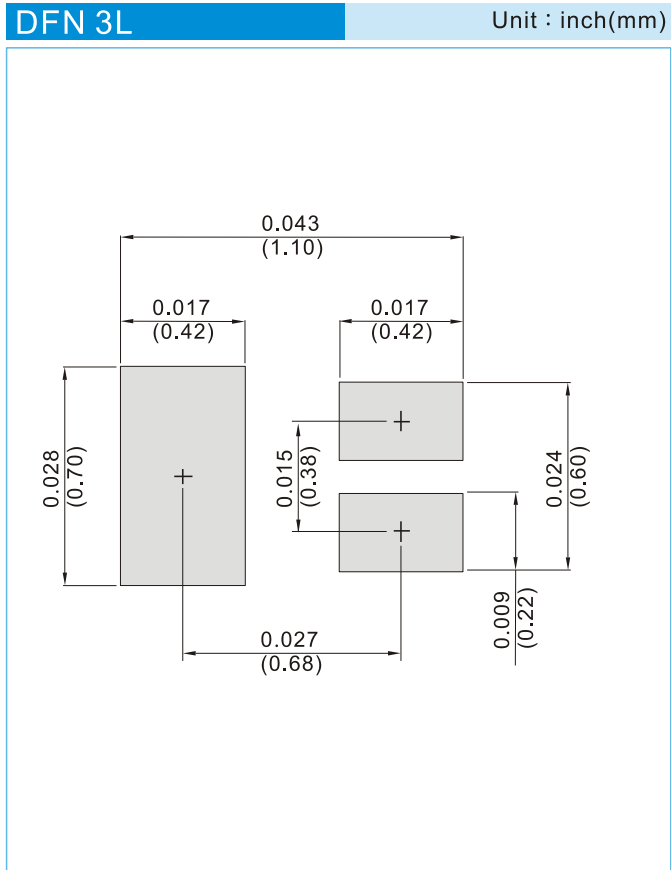
The safe operating area curves indicate I_c - V_{ce} limits of the transistor that must be observed for reliable operation. Collector load lines for specific circuits must fall below the limits indicated by the applicable curve.

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



BC847BFN3

Part No_packing code_Version
BC847BFN3_R1_00001

For example :

RB500V-40_R2_00001



Packing Code XX				Version Code XXXXX		
Packing type	1 st Code	Packing size code	2 nd Code	HF or RoHS	1 st Code	2 nd ~5 th Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



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