

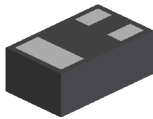
**Features**

- Epitaxial Die Construction
- Ultra-Small Leadless Surface Mount Package
- Ultra Low Profile (0.4mm max)
- Complementary PNP Type Available (DP0150ALP4/DP0150BLP4)
- **“Lead Free”, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free, “Green” Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

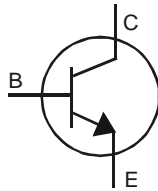
**Mechanical Data**

- 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)

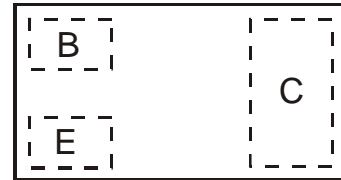
DFN1006H4-3



Bottom View



Device Symbol



Top View  
Pin Configuration

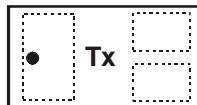
**Ordering Information** (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DN0150ALP4-7	T3	7	8	3,000
DN0150ALP4-7B	T3	7	8	10,000
DN0150BLP4-7	T4	7	8	3,000
DN0150BLP4-7B	T4	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>.

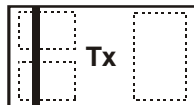
**Marking Information**

DN0150ALP4-7  
DN0150BLP4-7



Top View  
Dot Denotes  
Collector Side

DN0150ALP4-7B  
DN0150BLP4-7B



Top View  
Bar Denotes Base  
and Emitter Side

Tx = Product Type Marking Code  
T5 = DN0150ALP4  
T6 = DN0150BLP4

**Maximum Ratings** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	60	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)	$R_{\theta JA}$	278	$^\circ\text{C/W}$
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	Symbol	Min	Typ	Max	Unit	Test Condition	
<b>OFF CHARACTERISTICS</b>							
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60	—	—	V	$I_C = 10\mu\text{A}, I_E = 0$	
Collector-Emitter Breakdown Voltage (Note 5)	$V_{(BR)CEO}$	50	—	—	V	$I_C = 1\text{mA}, I_B = 0$	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10\mu\text{A}, I_C = 0$	
Collector Cut-Off Current	$I_{CBO}$	—	—	0.1	$\mu\text{A}$	$V_{CB} = 60\text{V}, I_E = 0$	
Emitter Cut-Off Current	$I_{EBO}$	—	—	0.1	$\mu\text{A}$	$V_{EB} = 5\text{V}, I_C = 0$	
<b>ON CHARACTERISTICS (Note 5)</b>							
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	0.10	0.25	V	$I_C = 100\text{mA}, I_B = 10\text{mA}$	
DC Current Gain	DN0150ALP4 DN0150BLP4	$h_{FE}$	120	—	240	—	$V_{CE} = 6\text{V}, I_C = 2\text{mA}$
			200	—	400		
<b>SMALL SIGNAL CHARACTERISTICS</b>							
Transition Frequency	$f_T$	60	—	—	MHz	$V_{CE} = 10\text{V}, I_E = -1\text{mA}$ $f = 30\text{MHz}$	
Output Capacitance	$C_{ob}$	—	1.3	—	pF	$V_{CB} = 10\text{V}, I_E = 0,$ $f = 1\text{MHz}$	

- Notes:
- Device mounted on FR-4 PCB with minimum recommended pad layout.
  - Measured under pulsed conditions. Pulse width = 300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

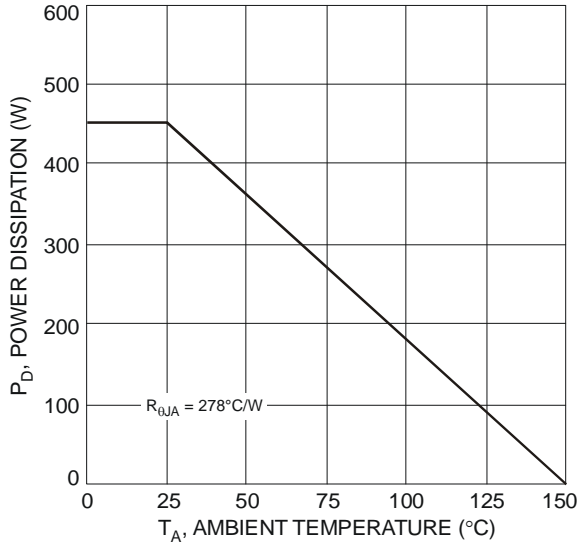


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

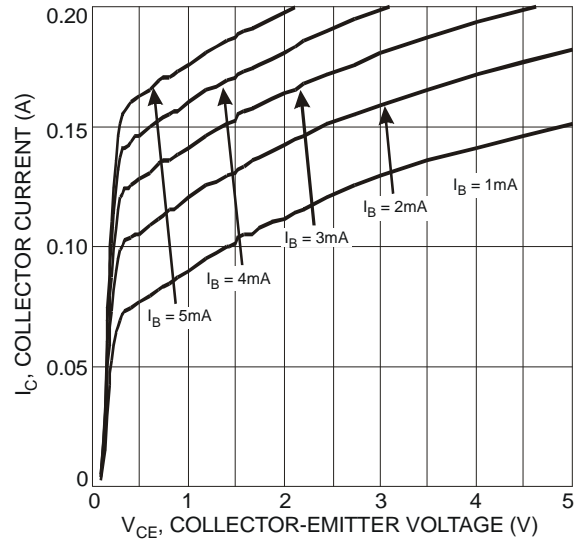


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage (DN0150BLP4)

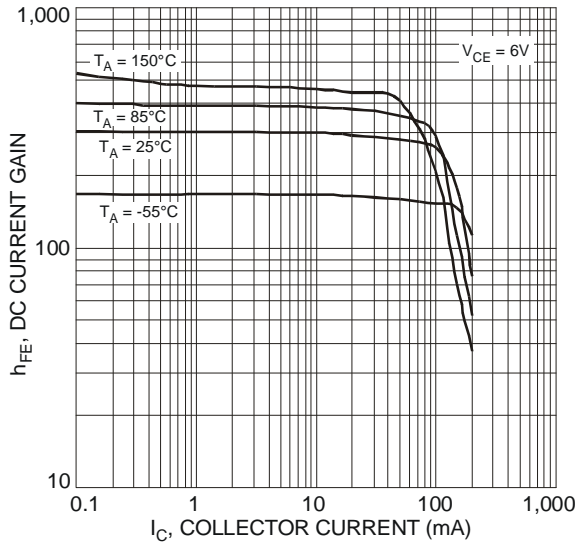


Fig. 3 Typical DC Current Gain vs. Collector Current (DN0150BLP4)

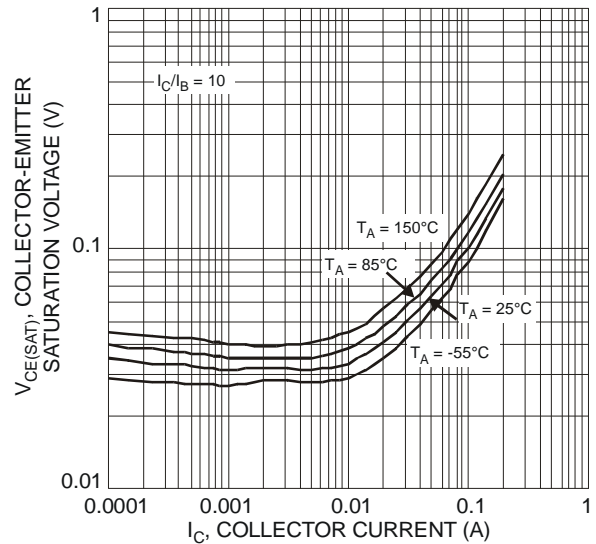


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

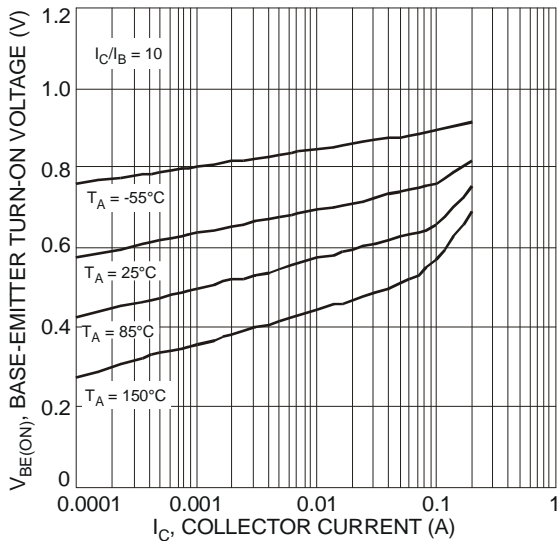


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

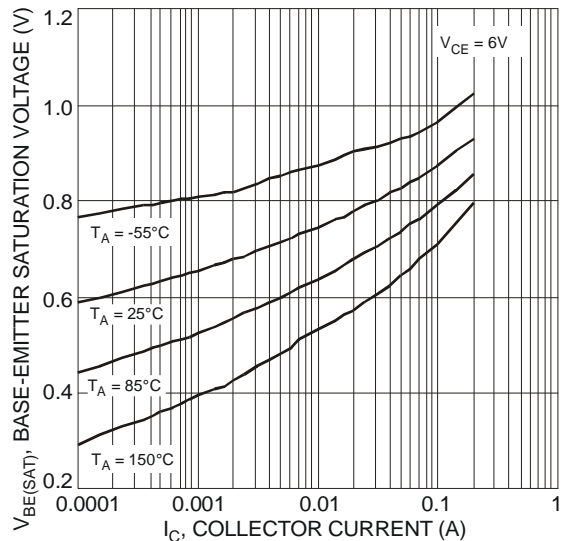


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

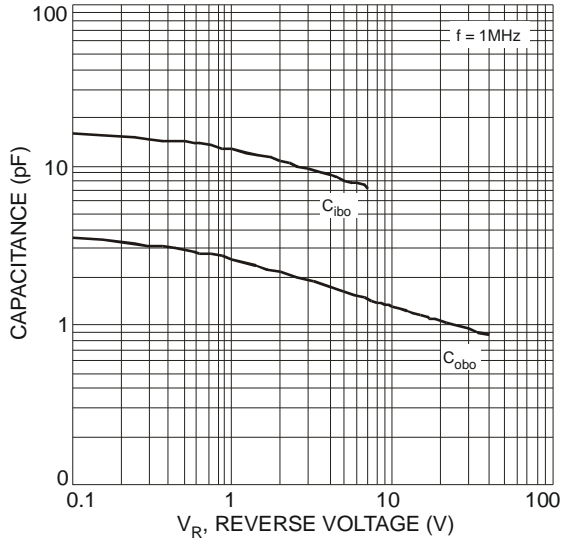


Fig. 7 Typical Capacitance Characteristics

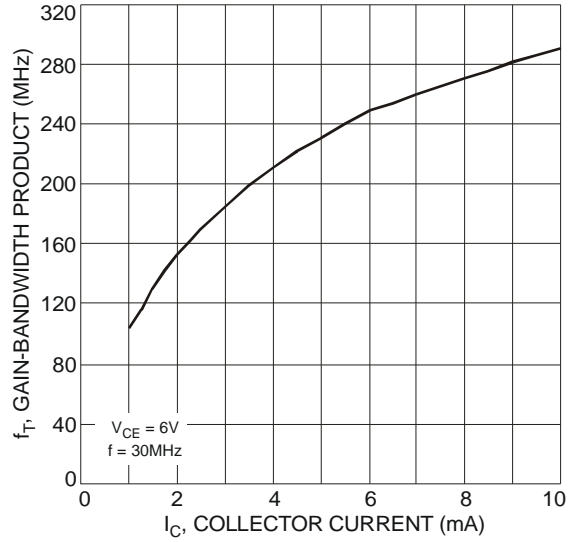
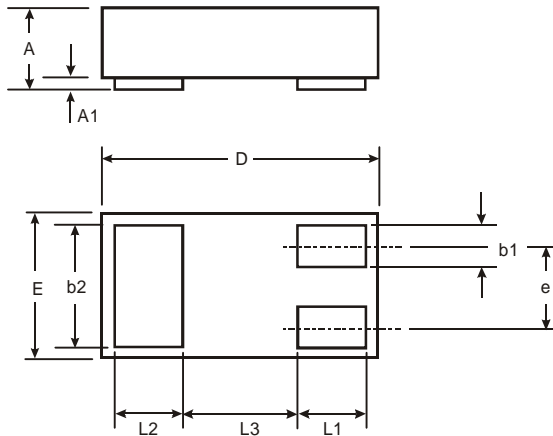


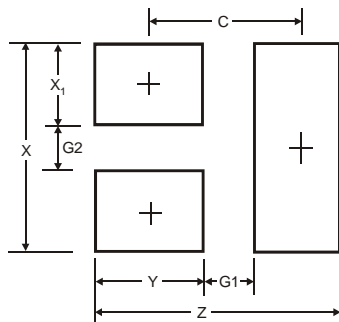
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

## Package Outline Dimensions



DFN1006H4-3			
Dim	Min	Max	Typ
A	—	0.40	—
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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