

Features

- Ultra-Small Leadless Surface Mount Package
- Complementary NPN Type Available (2DC4617QLP)
- "Lead Free", RoHS Compliant (Note 1)
- Halogen and Antimony Free, "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

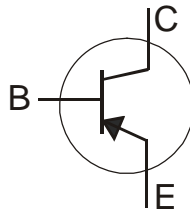
Mechanical Data

- Case: DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.0008 grams (approximate)

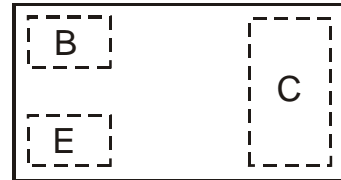
DFN1006-3



Bottom View



Device Symbol


 Top View
Device Schematic

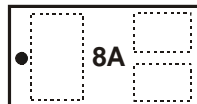
Ordering Information (Note 3)

| Product | Marking | Reel size (inches) | Tape width (mm) | Quantity per reel |
|---------------|---------|--------------------|-----------------|-------------------|
| 2DA1774QLP-7 | 8A | 7 | 8 | 3,000 |
| 2DA1774QLP-7B | 8A | 7 | 8 | 10,000 |

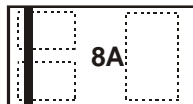
- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
 3. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information

2DA1774QLP-7


 Top View
Dot Denotes Collector Side

2DA1774QLP-7B


 Top View
Bar Denotes Base and Emitter Side

8A = Product Type Marking Code

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} | -40 | V |
| Emitter-Base Voltage | V _{EBO} | -5.0 | V |
| Collector Current - Continuous | I _C | -100 | mA |
| Peak Collector Current | I _{CM} | -200 | mA |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation @T _A = 25°C (Note 4) | P _D | 250 | mW |
| Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 4) | 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 | Symbol | Min | Max | Unit | Test Condition |
|--------------------------------------|----------------------|------|------------|----------|--|
| OFF CHARACTERISTICS (Note 5) | | | | | |
| Collector-Base Breakdown Voltage | V _{(BR)CBO} | -50 | — | V | I _C = -50μA, I _E = 0 |
| Collector-Emitter Breakdown Voltage | V _{(BR)CEO} | -40 | — | V | I _C = -1mA, I _B = 0 |
| Emitter-Base Breakdown Voltage | V _{(BR)EBO} | -5.0 | — | V | I _E = -50μA, I _C = 0 |
| Collector Cutoff Current | I _{CBO} | — | -100 -5 | nA μA | V _{CB} = -30V V _{CB} = -30V, T _A = 150°C |
| Emitter Cutoff Current | I _{EBO} | — | -100 | nA | V _{EB} = -4.0V |
| ON CHARACTERISTICS (Note 5) | | | | | |
| DC Current Gain | h _{FE} | 120 | 270 | — | V _{CE} = -6.0V, I _C = -1.0mA |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | — | -0.2 | V | I _C = -50mA, I _B = -5.0mA |
| SMALL SIGNAL CHARACTERISTICS | | | | | |
| Output Capacitance | C _{obo} | — | 5.0 | pF | V _{CB} = -12V, f = 1.0MHz, I _E = 0 |
| Current Gain-Bandwidth Product | f _T | 100 | — | MHz | V _{CE} = -12V, I _C = -2.0mA, f = 100MHz |

Notes: 4. Part mounted on FR-4 PCB with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
5. Short duration pulse test used to minimize self-heating effect.

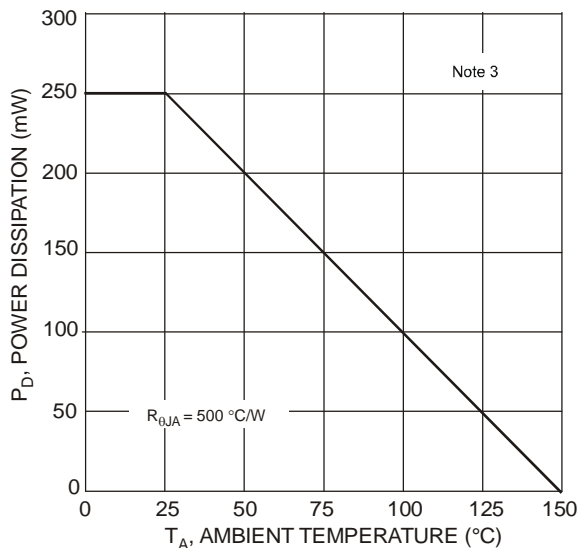


Fig. 1 Power Derating Curve

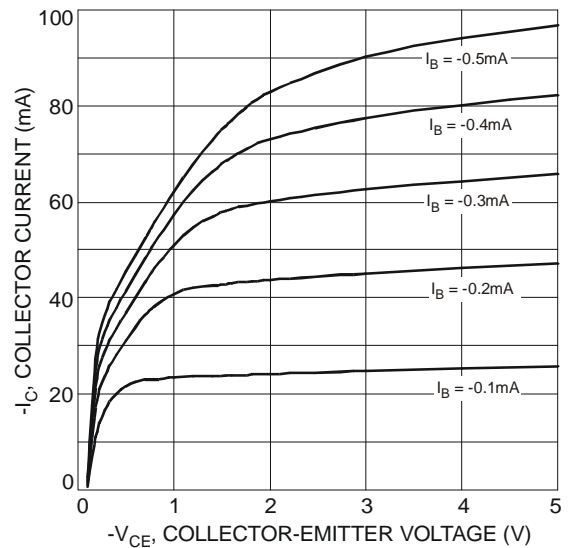


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

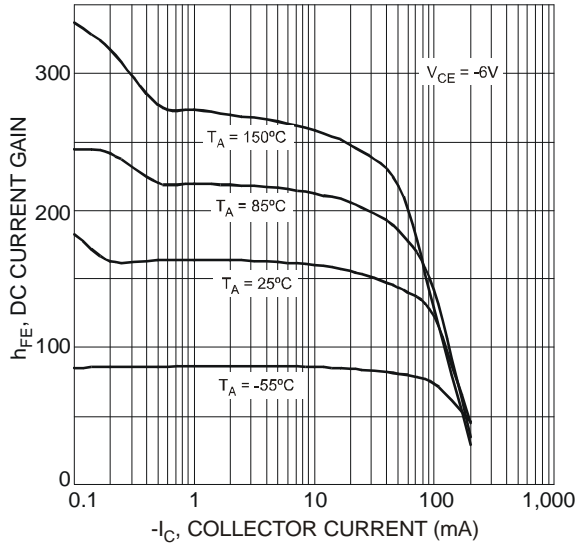


Fig. 3 Typical DC Current Gain vs. Collector Current

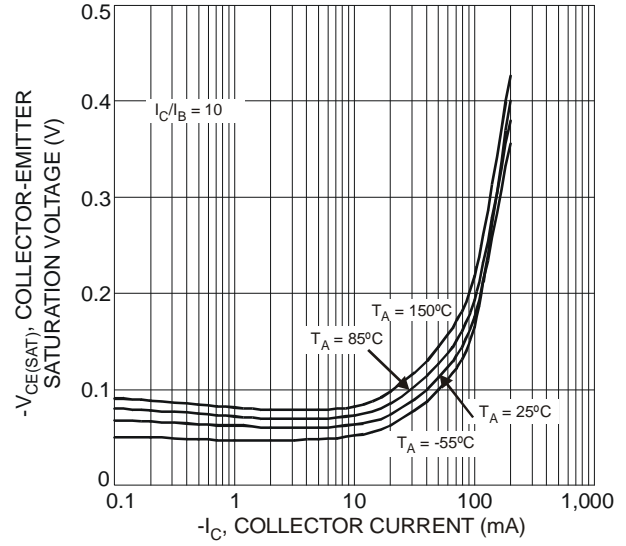


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

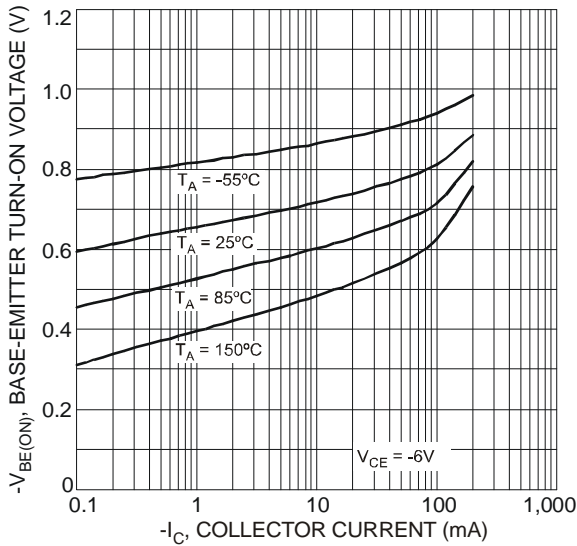


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

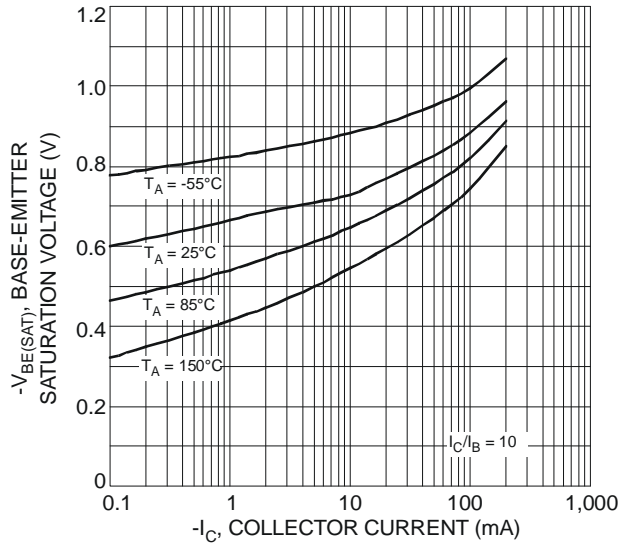
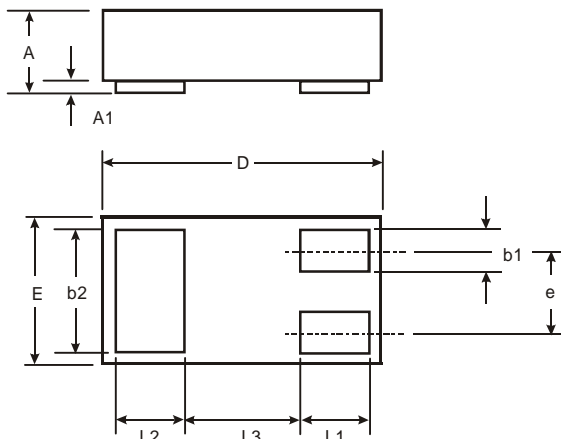


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

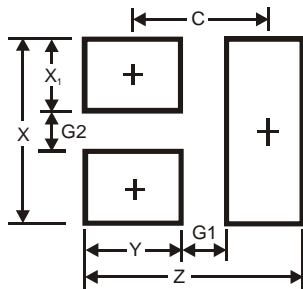
Package Outline Dimensions



| DFN1006-3 | | | |
|-----------|------|-------|------|
| Dim | Min | Max | Typ |
| A | 0.47 | 0.53 | 0.50 |
| A1 | 0 | 0.05 | 0.03 |
| 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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