

Features

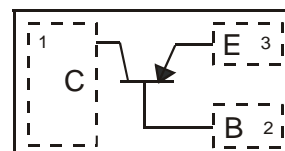
- Epitaxial Die Construction
- Complementary NPN Type Available (BC847BLP)
- Ultra-Small Leadless Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- 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: 0.0009 grams



BOTTOM VIEW


 TOP VIEW
 (Internal Schematic)

DFN1006-3

Maximum Ratings @T_A = 25°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°C | P _D | 250 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 3) @T _A = 25°C | R _{θJA} | 500 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

Electrical Characteristics @T_A = 25°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 = 10μA, I _B = 0 |
| Collector-Emitter Breakdown Voltage | V _{(BR)CEO} | -45 | — | — | V | I _C = 10mA, I _B = 0 |
| Emitter-Base Breakdown Voltage | V _{(BR)EBO} | -5 | — | — | V | I _E = 1μA, I _C = 0 |
| DC Current Gain | h _{FE} | 220 | 260 | 475 | — | V _{CE} = -5.0V, I _C = -2.0mA |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | — | -90 -250 | -300 -650 | mV | I _C = -10mA, I _B = -0.5mA I _C = -100mA, I _B = -5.0mA |
| Base-Emitter Saturation Voltage | V _{BE(SAT)} | — | -700 -850 | — | mV | I _C = -10mA, I _B = -0.5mA I _C = -100mA, I _B = -5.0mA |
| Base-Emitter Voltage | V _{BE(ON)} | -600 — | -670 -710 | -750 -820 | mV | V _{CE} = -5.0V, I _C = -2.0mA V _{CE} = -5.0V, I _C = -10mA |
| Collector-Cutoff Current | I _{CBO} | — | — | -15 -4.0 | nA μA | V _{CB} = -30V V _{CB} = -30V, T _A = 150°C |
| Gain Bandwidth Product | f _T | 100 | — | — | MHz | V _{CE} = -5.0V, I _C = -10mA, f = 100MHz |
| Collector-Base Capacitance | C _{CBO} | — | 3.0 | — | pF | V _{CB} = -10V, f = 1.0MHz |

- 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.

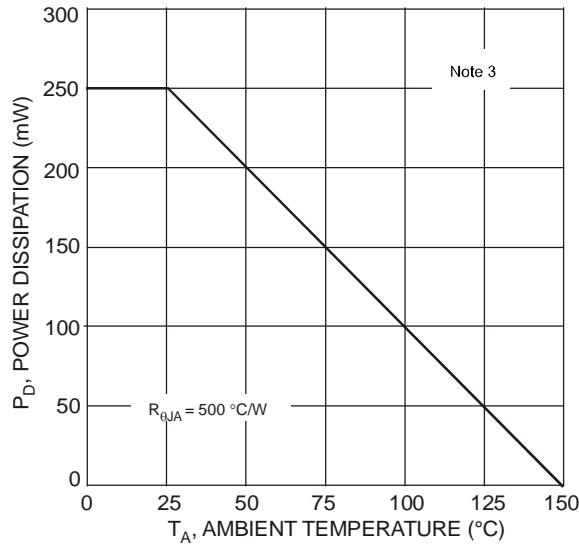


Fig. 1 Power Derating Curve

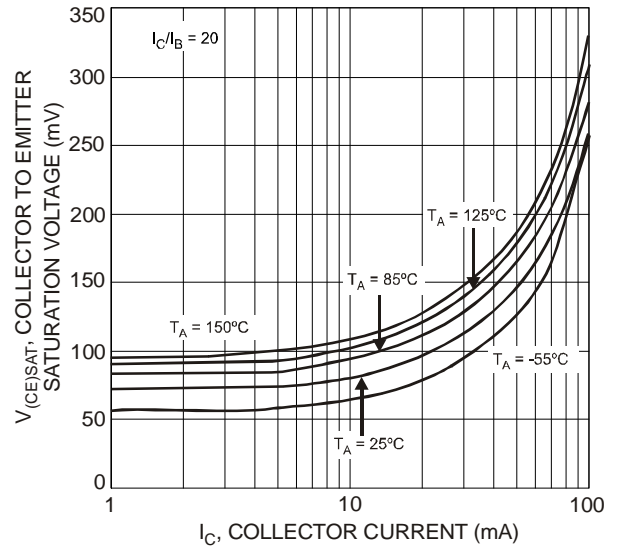


Fig. 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current

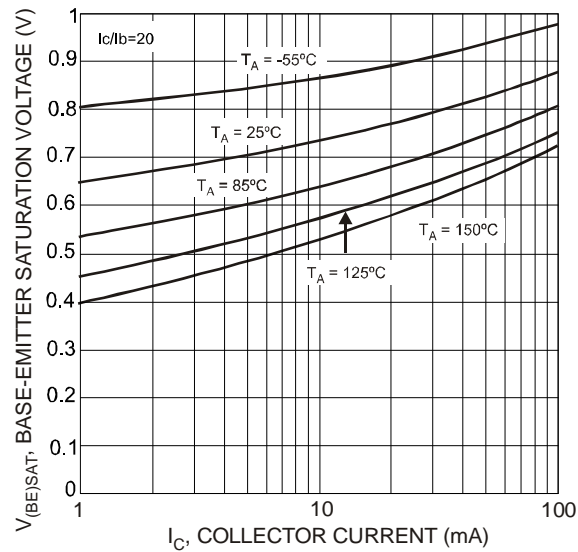


Fig. 3 Typical Base-Emitter Saturation Voltage vs. Collector Current

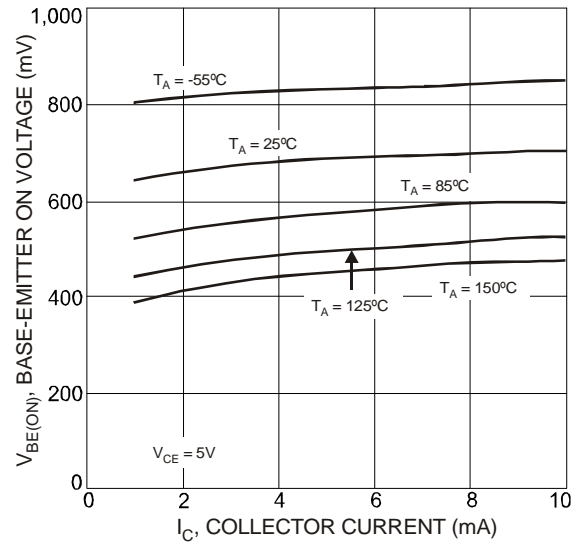


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

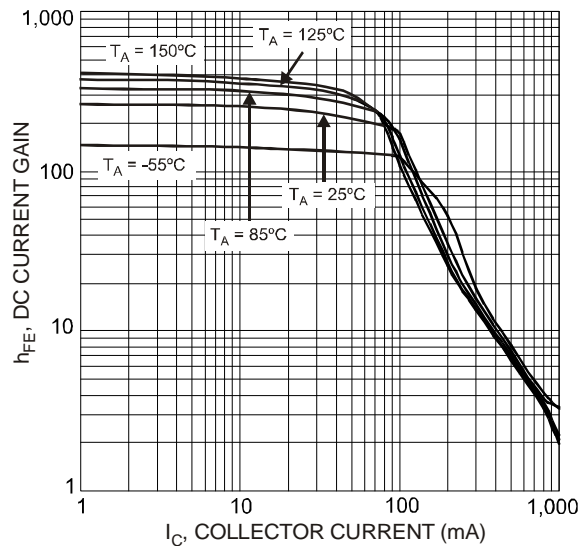


Fig. 5 Typical DC Current Gain vs. Collector Current

Ordering Information (Note 5)

| Device | Packaging | Shipping |
|------------|-----------|------------------|
| BC857BLP-7 | DFN1006-3 | 3000/Tape & Reel |

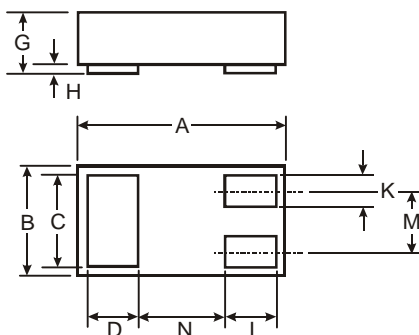
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



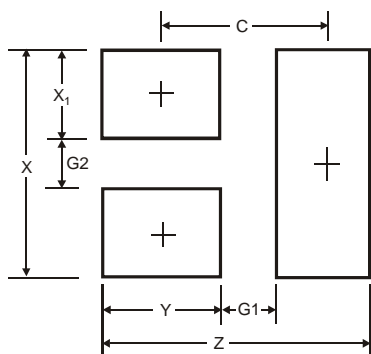
3W = Product Type Marking Code
Dot Denotes Collector, Pin 3

Mechanical Details



| DFN1006-3 | | | |
|----------------------|------|-------|------|
| Dim | Min | Max | Typ |
| A | 0.95 | 1.075 | 1.00 |
| B | 0.55 | 0.675 | 0.60 |
| C | 0.45 | 0.55 | 0.50 |
| D | 0.20 | 0.30 | 0.25 |
| G | 0.47 | 0.53 | 0.50 |
| H | 0 | 0.05 | 0.03 |
| K | 0.10 | 0.20 | 0.15 |
| L | 0.20 | 0.30 | 0.25 |
| M | — | — | 0.35 |
| N | — | — | 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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