



NPN SURFACE MOUNT TRANSISTOR

Features

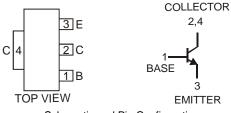
- **Epitaxial Planar Die Construction**
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- Lead Free By Design/RoHS Compliant (Note 1)
- "Green" Device (Note 2)



SOT89-3L

Mechanical Data

- Case: SOT89-3L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish Matte Tin annealed over Copper leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking & Type Code Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.072 grams (approximate)



Schematic and Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	25	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	Ic	5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ T _A = 25°C	P _D	1	W
Thermal Resistance, Junction to Ambient Air (Note 3) @T _A = 25°C	$R_{ heta JA}$	125	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C

Electrical Characteristics @TA = 25°C unless otherwise specified

Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
OFF CHARACTERISTICS (Note 4)						
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	25	_		V	$I_C = 10 \text{mA}, I_B = 0$
Collector Cut-off Current	I _{CBO}	_	_	1.0	μΑ	$V_{CB} = 50V, I_E = 0$
Emitter Cut-off Current	I _{EBO}	_	_	1.0	μΑ	$V_{EB} = 7.0V, I_C = 0$
ON CHARACTERISTICS (Note 4)						
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	_	_	0.35 0.50		$I_C = 3.0A$, $I_B = 150mA$ $I_C = 4.0A$, $I_B = 200mA$
Base-Emitter Saturation Voltage	V _{BE(SAT)}	_	_	1.10 1.40	٧	$I_C = 3.0A$, $I_B = 150mA$ $I_C = 4.0A$, $I_B = 200mA$
DC Current Gain	h _{FE}	250 150 50		550 — —	_	$I_C = 500$ mA, $V_{CE} = 2.0$ V $I_C = 2.0$ A, $V_{CE} = 2.0$ V $I_C = 5.0$ A, $V_{CE} = 2.0$ V
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f _T	_	220		MHz	$I_C = 50 \text{mA}, V_{CE} = 6.0 \text{V},$ f = 100MHz
Output Capacitance	C_{obo}	_	_	50	pF	$V_{CB} = 10V, I_E = 0, f = 1MHz$

Notes:

- No purposefully added lead. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- Device mounted on FR-4 PCB; pad layout as shown on page 3 or in Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
- 4. Measured under pulsed conditions. Pulse width = 300 µs. Duty cycle ≤2%.



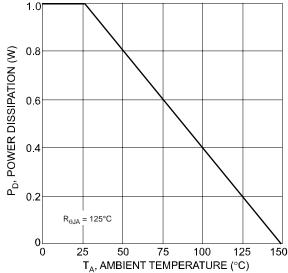


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

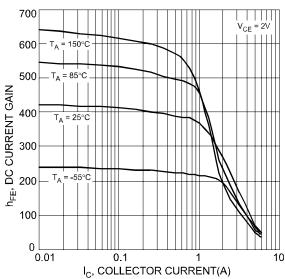
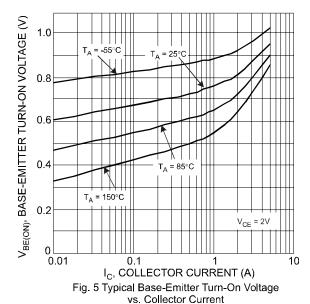


Fig. 3 Typical DC Current Gain vs. Collector Current



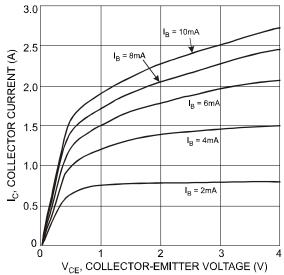


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

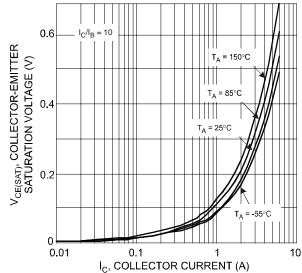


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

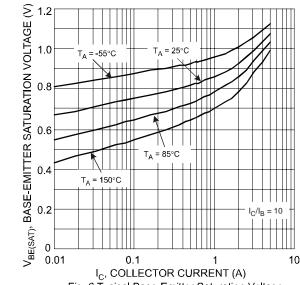


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

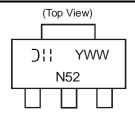


Ordering Information (Note 5)

Device		Packaging	Shipping
DXT3150-13		SOT89-3L	2500/Tape & Reel

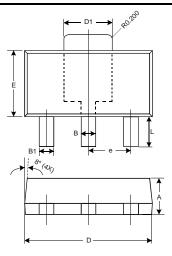
Notes: 5. For packaging details, go to our website at http://www.diodes.com/ap02007.pdf.

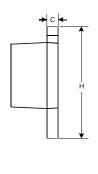
Marking Information



N52 = Product Type Marking Code YWW = Date Code Marking Y = Last digit of year ex: 7 = 2007 WW = Week code 01 - 52

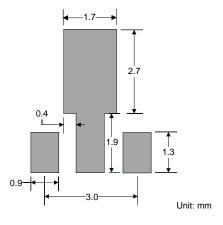
Package Outline Dimensions





SOT89-3L					
Dim	Min	Max	Тур		
Α	1.40	1.60	1.50		
В	0.45	0.55	0.50		
B1	0.37	0.47	0.42		
С	0.35	0.43	0.38		
D	4.40	4.60	4.50		
D1	1.50	1.70	1.60		
Е	2.40	2.60	2.50		
е			1.50		
Н	3.95	4.25	4.10		
L	0.90	1.20	1.05		
All Dimensions in mm					

Suggested Pad Layout



IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.