

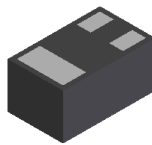
Features

- Epitaxial Die Construction
- Ultra-Small Leadless Surface Mount Package
- Ultra-low Profile (0.40mm max)
- Complementary NPN Type Available (DN0150ALP4 / DN0150BLP4)
- "Lead Free", RoHS Compliant (Note 1)
- Halogen and Antimony Free, "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

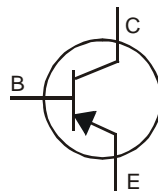
Mechanical Data

- Case: 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)

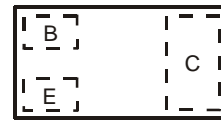
DFN1006H4-3



Bottom View



Device Symbol



Top View
Device Schematic

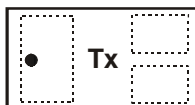
Ordering Information (Note 3)

| Product | Marking | Reel size (inches) | Tape width (mm) | Quantity per reel |
|---------------|---------|--------------------|-----------------|-------------------|
| DP0150ALP4-7 | T5 | 7 | 8 | 3,000 |
| DP0150ALP4-7B | T5 | 7 | 8 | 10,000 |
| DP0150BLP4-7 | T6 | 7 | 8 | 3,000 |
| DP0150BLP4-7B | T6 | 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>.

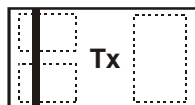
Marking Information

DP0150ALP4-7
DP0150BLP4-7



Top View
Dot Denotes
Collector Side

DP0150ALP4-7B
DP0150BLP4-7B



Top View
Bar Denotes Base
and Emitter Side

Tx = Product Type Marking Code
T5 = DP0150ALP4
T6 = DP0150BLP4

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} | -50 | V |
| Emitter-Base Voltage | V _{EBO} | -5 | V |
| Collector Current - Continuous | I _C | -100 | mA |
| Peak Pulse Collector Current | I _{CM} | -200 | mA |
| Base Current | I _B | -30 | mA |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation (Note 4) | P _D | 450 | mW |
| Thermal Resistance, Junction to Ambient (Note 4) | R _{θJA} | 278 | °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 | Typ | Max | Unit | Test Condition |
|--|----------------------|-----|-------|------|------|---|
| OFF CHARACTERISTICS | | | | | | |
| Collector-Base Breakdown Voltage | V _{(BR)CBO} | -50 | — | — | V | I _C = -10μA, I _E = 0 |
| Collector-Emitter Breakdown Voltage (Note 5) | V _{(BR)CEO} | -50 | — | — | V | I _C = -1mA, I _B = 0 |
| Emitter-Base Breakdown Voltage | V _{(BR)EBO} | -5 | — | — | V | I _E = -10μA, I _C = 0 |
| Collector Cut-Off Current | I _{CB0} | — | — | -0.1 | μA | V _{CB} = -50V, I _E = 0 |
| Emitter Cut-Off Current | I _{EBO} | — | — | -0.1 | μA | V _{EB} = -5V, I _C = 0 |
| ON CHARACTERISTICS (Note 5) | | | | | | |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | — | -0.15 | -0.3 | V | I _C = -100mA, I _B = -10mA |
| DC Current Gain | h _{FE} | 120 | — | 240 | — | V _{CE} = -6V, I _C = -2mA |
| | | 200 | — | 400 | | |
| SMALL SIGNAL CHARACTERISTICS | | | | | | |
| Transition Frequency | f _T | 80 | — | — | MHz | V _{CE} = -10V, I _E = 1mA f = 30MHz |
| Output Capacitance | C _{ob} | — | 1.6 | — | pF | V _{CB} = -10V, I _E = 0, f = 1MHz |

- Notes:
- Device mounted on FR-4 PCB with minimum recommended pad layout.
 - Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%

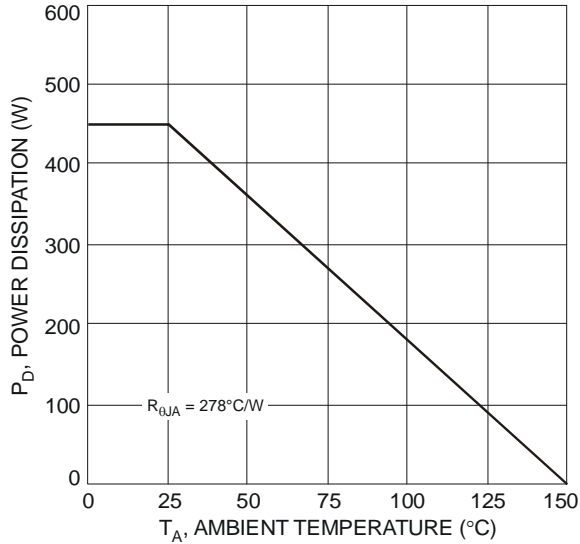


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

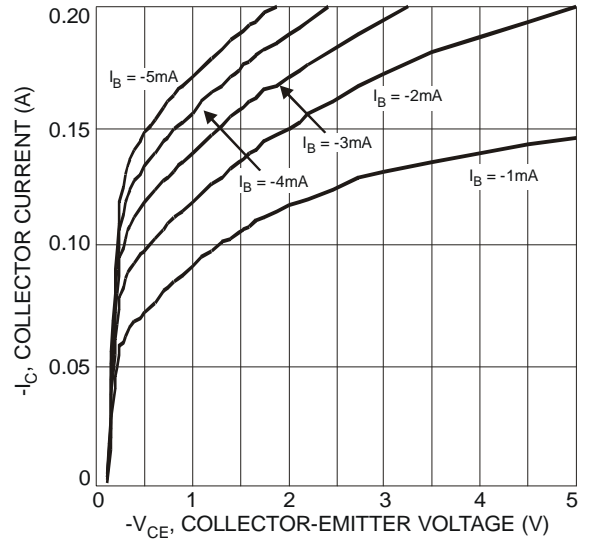


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage (DN0150BLP4)

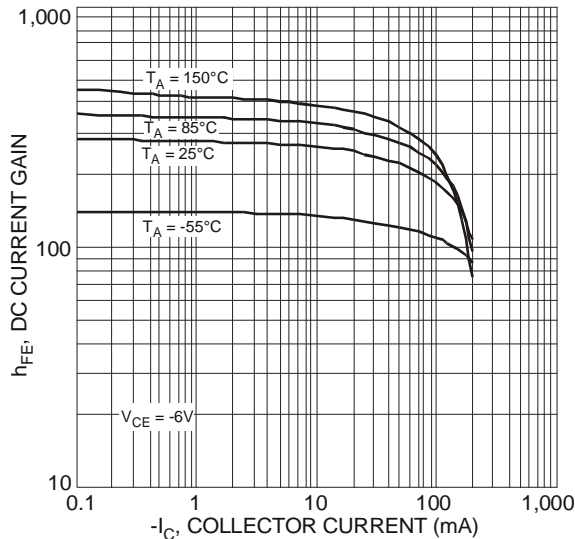


Fig. 3 Typical DC Current Gain vs. Collector Current (DN0150BLP4)

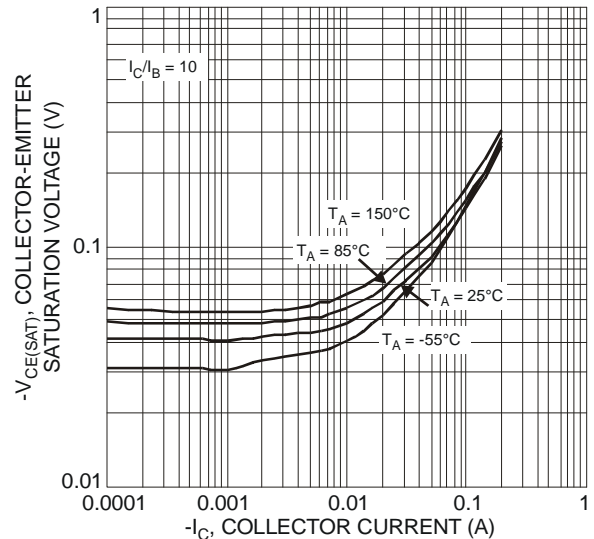


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

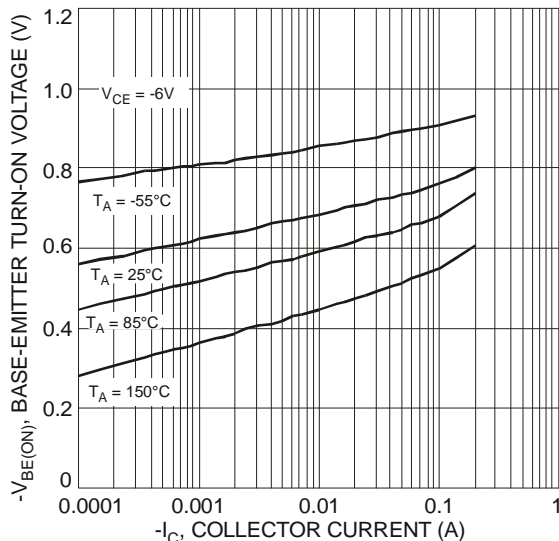


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

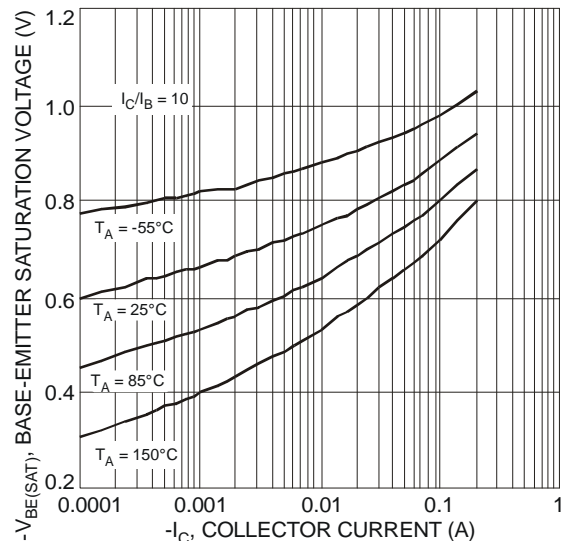


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

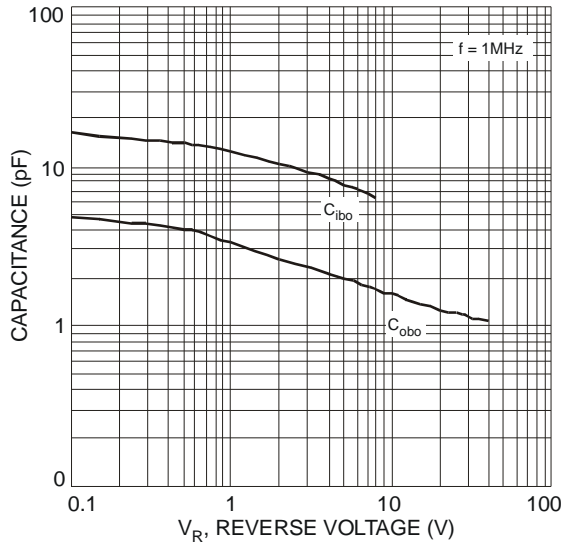


Fig. 7 Typical Capacitance Characteristics

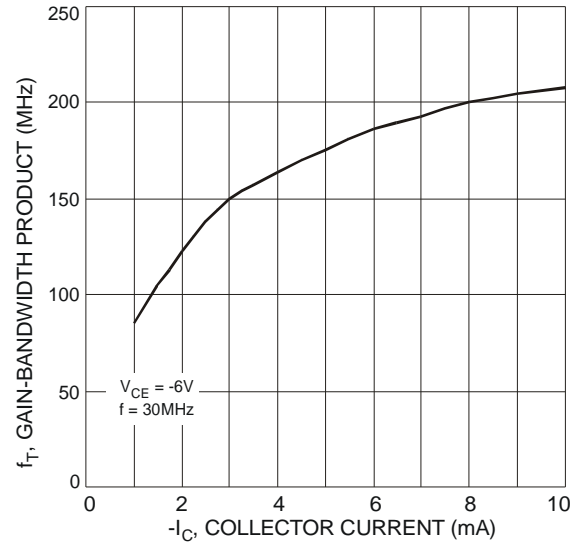
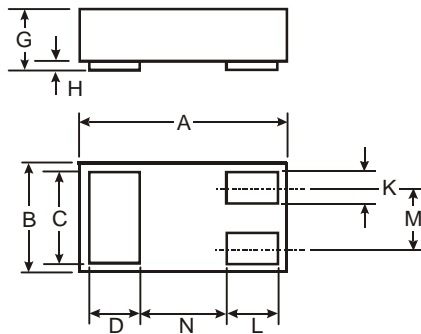


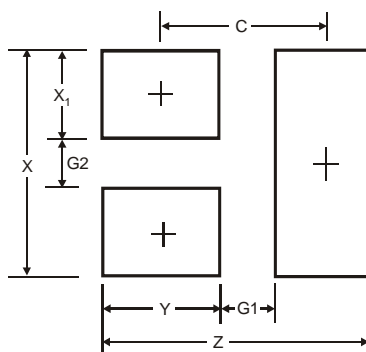
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions



| DFN1006H4-3 | | | |
|----------------------|------|-------|------|
| 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 | — | 0.40 | — |
| H | 0 | 0.05 | 0.02 |
| 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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