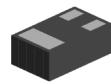


PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR
Features

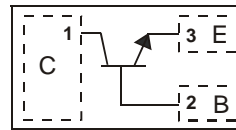
- Epitaxial Die Construction
- Ultra-Small Leadless Surface Mount Package
- Ultra-low Profile (0.40mm max)
- Complementary NPN Type Available (BC847BLP4)
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

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
Device 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} | -5.0 | V |
| Collector Current | I_C | -100 | mA |

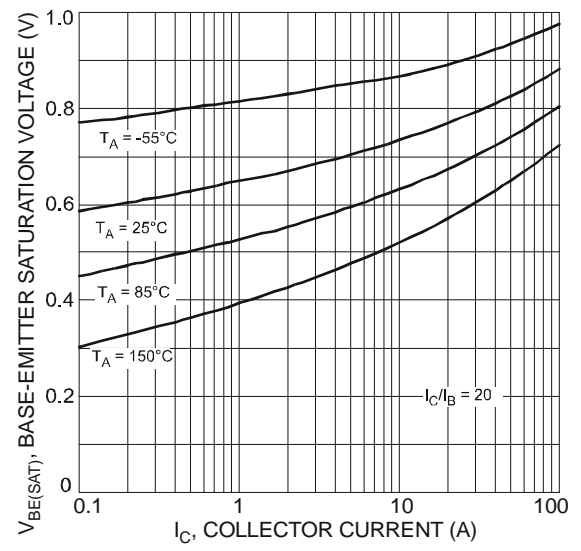
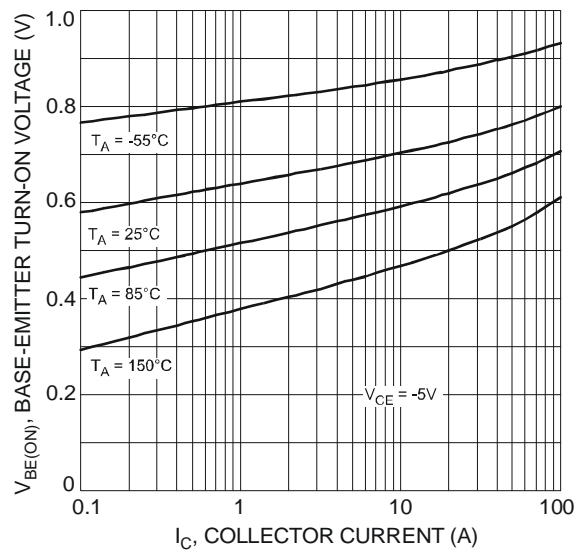
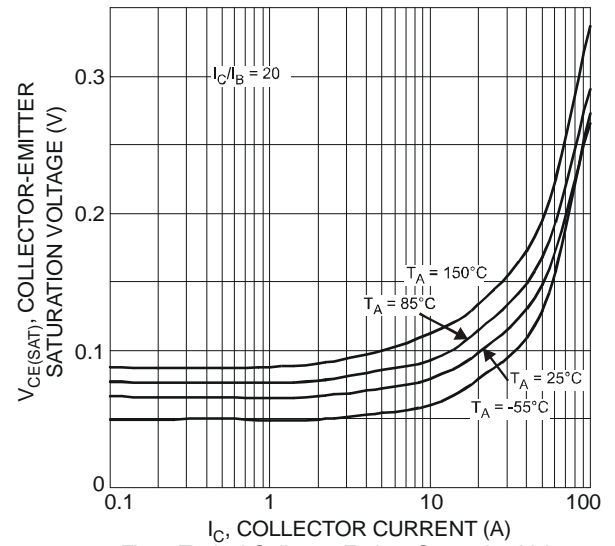
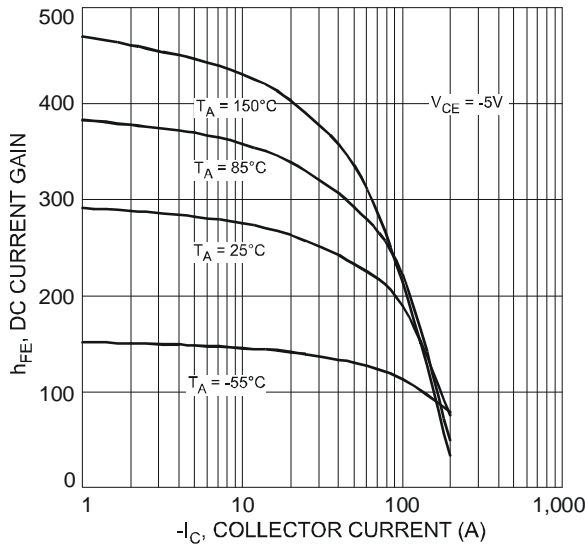
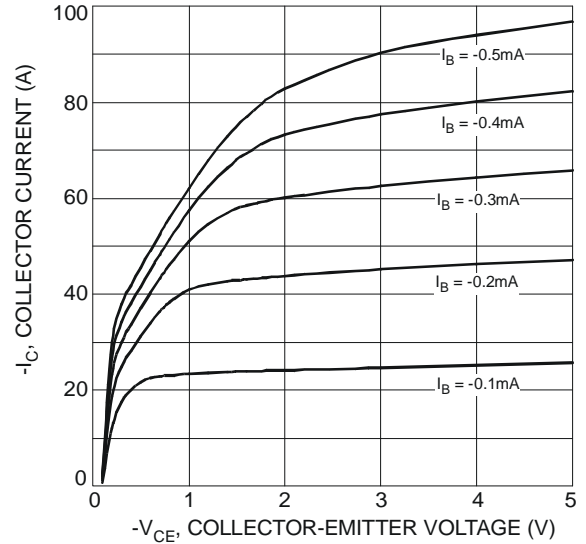
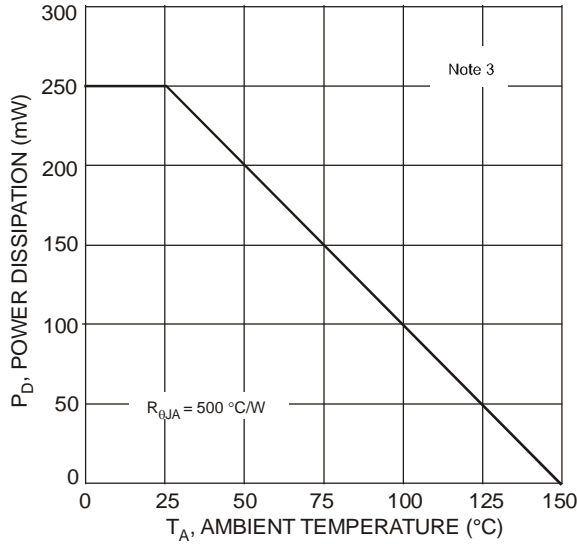
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|---------------------------|
| Power Dissipation (Note 3) @ $T_A = 25^\circ\text{C}$ | P_D | 250 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 3) @ $T_A = 25^\circ\text{C}$ | $R_{\theta JA}$ | 500 | $^\circ\text{C}/\text{W}$ |
| 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 | $V_{(BR)EBO}$ | -5 | — | — | V | $I_E = 1\mu\text{A}, I_C = 0$ |
| DC Current Gain | h_{FE} | 220 | 300 | 475 | — | $V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | — | -90 -250 | -300 -650 | 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 -850 | — | 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 | $V_{BE(ON)}$ | -600 — | -670 -710 | -750 -820 | 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 -4.0 | 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.

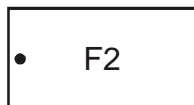


Ordering Information (Note 5)

| Part Number | Case | Packaging |
|-------------|-------------|------------------|
| BC857BLP4-7 | DFN1006H4-3 | 3000/Tape & Reel |

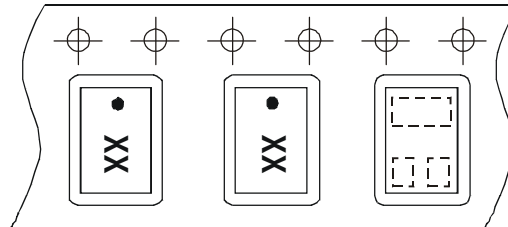
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



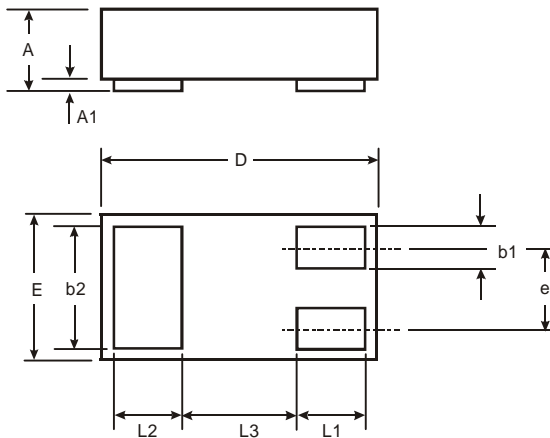
F2 = Product Type Marking Code
Dot Denotes Collector, Terminal 3

DFN1006H4-3 Taping orientation



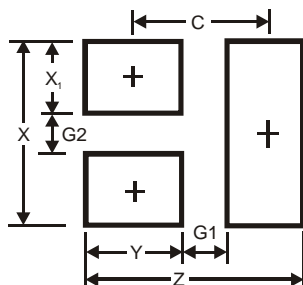
Direction of feed

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 |

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