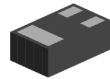


Features

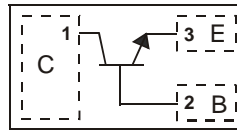
- Epitaxial Die Construction
- Ultra-Small Leadless Surface Mount Package
- Ultra-low Profile (0.40mm max)
- Complementary NPN Type Available (DN0150ALP4 / DN0150BLP4)
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q 101 Standards for High Reliability**

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-020D
- 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: 0.0008 grams (approximate)



Bottom View


 Top View
Device Schematic

Maximum Ratings @ $T_A = 25^\circ\text{C}$ 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 3)	P_D	450	mW
Thermal Resistance, Junction to Ambient (Note 3)	$R_{\theta JA}$	278	$^\circ\text{C}/\text{W}$
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	
OFF CHARACTERISTICS							
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-50	—	—	V	$I_C = -10\mu\text{A}, I_E = 0$	
Collector-Emitter Breakdown Voltage (Note 4)	$V_{(BR)CEO}$	-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	μA	$V_{CB} = -50\text{V}, I_E = 0$	
Emitter Cut-Off Current	I_{EBO}	—	—	-0.1	μA	$V_{EB} = -5\text{V}, I_C = 0$	
ON CHARACTERISTICS (Note 4)							
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-0.15	-0.3	V	$I_C = -100\text{mA}, I_B = -10\text{mA}$	
DC Current Gain	DP0150ALP4 DP0150BLP4	h_{FE}	120	—	240	—	$V_{CE} = -6\text{V}, I_C = -2\text{mA}$
			200	—	400		
SMALL SIGNAL CHARACTERISTICS							
Transition Frequency	f_T	80	—	—	MHz	$V_{CE} = -10\text{V}, I_E = 1\text{mA}$ $f = 30\text{MHz}$	
Output Capacitance	C_{ob}	—	1.6	—	pF	$V_{CB} = -10\text{V}, I_E = 0,$ $f = 1\text{MHz}$	

- 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 with minimum recommended pad layout.
 4. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$

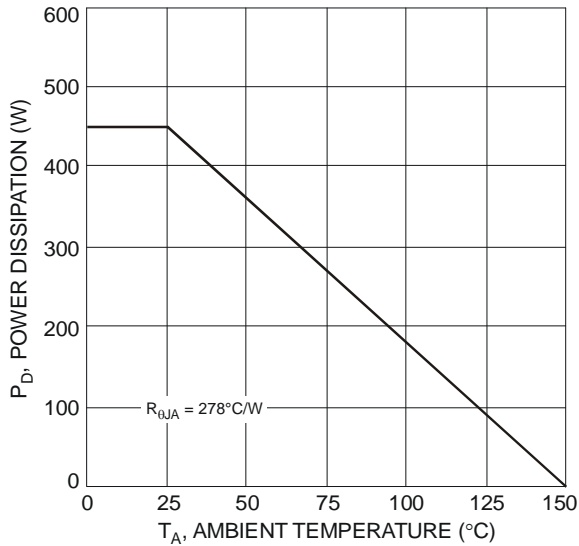


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

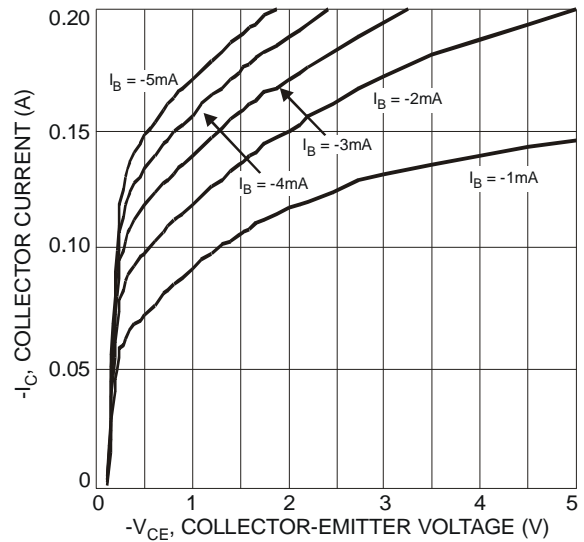


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage (DN0150BLP4)

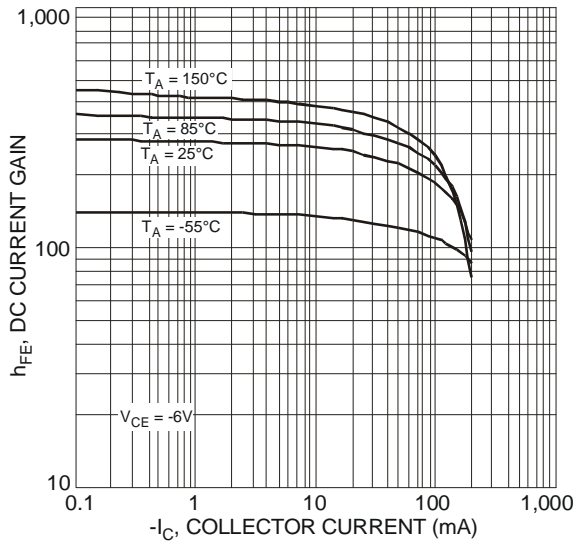


Fig. 3 Typical DC Current Gain vs. Collector Current (DN0150BLP4)

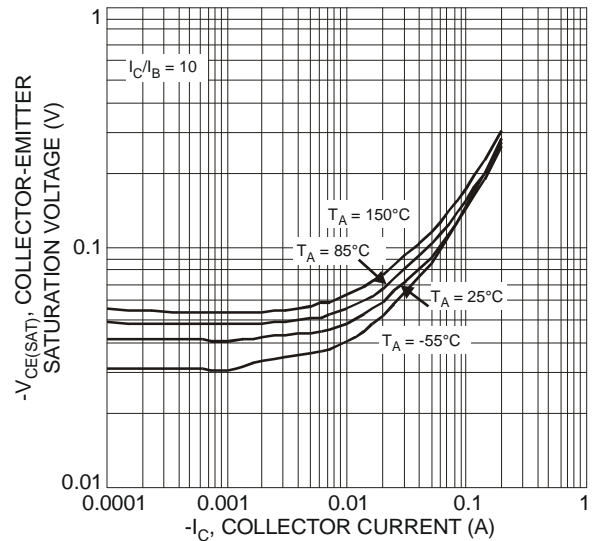


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

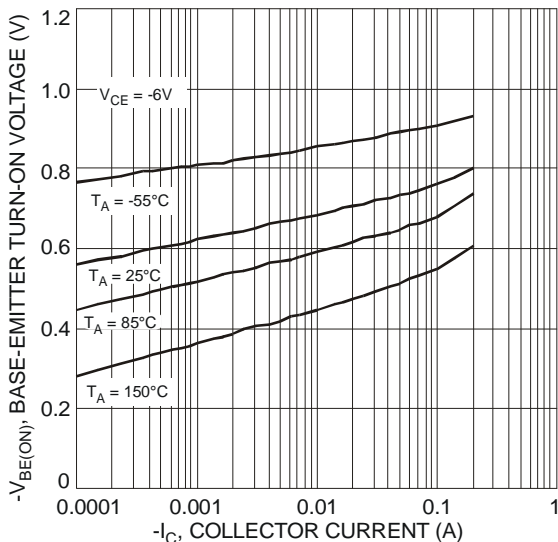


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

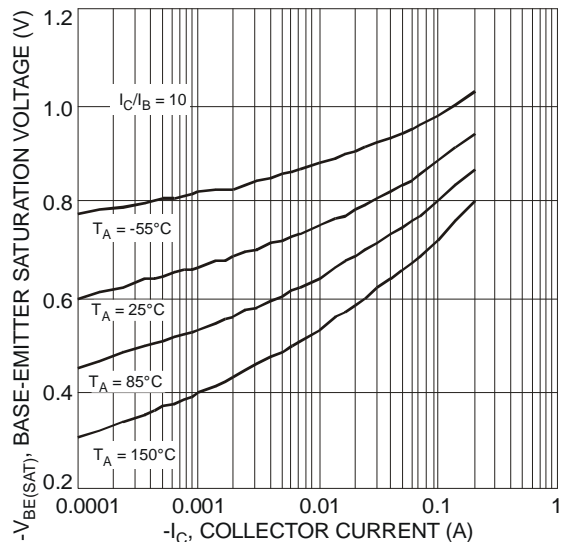


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

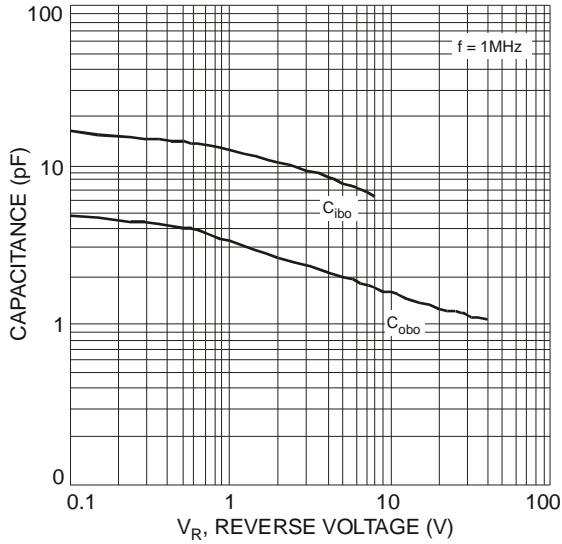


Fig. 7 Typical Capacitance Characteristics

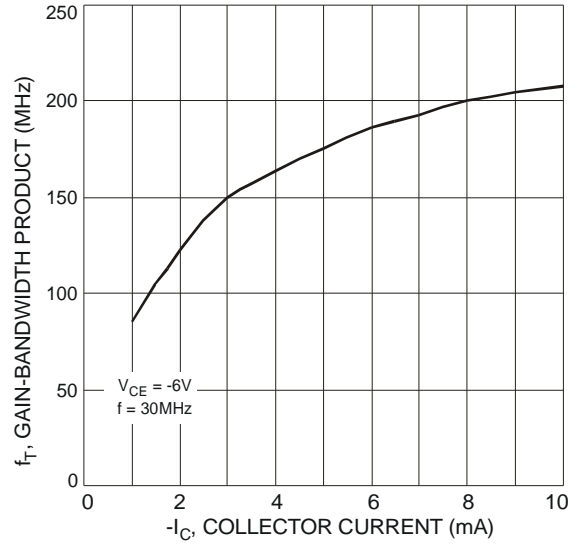


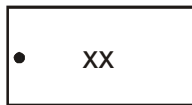
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Part Number	Case	Packaging
DP0150ALP4-7	DFN1006H4-3	3000/Tape & Reel
DP0150BLP4-7	DFN1006H4-3	3000/Tape & Reel

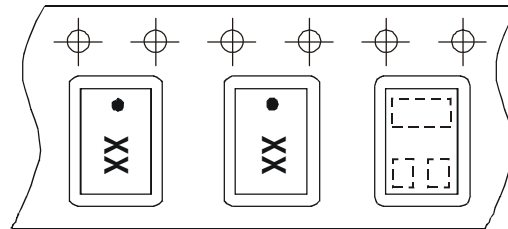
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information

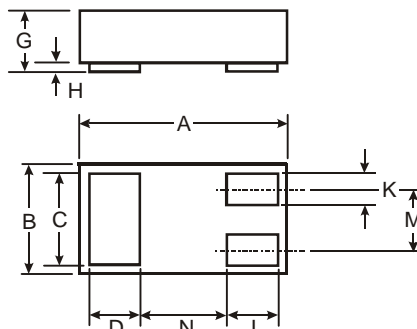


xx = Product Type Marking Code:
T5 = DP0150ALP4
T6 = DP0150BLP4

DFN1006H4-3 Taping orientation

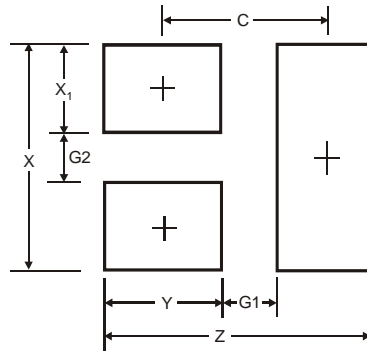


Package Outline Dimensions



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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