

PNP PRE-BIASED (R1=R2) SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

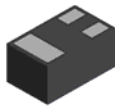
- Epitaxial Planar Die Construction
- Ultra-Small Leadless Surface Mount Package
- Ideally Suited for Automated Assembly Processes
- "Lead Free", RoHS Compliant (Note 1)
- Halogen and Antimony Free "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

Part Number	R1 (NOM)	R2 (NOM)	Marking
DDTA144ELP	47K	47K	P2

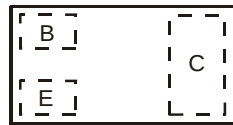
Mechanical Data

- 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: 0.0009 grams (approximate)

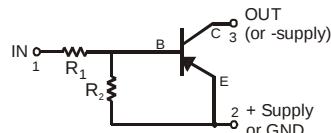
DFN1006-3



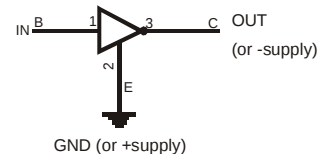
Bottom View



Top View
Pin-Out



Device Symbol



Equivalent Inverter
Circuit

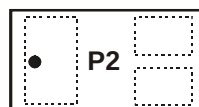
Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DDTA144ELP-7	P2	7	8	3,000
DDTA144ELP-7B	P2	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>.

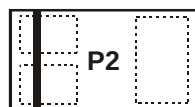
Marking Information

DDTA144ELP-7



Top View
Dot Denotes
Collector Side

DDTA144ELP-7B



Top View
Bar Denotes Base
and Emitter Side

P2 = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage	V _{CC}	-50	V
Input Voltage	V _{IN}	+10 to -40	V
Output Current (I _O)	I _{C(MAX)}	-200	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P _D	250	mW
Power Deration above 25°C	P _{der}	2	mW/°C
Thermal Resistance, Junction to Ambient Air (Note 4) (Equivalent to one heated junction of PNP)	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	Typ	Max	Unit	Test Condition
Off Characteristics (Notes 5 & 6)						
Collector-Base Breakdown Voltage	BV _{CBO}	-50	—	—	V	I _C = -10μA, I _E = 0
Collector-Emitter Breakdown Voltage	BV _{CEO}	-50	—	—	V	I _C = -1.0mA, I _B = 0
Emitter-Base Breakdown Voltage	BV _{EBO}	-4.5	—	—	V	I _E = -100μA, I _C = 0
Collector Cutoff Current	I _{CEX}	—	—	-100	nA	V _{CE} = -50V, V _{EB(OFF)} = 3.0V
Base Cutoff Current (I _{BEX})	I _{BL}	—	—	-60	μA	V _{CE} = -50V, V _{EB(OFF)} = 3.0V
Collector-Base Cut Off Current	I _{CBO}	—	—	-100	nA	V _{CB} = -50V, I _E = 0
Collector-Emitter Cut Off Current, I _{O(off)}	I _{CEO}	—	—	-100	nA	V _{CE} = -50V, I _B = 0
Emitter-Base Cut Off Current	I _{EBO}	—	—	-100	μA	V _{EB} = -4V, I _C = 0
Input Off Voltage	V _{I(off)}	-300	—	—	mV	V _{CC} = -5V, I _O = -100uA
On Characteristics (Notes 5 & 6)						
Input-On Voltage	V _{I(on)}	—	—	-3.0	V	V _O = -0.3V, I _O = -5mA
Input Current	I _I	—	—	-7.2	mA	V _I = -5V
DC Current Gain	h _{FE}	90	—	—	—	V _{CE} = -5V, I _C = -2.5mA
		120	—	—	—	V _{CE} = -5V, I _C = -5mA
		150	—	—	—	V _{CE} = -5V, I _C = -10mA
		100	—	—	—	V _{CE} = -5V, I _C = -100mA
		180	—	—	—	V _{CE} = -5V, I _C = -200mA
		250	—	—	—	V _{CE} = -5V, I _C = -300mA
Output On Voltage (Collector-Emitter Saturation Voltage)	V _{O(on)}	—	—	-150	mV	I _I = -1mA, I _O = -10mA
		—	—	-800759	mV	I _I = -1mA, I _O = -450mA
Input Resistance	R _I	33	47	61	KΩ	—
Resistance Ratio	(R ₂ /R ₁)	0.8	1.0	1.2	—	—
Small Signal Characteristics						
Current Gain-Bandwidth Product	f _T	—	250	—	MHz	V _{CE} = -10V, I _E = -5mA, f = 100 MHz

- Notes:
- Device mounted on FR-4 PCB, 1" x 0.85" x 0.062".
 - Short duration pulse test used to minimize self-heating effect. Pulse Test: Pulse width tp<300 uS, Duty Cycle, d<=2%.
 - Guaranteed by design.

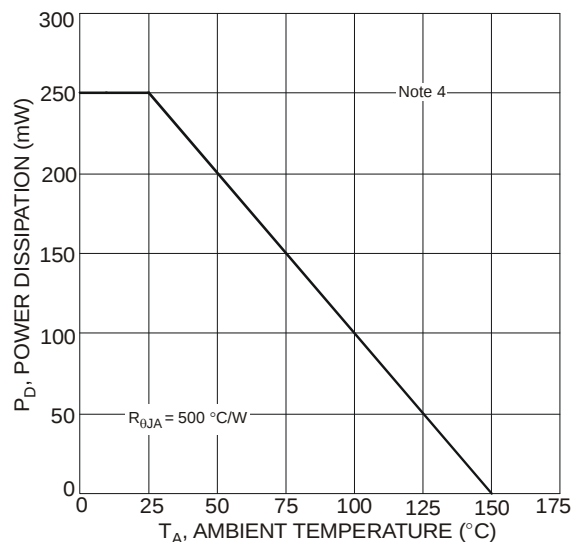


Fig. 1 Power Dissipation vs. Ambient Temperature

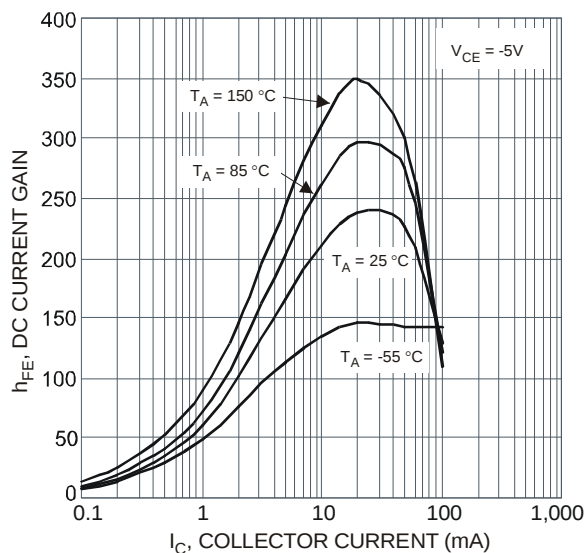


Fig. 2 Typical DC Current Gain vs. Collector Current

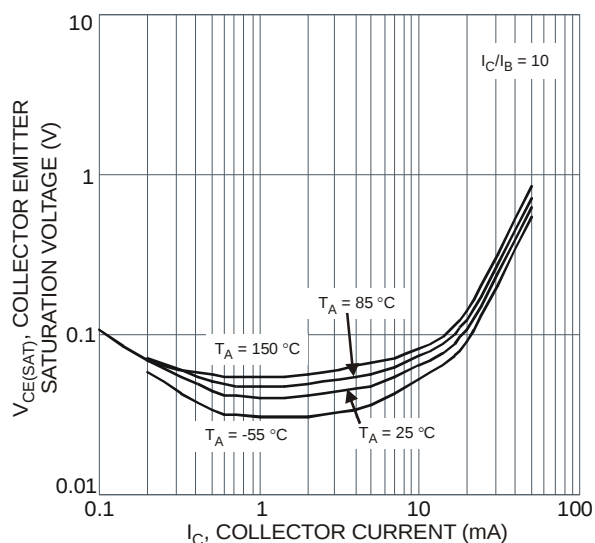


Fig. 3 Typical Collector Emitter Saturation Voltage vs. Collector Current

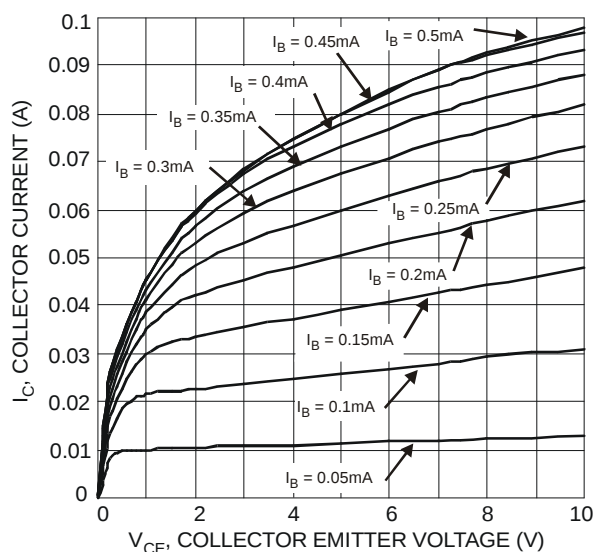


Fig. 4 Typical Collector Emitter Voltage vs. Collector Current

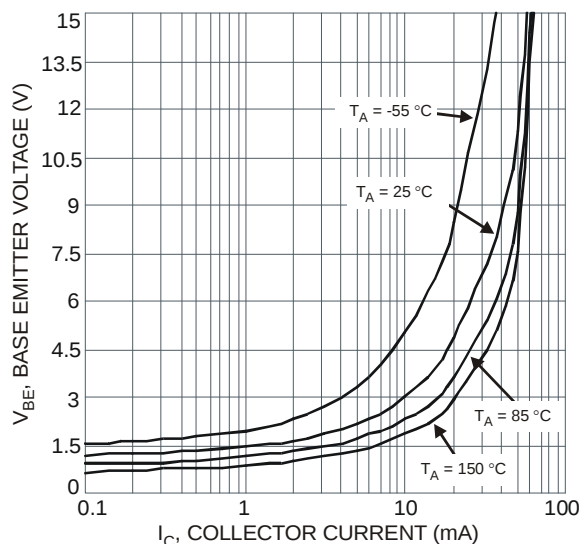


Fig. 5 Typical Base Emitter Voltage vs. Collector Current

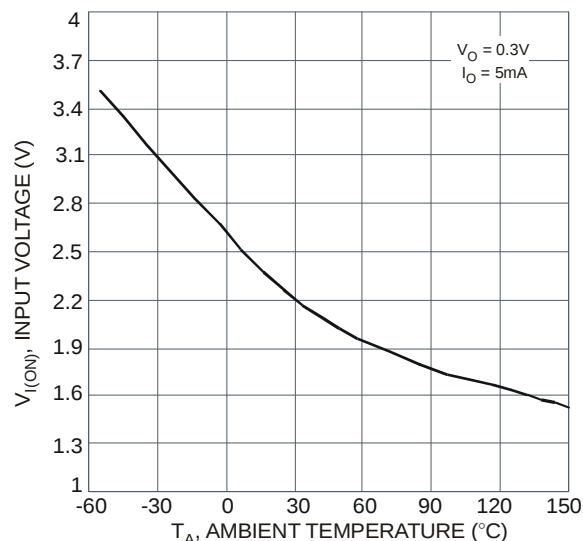


Fig. 6 Typical Input Voltage vs. Ambient Temperature

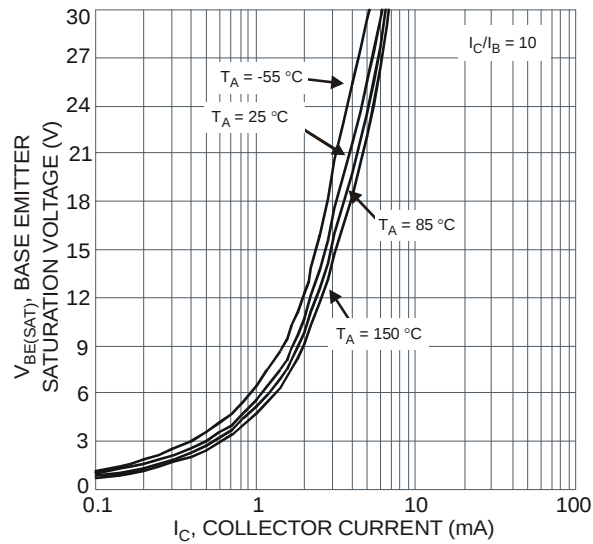
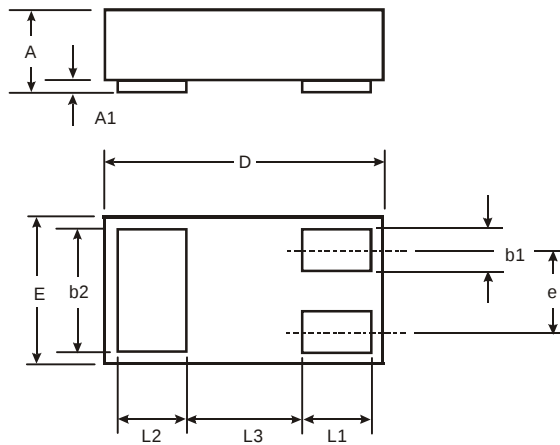


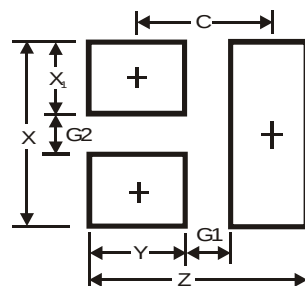
Fig. 7 Typical Base Emitter Saturation Voltage vs. Collector Current

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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