NEW PRODUCT

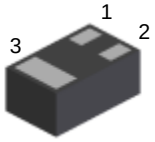
DDTA114YLP

PRE-BIASED SMALL SIGNAL SURFACE MOUNT PNP TRANSISTOR

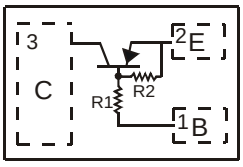
Please click here to visit our online spice models database.

Features

- Epitaxial Planar Die Construction
- Ultra-Small Leadless Surface Mount Package
- Ideally Suited for Automated Assembly Processes
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**



Bottom View

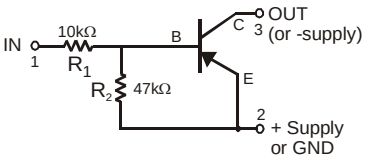


Top View

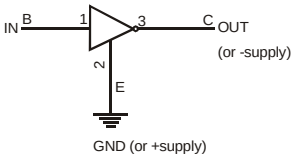
DFN1006-3

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-020D
- Terminal Connections: Collector Dot (See Diagram and Marking Information)
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.0009 grams (approximate)



Schematic and Pin Configuration



Equivalent Inverter Circuit

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	-50	V
Input Voltage	V_{IN}	+6 to -40	V
Output Current	I_O	-70	mA
Output (Collector) Current	$I_{c(max)}$	-100	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @T_A = 25°C	P_D	250	mW
Power Derating above 25°C	P_{der}	2	mW/°C
Thermal Resistance, Junction to Ambient Air (Note 3) @T_A = 25°C (Equivalent to one heated junction of PNP)	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

Electrical Characteristics: Discrete PNP Transistor (Q1) @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Off Characteristics (Note 4)						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-50	—	—	V	I_C = -10μA, I_E = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-50	—	—	V	I_C = -1.0mA, I_B = 0
Collector-Base Cut Off Current	I_{CBO}	—	—	-0.1	μA	V_{CB} = -50V, I_E = 0
Collector-Emitter Cut Off Current, $I_{O(OFF)}$	I_{CEO}	—	—	-0.5	μA	V_{CB} = -50V, I_B = 0
Emitter-Base Cut Off Current	I_{EBO}	—	—	-0.2	mA	V_{EB} = 4V, I_C = 0
Input Off Voltage	$V_{I(OFF)}$	—	—	-0.3	V	V_{CC} = -5V, I_O = -100uA
On Characteristics (Note 4)						
Input-On Voltage	$V_{I(ON)}$	-1.4	—	—	V	V_O = -0.3V, I_O = I_C = 1mA
Input Current	I_I	—	—	-0.88	mA	V_I = -5V
DC Current Gain	h_{FE}	80	—	—	—	V_{CE} = -5V, I_C = -5mA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	—	-0.25	V	I_C = -50mA, I_B = -2.5mA
Output On Voltage	$V_{O(ON)}$	—	-0.1	-0.3	V	I_I = -0.25mA, I_O = -5mA
Input Resistance	R1	7	10	13	KΩ	—
Resistance Ratio	(R2/R1)	3.7	4.7	5.7	—	—
Small Signal Characteristics						
Current Gain-Bandwidth Product	f_T	—	250	—	MHz	V_{CE} = -10V, I_E = -5mA, f = 100 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, 1" x 0.85" x 0.062"; pad layout as shown on page 3 or Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
4. Short duration pulse test used to minimize self-heating effect. Pulse width tp<300μS, Duty Cycle, d≤2%.

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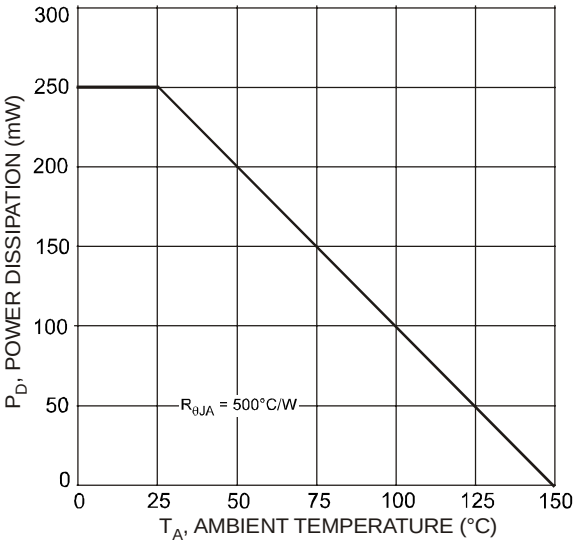


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

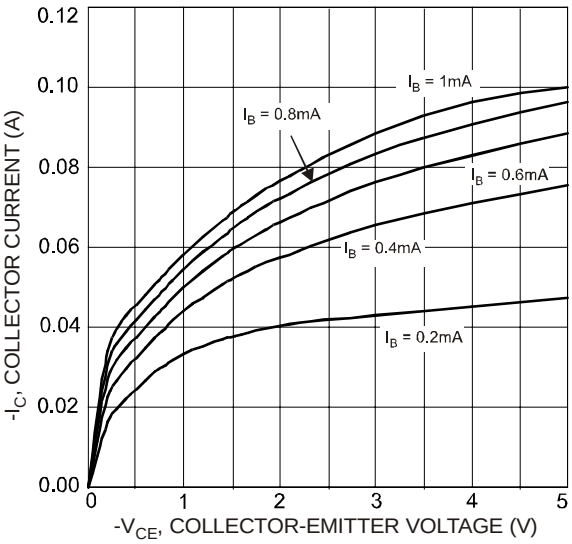


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

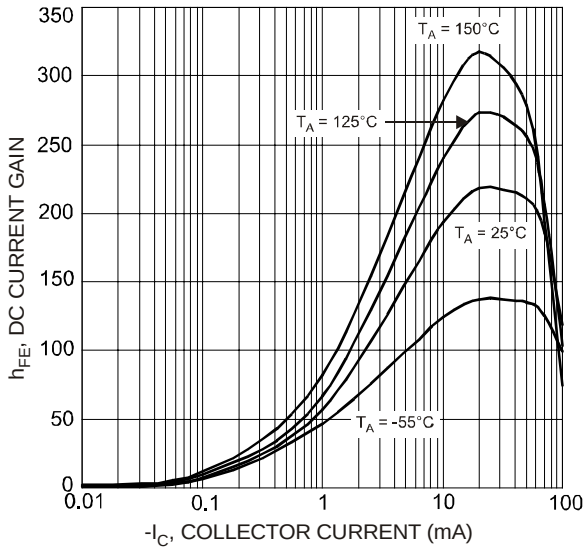


Fig. 3 Typical DC Current Gain vs. Collector Current

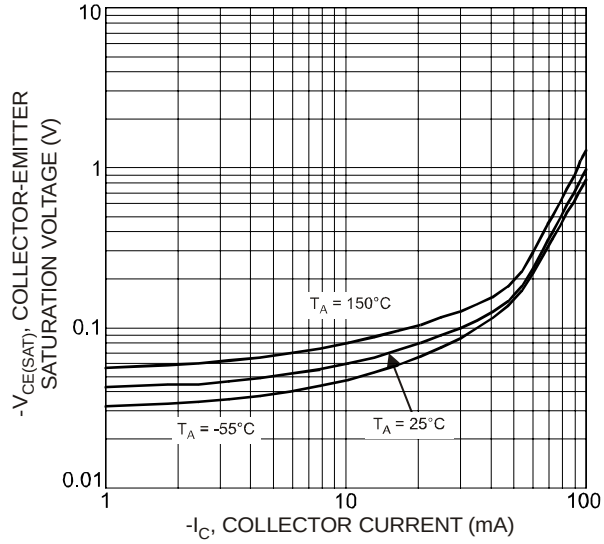


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

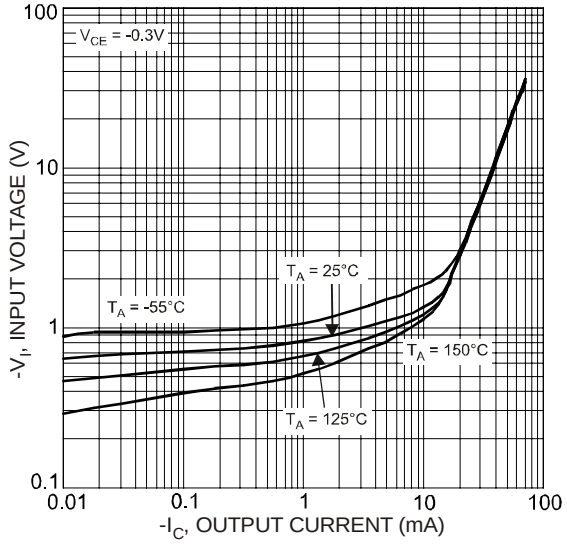


Fig. 5 Typical Input Voltage vs. Output Current (On Characteristics)

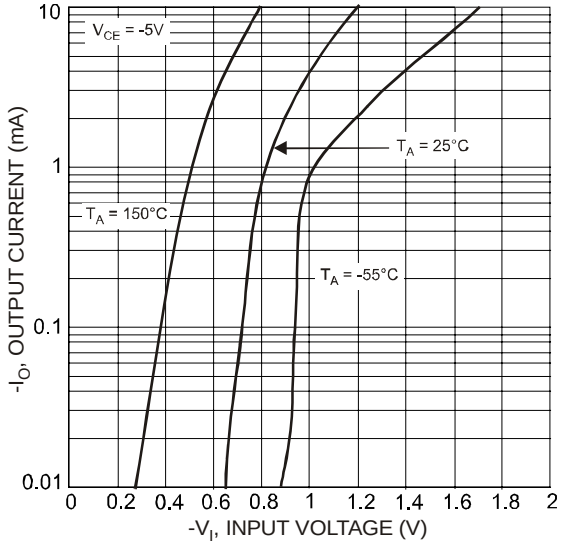


Fig. 6 Typical Output Current vs. Input Voltage (Off Characteristics)

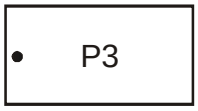
NEW PRODUCT

Ordering Information (Note 5)

Device	Packaging	Shipping
DDTA114YLP-7	DFN1006-3	3000/Tape & Reel

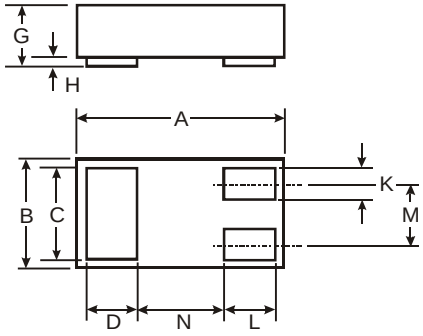
Notes: 5. For packaging details, please go to our website at http://www.diodes.com/ap02007.pdf.

Marking Information



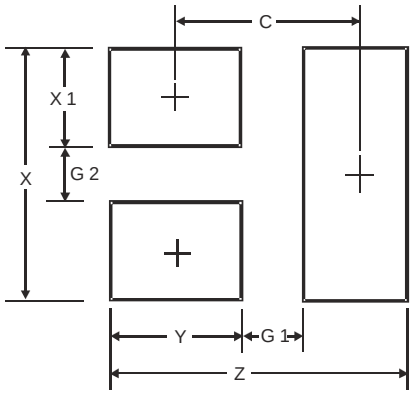
P3 = Product Type Marking Code
Dot Denotes Collector, Pin 3

Mechanical Details



DFN1006-3			
Dim	**Min**	**Max**	**Typ**
A	0.95	1.05	1.00
B	0.55	0.65	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
Z	1.1
G1	0.3
G2	0.2
X	0.7
X1	0.25
Y	0.4
C	0.7