

BC847BFN3

NPN General Purpose Transistors

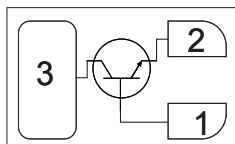
VOLTAGE 45 Volt **POWER** 250 mWatt

FEATURES

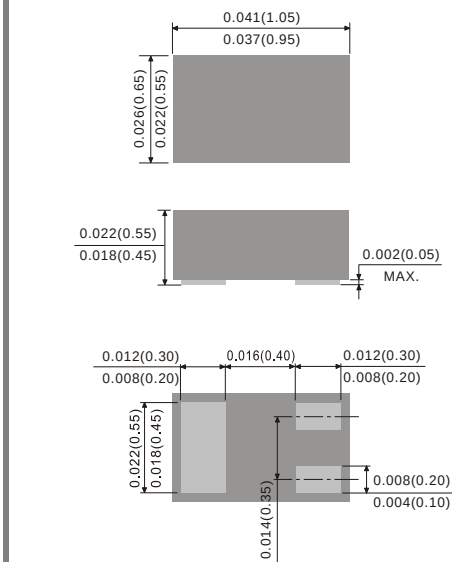
- General purpose amplifier applications
- NPN epitaxial silicon, planar design
- Collector current IC = 100mA
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

MECHANICAL DATA

- Case : DFN1006-3L, Plastic
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0007 grams



DFN1006-3L Dimension 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	$R_{\theta JA}$	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.

PAN JI T RESERVES THE RIGHT TO IMPROVE PRODUCT DESIGN,FUNCTIONS AND RELIABILITY WITHOUT NOTICE

BC847BFN3

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	$I_C=0.2\text{mA}$, $V_{CE}=5.0\text{Vdc}$, $R_S=2.0\text{k}\Omega$, $f=1.0\text{kHz}$, $\text{BW}=200\text{Hz}$	-	-	10	dB

BC847BFN3

ELECTRICAL CHARACTERISTICS CURVE

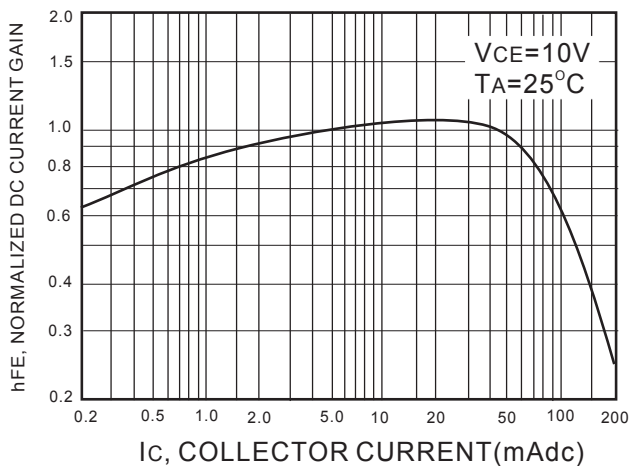


Figure 1. Normalized DC Current Gain

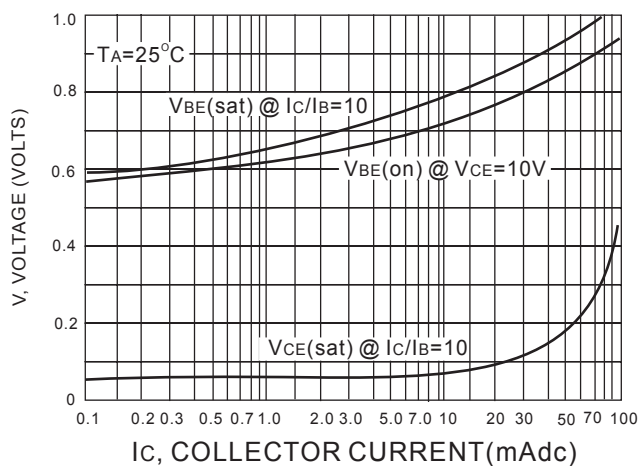


Figure 2. "Saturation" and "On" Voltages

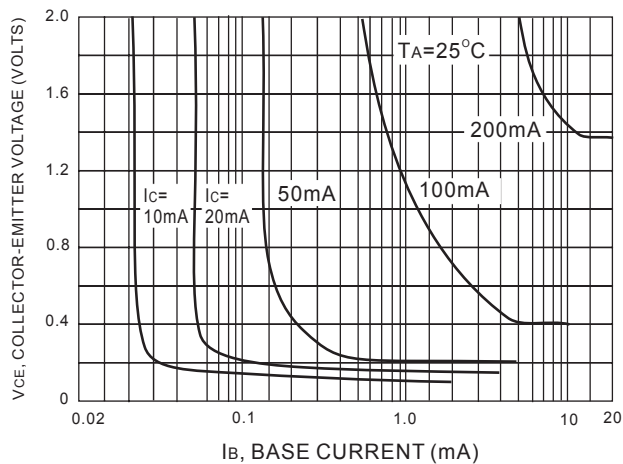


Figure 3. Collector Saturation Region

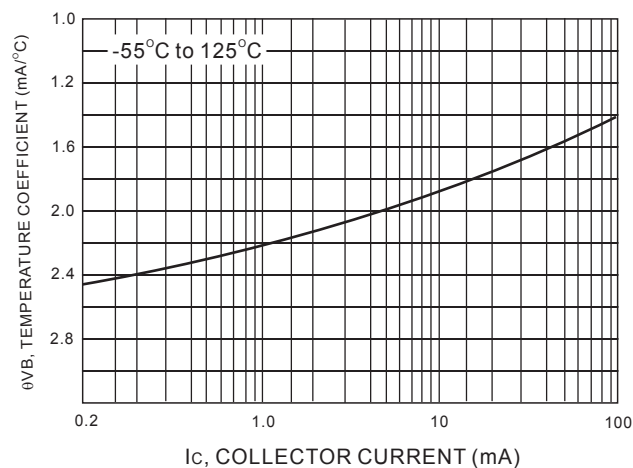


Figure 4. Base-Emitter Temperature Coefficient

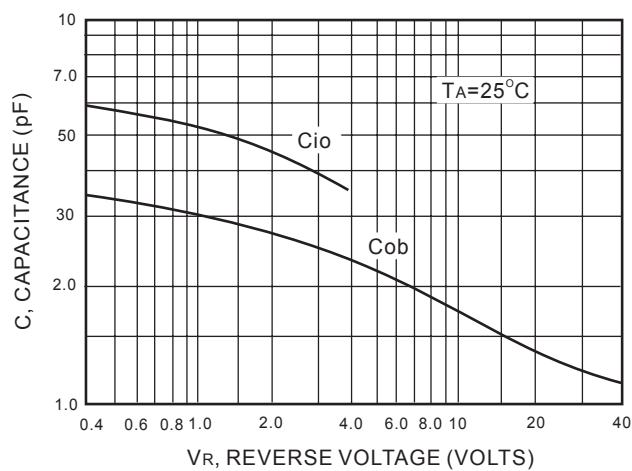


Figure 5. Capacitance

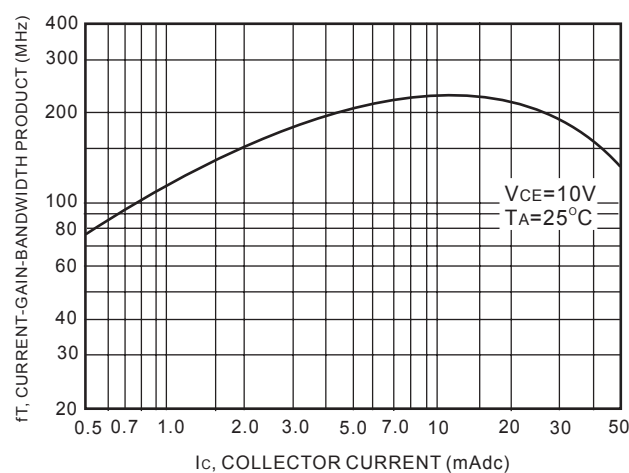


Figure 6. Current-Gain-Bandwidth Product

BC847BFN3

ELECTRICAL CHARACTERISTICS CURVE

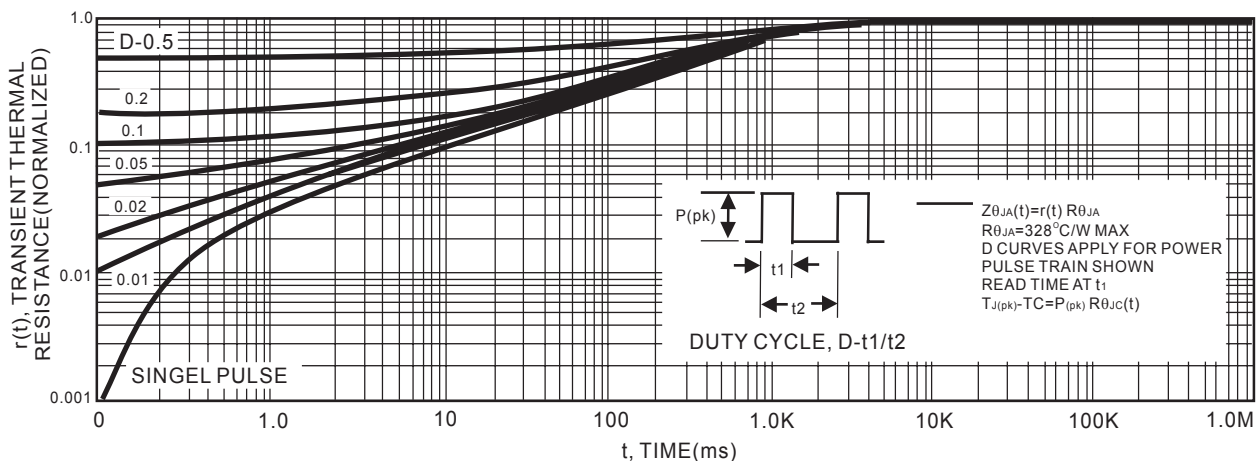


Figure 7. Thermal Response

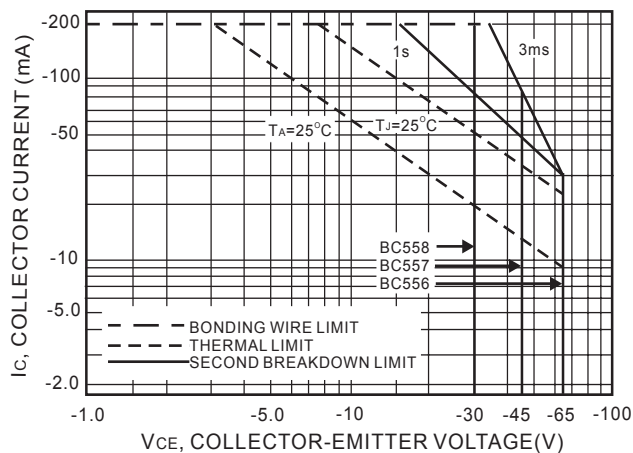


Figure 8. Active Region Safe Operating Area

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.

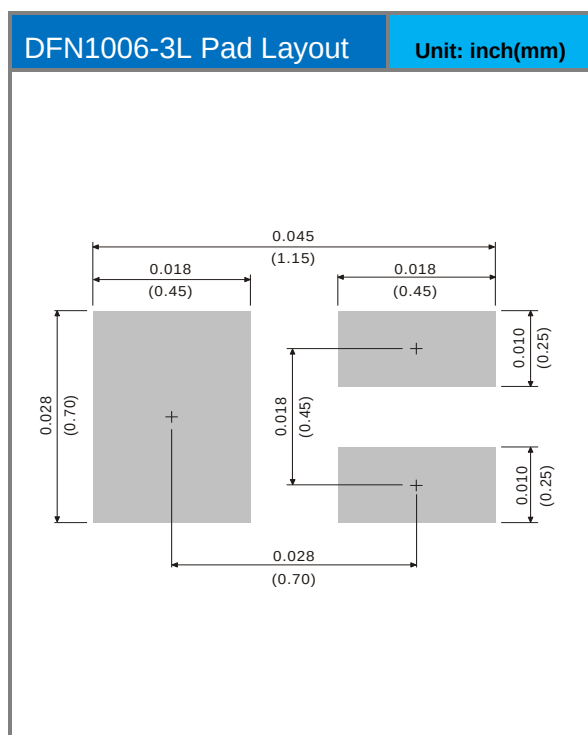
The data of Figure 26 is based upon $T_J(pk) = 150^\circ\text{C}$; T_c or T_a is variable depending upon conditions. Pulse curves are valid for duty cycles to 10% provided $T_J(pk) < 150^\circ\text{C}$. $T_J(pk)$ may be calculated from the data in Figure 25. At high case or ambient temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by the secondary break-down.

BC847BFN3

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
BC847BFN3	DFN1006-3L	10K pcs / 7" reel	AE

Mounting Pad Layout



BC847BFN3

Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..
- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.
- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.
- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Panjit:](#)

[BC847BFN3_R1_00001](#) [BC847BFN3_R1_10001](#) [BC847BFN3_R1_00501](#)