

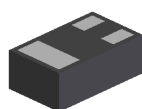
## Features

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

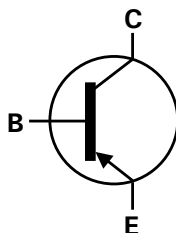
## Mechanical Data

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

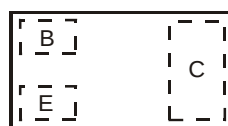
DFN1006H4-3



Bottom View



Device Symbol



Top View  
Device Schematic

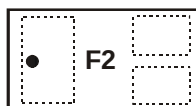
## Ordering Information (Note 3)

| Product      | Marking | Reel size (inches) | Tape width (mm) | Quantity per reel |
|--------------|---------|--------------------|-----------------|-------------------|
| BC857BLP4-7  | F2      | 7                  | 8               | 3,000             |
| BC857BLP4-7B | F2      | 7                  | 8               | 10,000            |

- Notes:
1. No purposefully added lead.
  2. Diodes Inc's "Green" policy can be found on our website at <http://www.diodes.com>.
  3. For packaging details, go to our website at <http://www.diodes.com>.

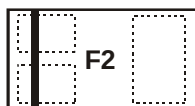
## Marking Information

BC857BLP4-7



Top View  
Dot Denotes  
Collector Side

BC857BLP4-7B



Top View  
Bar Denotes Base  
and Emitter Side

F2 = Product Type Marking Code

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic            | Symbol           | Value | Unit |
|---------------------------|------------------|-------|------|
| Collector-Base Voltage    | V <sub>CBO</sub> | -50   | V    |
| Collector-Emitter Voltage | V <sub>CEO</sub> | -45   | V    |
| Emitter-Base Voltage      | V <sub>EBO</sub> | -5.0  | V    |
| Collector Current         | I <sub>C</sub>   | -100  | mA   |

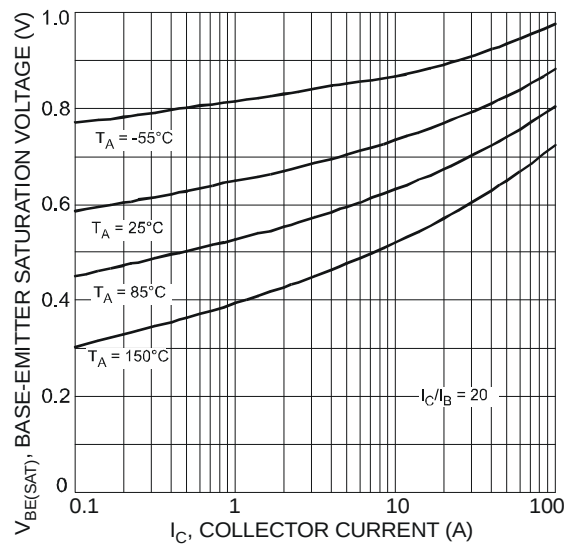
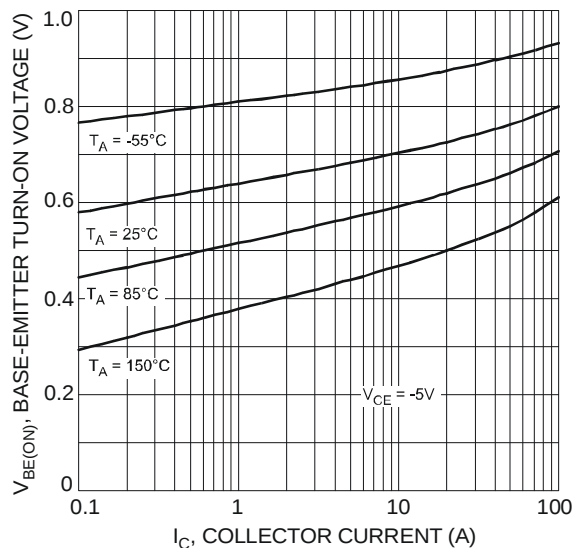
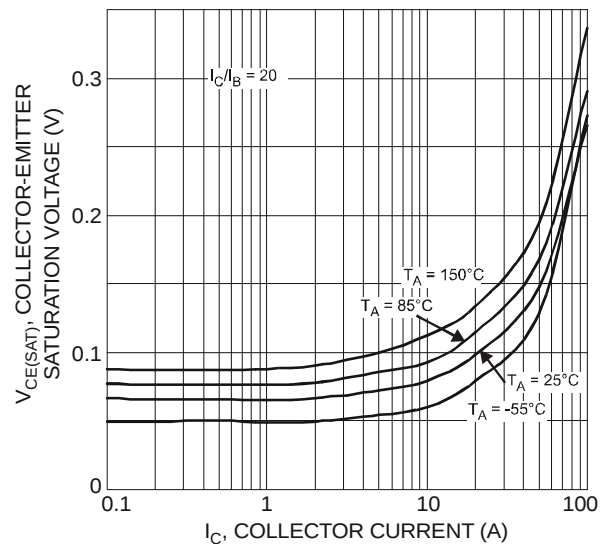
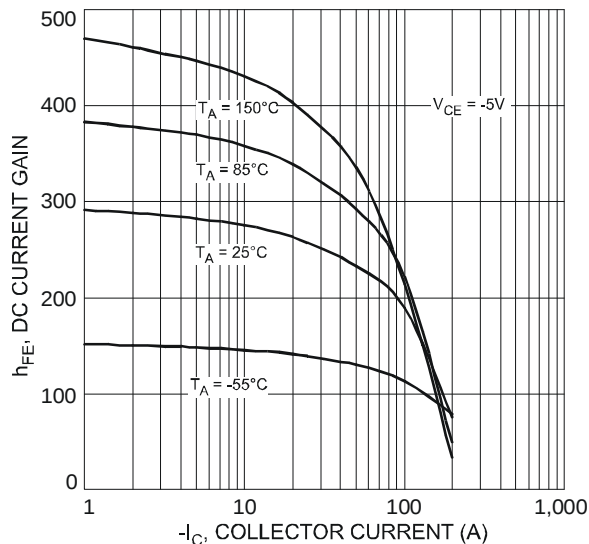
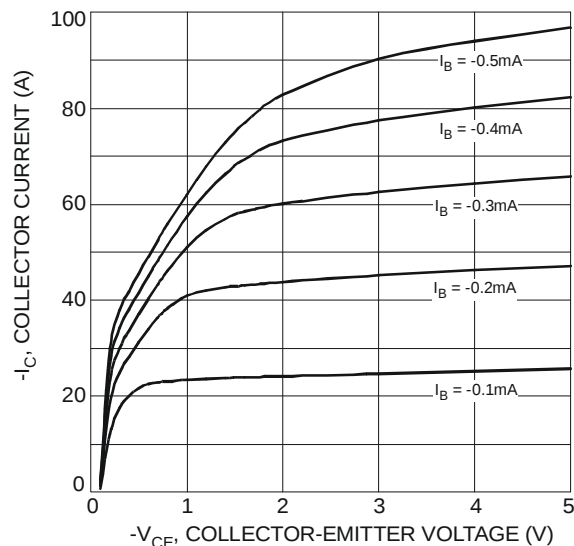
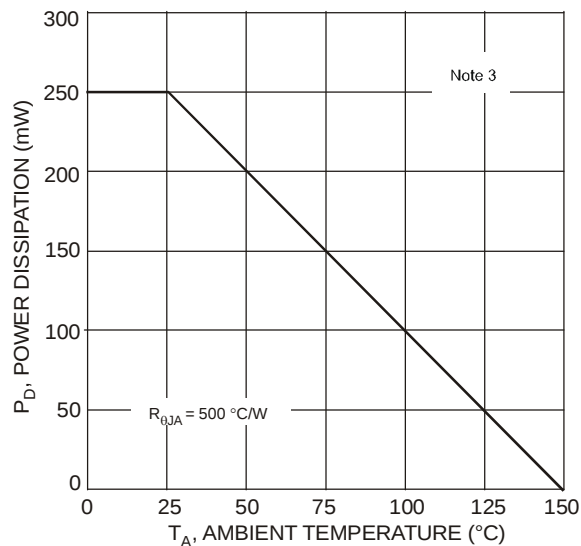
**Thermal Characteristics**

| Characteristic                                                              | Symbol                            | Value       | Unit |
|-----------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 4) @T <sub>A</sub> = 25°C                           | P <sub>D</sub>                    | 250         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 4) @T <sub>A</sub> = 25°C | R <sub>θJA</sub>                  | 500         | °C/W |
| Operating and Storage Temperature Range                                     | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |

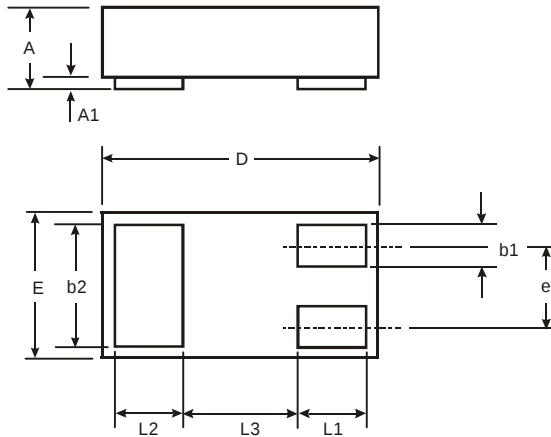
**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic (Note 5)              | Symbol               | Min       | Typ          | Max          | Unit     | Test Condition                                                                                      |
|--------------------------------------|----------------------|-----------|--------------|--------------|----------|-----------------------------------------------------------------------------------------------------|
| Collector-Base Breakdown Voltage     | V <sub>(BR)CBO</sub> | -50       | —            | —            | V        | I <sub>C</sub> = 10μA, I <sub>B</sub> = 0                                                           |
| Collector-Emitter Breakdown Voltage  | V <sub>(BR)CEO</sub> | -45       | —            | —            | V        | I <sub>C</sub> = 10mA, I <sub>B</sub> = 0                                                           |
| Emitter-Base Breakdown Voltage       | V <sub>(BR)EBO</sub> | -5        | —            | —            | V        | I <sub>E</sub> = 1μA, I <sub>C</sub> = 0                                                            |
| DC Current Gain                      | h <sub>FE</sub>      | 220       | 300          | 475          | —        | V <sub>CE</sub> = -5.0V, I <sub>C</sub> = -2.0mA                                                    |
| Collector-Emitter Saturation Voltage | V <sub>CE(SAT)</sub> | —         | -90<br>-250  | -300<br>-650 | mV       | I <sub>C</sub> = -10mA, I <sub>B</sub> = -0.5mA<br>I <sub>C</sub> = -100mA, I <sub>B</sub> = -5.0mA |
| Base-Emitter Saturation Voltage      | V <sub>BE(SAT)</sub> | —         | -700<br>-850 | —            | mV       | I <sub>C</sub> = -10mA, I <sub>B</sub> = -0.5mA<br>I <sub>C</sub> = -100mA, I <sub>B</sub> = -5.0mA |
| Base-Emitter Voltage                 | V <sub>BE(ON)</sub>  | -600<br>— | -670<br>-710 | -750<br>-820 | mV       | V <sub>CE</sub> = -5.0V, I <sub>C</sub> = -2.0mA<br>V <sub>CE</sub> = -5.0V, I <sub>C</sub> = -10mA |
| Collector-Cutoff Current             | I <sub>CBO</sub>     | —<br>—    | —<br>—       | -15<br>-4.0  | nA<br>μA | V <sub>CB</sub> = -30V<br>V <sub>CB</sub> = -30V, T <sub>A</sub> = 150°C                            |
| Gain Bandwidth Product               | f <sub>T</sub>       | 100       | —            | —            | MHz      | V <sub>CE</sub> = -5.0V, I <sub>C</sub> = -10mA,<br>f = 100MHz                                      |
| Collector-Base Capacitance           | C <sub>CBO</sub>     | —         | 3.0          | —            | pF       | V <sub>CB</sub> = -10V, f = 1.0MHz                                                                  |

Notes: 4. Device mounted on FR-4 PCB, pad layout as shown on Diodes Inc. suggested pad layout document AP02001 on our website at <http://www.diodes.com>  
5. Short duration pulse test used to minimize self-heating effect.

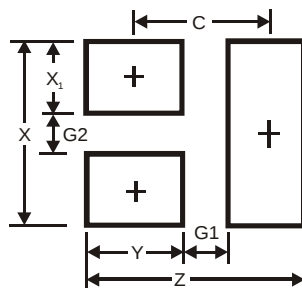


## Package Outline Dimensions



| 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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