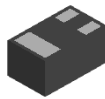


NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR
Features

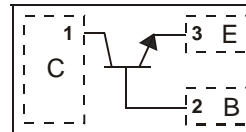
- Epitaxial Die Construction
- Ultra-Small Leadless Surface Mount Package
- Ultra Low Profile (0.4mm max)
- Complementary PNP Type Available (BC857BLP4)
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

Mechanical Data

- Case: DFN1006H4-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections Indicator: Collector Dot
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Ordering Information: See Page 3
- Marking Information: See Page 3
- Weight: 0.0008 grams (approximate)



Bottom View


 Top View
Internal Schematic

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	100	mA

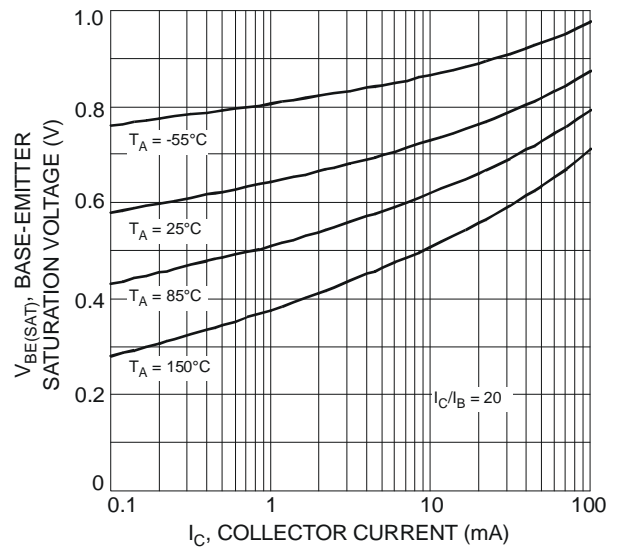
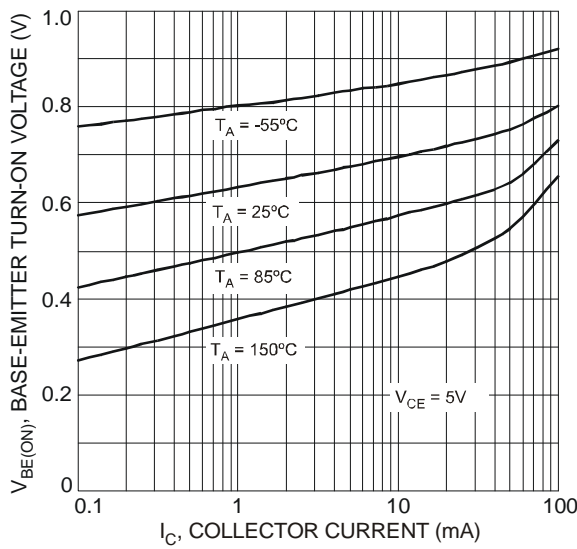
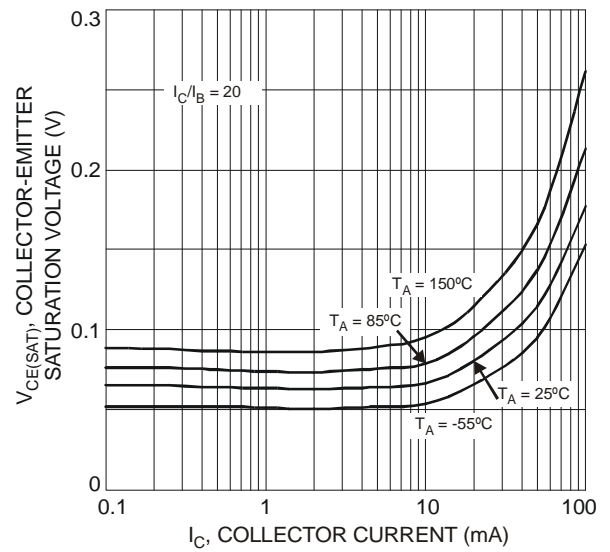
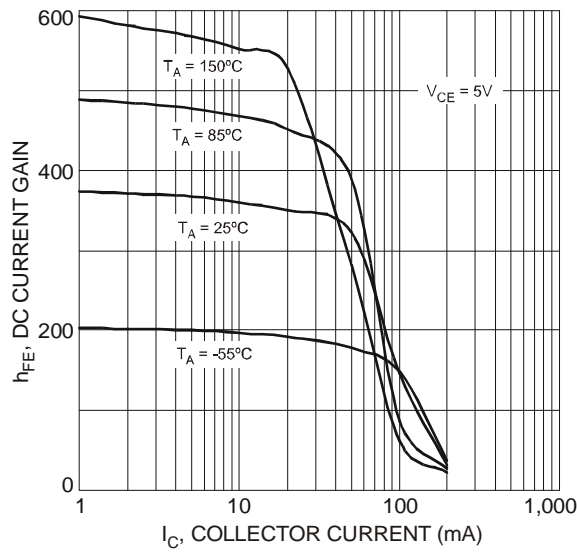
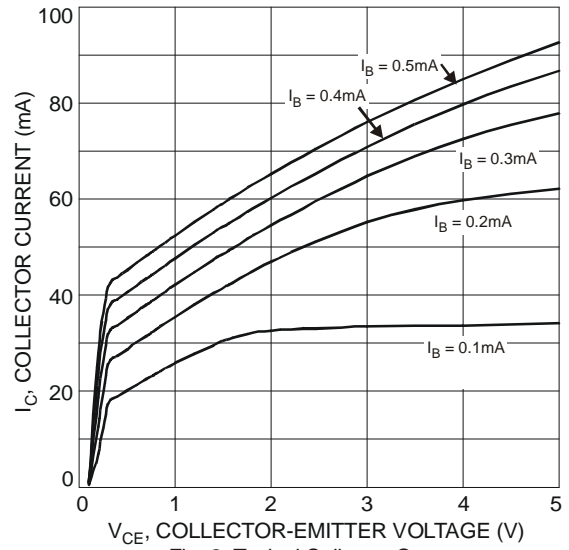
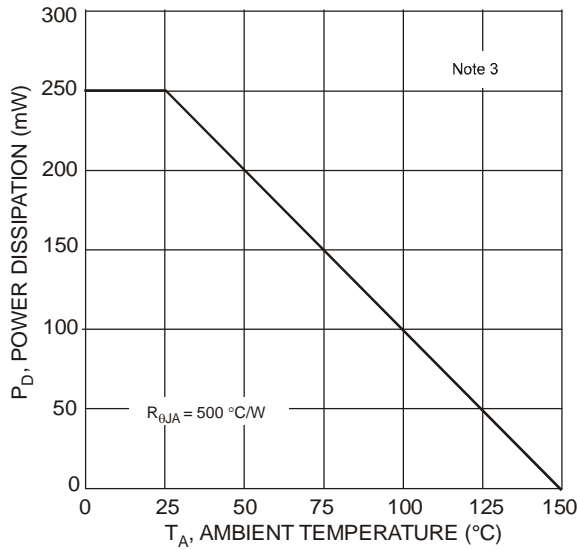
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ $T_A = 25^\circ\text{C}$	P_D	250	mW
Thermal Resistance, Junction to Ambient (Note 3) @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic (Note 4)	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50	—	—	V	$I_C = 10\mu\text{A}, I_B = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45	—	—	V	$I_C = 10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	—	—	V	$I_E = 1\mu\text{A}, I_C = 0$
DC Current Gain	h_{FE}	200	350	450	—	$V_{CE} = 5.0\text{V}, I_C = 2.0\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	80 200	250 600	mV	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5.0\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	700 900	—	mV	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5.0\text{mA}$
Base-Emitter Voltage	$V_{BE(ON)}$	580 —	640 725	700 770	mV	$V_{CE} = 5.0\text{V}, I_C = 2.0\text{mA}$ $V_{CE} = 5.0\text{V}, I_C = 10\text{mA}$
Collector-Cutoff Current	I_{CBO}	—	—	15 5.0	nA μA	$V_{CB} = 30\text{V}$ $V_{CB} = 30\text{V}, T_A = 150^\circ\text{C}$
Gain Bandwidth Product	f_T	100	—	—	MHz	$V_{CE} = 5.0\text{V}, I_C = 10\text{mA}$, $f = 100\text{MHz}$
Collector-Base Capacitance	C_{CBO}	—	3.0	—	pF	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$

- Notes:
1. No purposefully added lead.
 2. Diodes Inc's "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php
 3. Device mounted on FR-4 PCB, pad layout as shown on page 3, or Diodes Inc. suggested pad layout document AP02001 on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 4. Short duration pulse test used to minimize self-heating effect.



Ordering Information (Note 5)

Part Number	Case	Packaging
BC847BLP4-7	DFN1006H4-3	3000/Tape & Reel

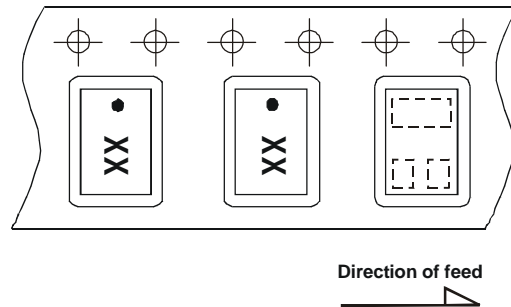
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information

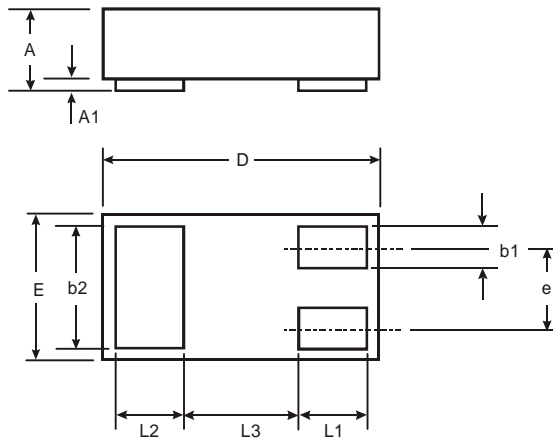


F1 = Product Type Marking Code
Dot Denotes Collector Side

DFN1006H4-3 Taping orientation

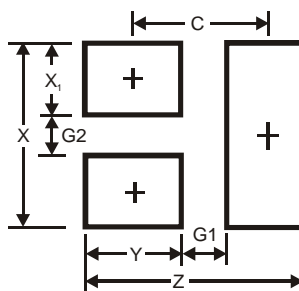


Package Outline Dimensions



DFN1006H4-3			
Dim	Min	Max	Typ
A	—	0.40	—
A1	0	0.05	0.02
b1	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	—	—	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	—	—	0.40
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	1.1
G1	0.3
G2	0.2
X	0.7
X1	0.25
Y	0.4
C	0.7

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2009, Diodes Incorporated

www.diodes.com