50V PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR

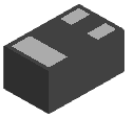
Features

- Epitaxial Die Construction
- Complementary NPN Type Available (BC847BLP)
- Ultra-Small Leadless Surface Mount Package
- **"Lead Free", RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

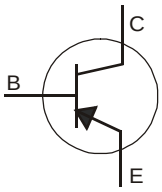
Mechanical Data

- Case: 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

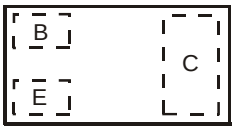
DFN1006-3



Bottom View



Device Symbol



Top View
Pin-Out

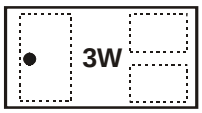
Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
BC857BLP-7	3W	7	8mm	3,000
BC857BLP-7B	3W	7	8mm	10,000

Notes:
1. No purposefully added lead.
2. Halogen and Antimony Free. 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.

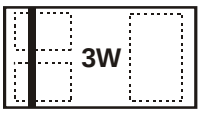
Marking Information

BC857BLP-7



Top View
Dot Denotes
Collector Side

BC857BLP-7B



Top View
Bar Denotes Base
and Emitter Side

3W = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless other wise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-45	V
Emitter-Base Voltage	V_{EBO}	-5.0	V
Collector Current	I_C	-100	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4) @T_A = 25°C	P_D	250	mW
Thermal Resistance, Junction to Ambient Air (Note 4) @T_A = 25°C	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless other wise specified

Characteristic (Note 5)	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-50	—	—	V	I_C = 10μA, I_B = 0
Collector-Emitter Breakdown Voltage	BV_{CEO}	-45	—	—	V	I_C = 10mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	I_E = 1μA, I_C = 0
DC Current Gain	h_{FE}	220	260	475	—	V_{CE} = -5.0V, I_C = -2.0mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	— —	-90 -250	-300 -650	mV	I_C = -10mA, I_B = -0.5mA I_C = -100mA, I_B = -5.0mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	— —	-700 -850	— —	mV	I_C = -10mA, I_B = -0.5mA I_C = -100mA, I_B = -5.0mA
Base-Emitter Voltage	$V_{BE(on)}$	-600 —	-670 -710	-750 -820	mV	V_{CE} = -5.0V, I_C = -2.0mA V_{CE} = -5.0V, I_C = -10mA
Collector-Cutoff Current	I_{CBO}	— —	— —	-15 -4.0	nA μA	V_{CB} = -30V V_{CB} = -30V, T_A = 150°C
Gain Bandwidth Product	f_T	100	—	—	MHz	V_{CE} = -5.0V, I_C = -10mA, f = 100MHz
Collector-Base Capacitance	C_{CBO}	—	3.0	—	pF	V_{CB} = -10V, f = 1.0MHz

Notes: 4. Device mounted on FR-4 PCB, Diodes Inc. suggested pad layout document can be found on our website at http://www.diodes.com.
5. Short duration pulse test used to minimize self-heating effect.

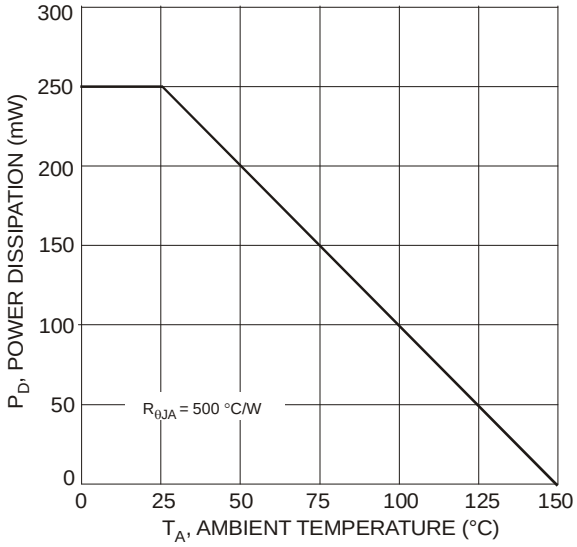


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 4)

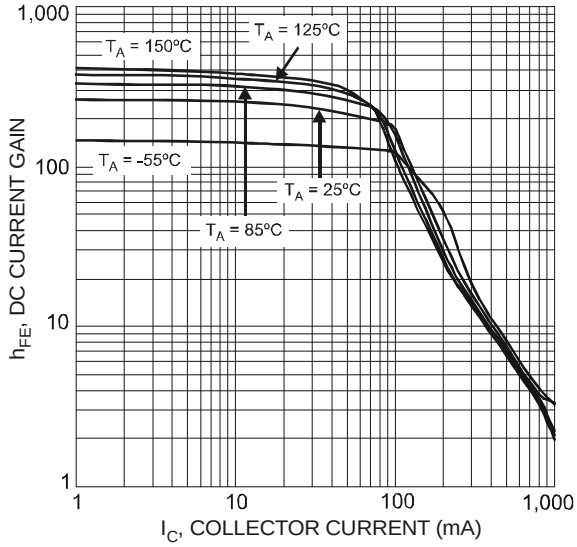


Fig. 2 Typical DC Current Gain vs. Collector Current

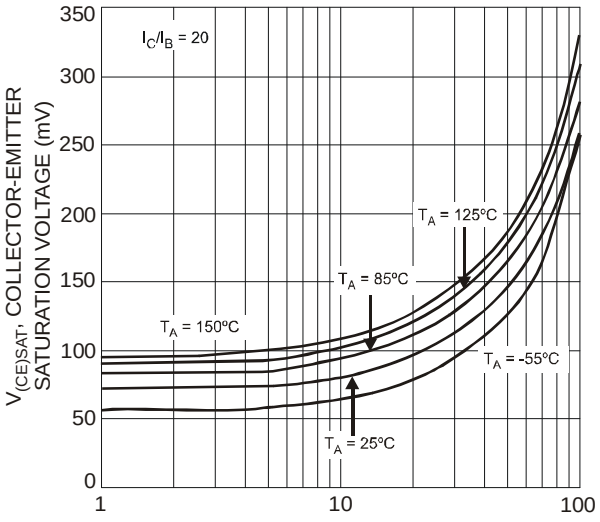


Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

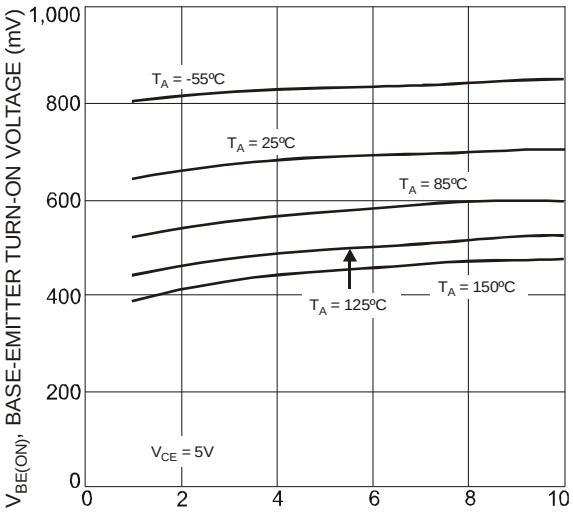


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

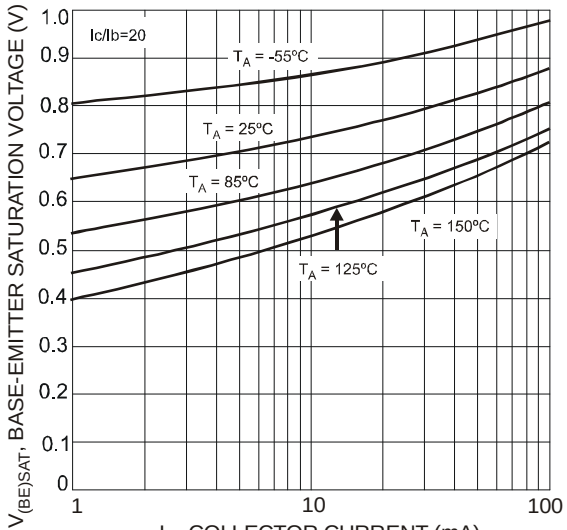
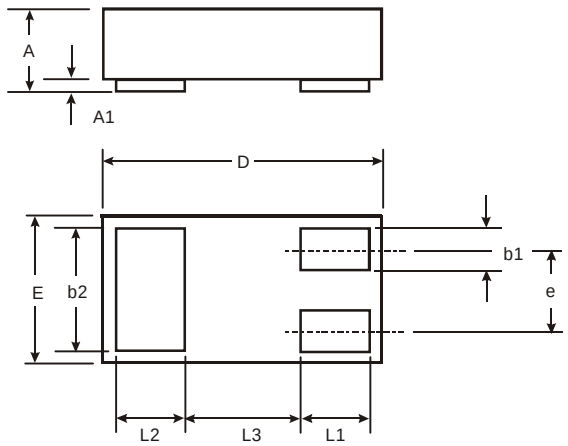


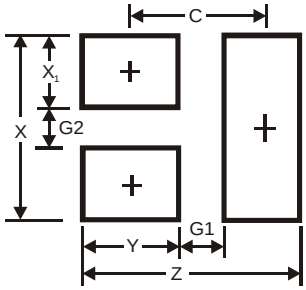
Fig. 5 Typical Base-Emitter Saturation Voltage vs. Collector Current

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