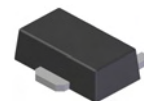


### Features

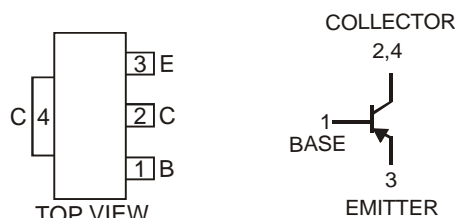
- Epitaxial Planar Die Construction
- Complementary NPN Type Available (DXT651)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

### 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 Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.072 grams (approximate)



SOT89-3L



Schematic and Pin Configuration

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-80	V
Collector-Emitter Voltage	$V_{CEO}$	-60	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Continuous Collector Current	$I_C$	-3	A
Peak Pulse Collector Current	$I_{CM}$	-6	A

### Thermal Characteristics

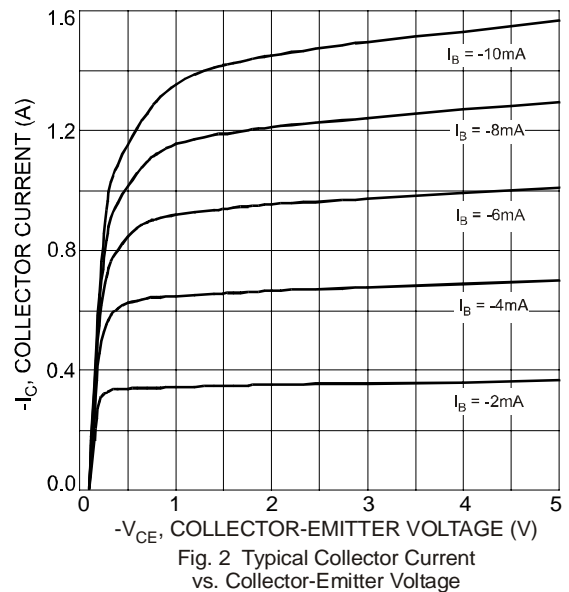
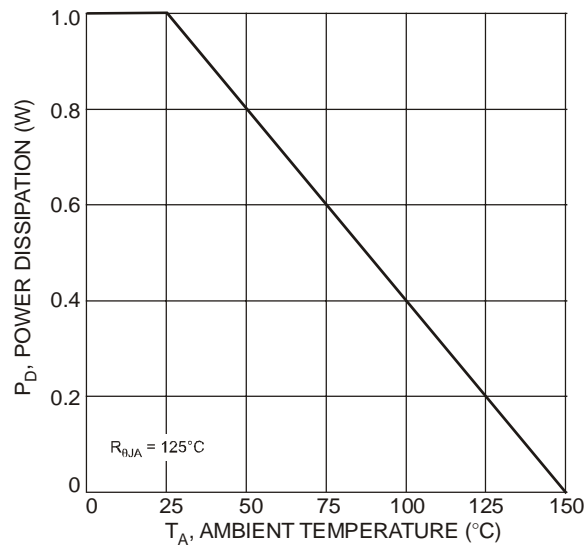
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ $T_A = 25^\circ\text{C}$	$P_D$	1	W
Thermal Resistance, Junction to Ambient Air (Note 3) @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- 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](http://www.diodes.com/products/lead_free/index.php).
  3. Device mounted on FR-4 PCB; pad layout as shown on page 4 or in Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
<b>OFF CHARACTERISTICS (Note 4)</b>						
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-80	—	—	V	I <sub>C</sub> = -100μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-60	—	—	V	I <sub>C</sub> = -10mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-5	—	—	V	I <sub>E</sub> = -100μA, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CBO</sub>	—	—	-0.1	μA	V <sub>CB</sub> = -60V, I <sub>E</sub> = 0
Emitter Cutoff Current	I <sub>EBO</sub>	—	—	-0.1	μA	V <sub>CB</sub> = -60V, I <sub>E</sub> = 0, T <sub>A</sub> = 100°C
<b>ON CHARACTERISTICS (Note 4)</b>						
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	-0.08 -0.2	-0.3 -0.6	V	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA I <sub>C</sub> = -3A, I <sub>B</sub> = -300mA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	—	-0.9	-1.25	V	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
Base-Emitter Turn-On Voltage	V <sub>BE(ON)</sub>	—	-0.8	-1	V	V <sub>CE</sub> = -2V, I <sub>C</sub> = -1A
DC Current Gain	h <sub>FE</sub>	70 100 80 40	200 180 160 140	— 300 — —	—	V <sub>CE</sub> = -2V, I <sub>C</sub> = -50mA V <sub>CE</sub> = -2V, I <sub>C</sub> = -500mA V <sub>CE</sub> = -2V, I <sub>C</sub> = -1A V <sub>CE</sub> = -2V, I <sub>C</sub> = -2A
<b>AC CHARACTERISTICS</b>						
Transition Frequency	f <sub>T</sub>	100	145	—	MHz	V <sub>CE</sub> = -10V, I <sub>C</sub> = -50mA, f = 100MHz
Output Capacitance	C <sub>obo</sub>	—	—	30	pF	V <sub>CB</sub> = -10V, f = 1MHz
Switching Times	t <sub>on</sub> t <sub>off</sub>	— —	45 200	— —	ns ns	I <sub>C</sub> = -500mA, V <sub>CC</sub> = -10V I <sub>B1</sub> = I <sub>B2</sub> = -50mA

Notes: 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.



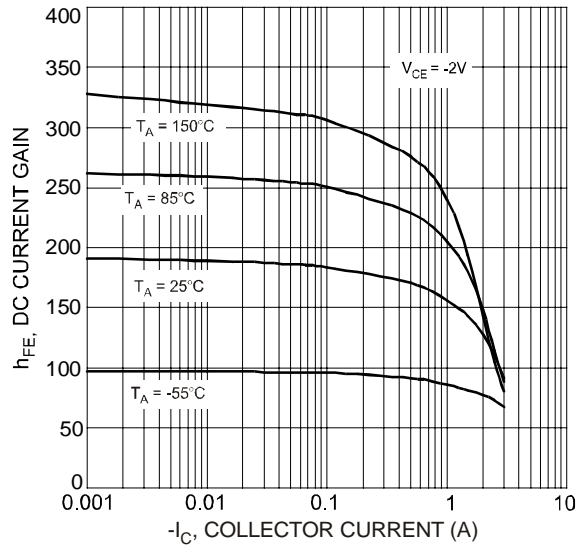


Fig. 3 Typical DC Current Gain vs. Collector Current

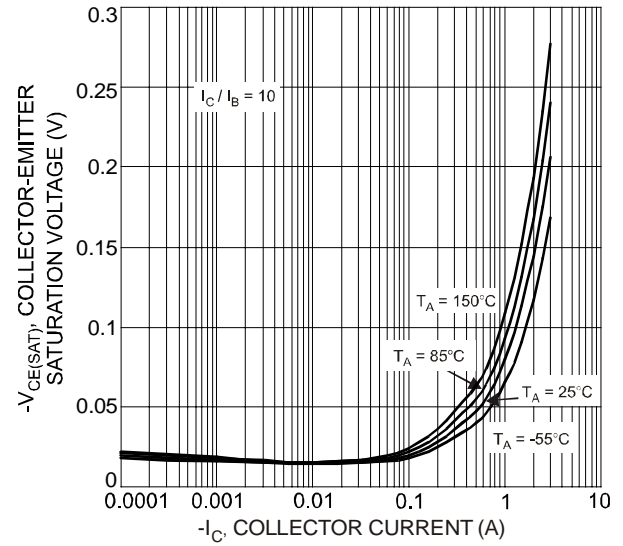


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

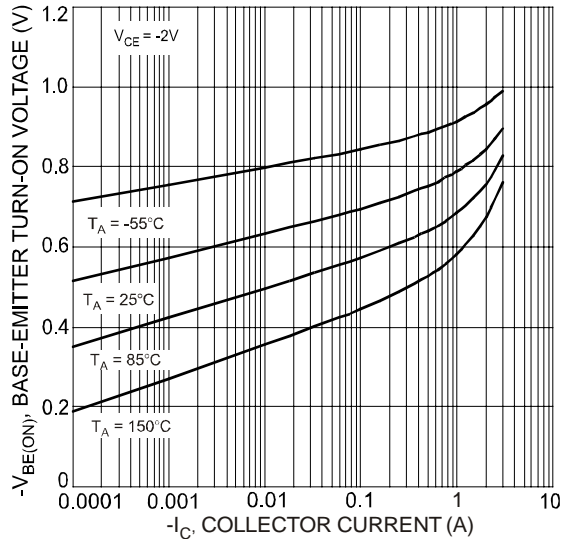


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

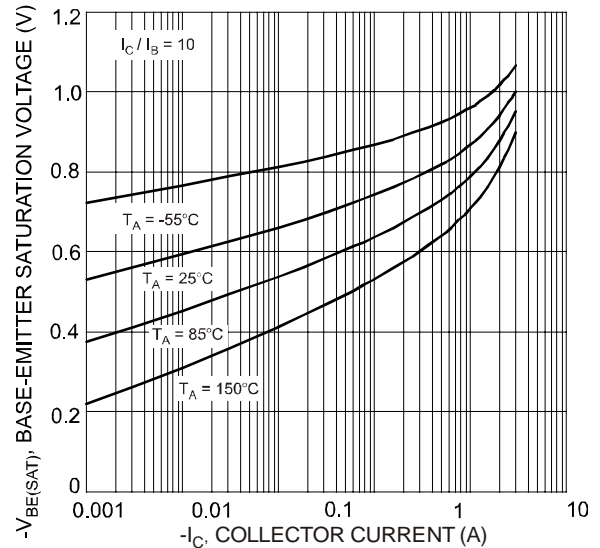


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

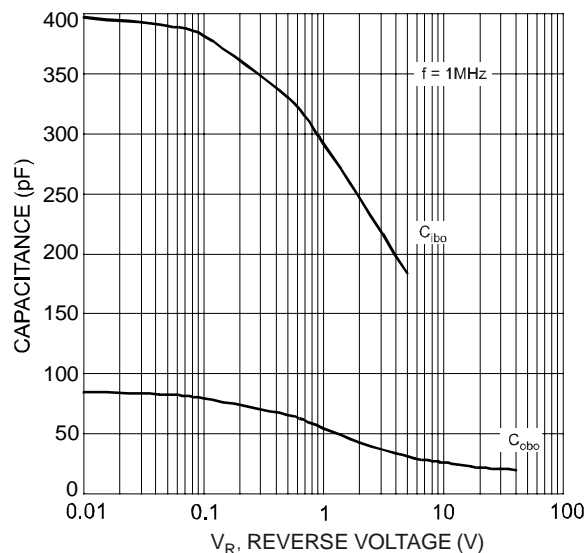


Fig. 7 Typical Capacitance Characteristics

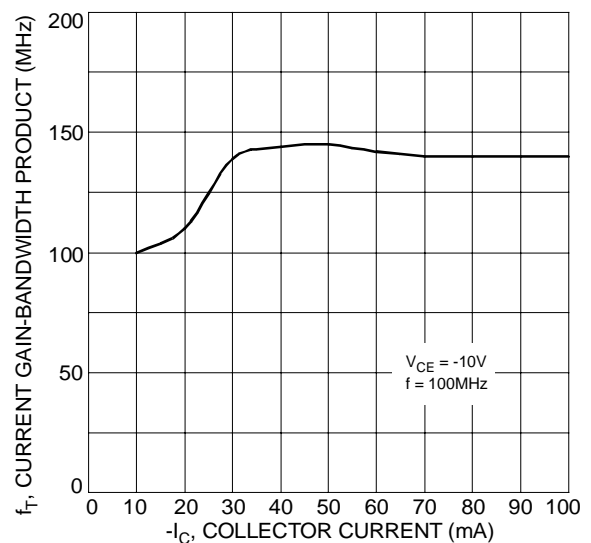


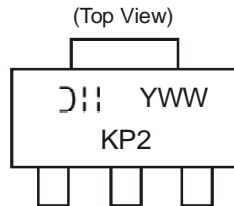
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

## Ordering Information (Note 5)

Device	Packaging	Shipping
DXT751-13	SOT89-3L	2500/Tape & Reel

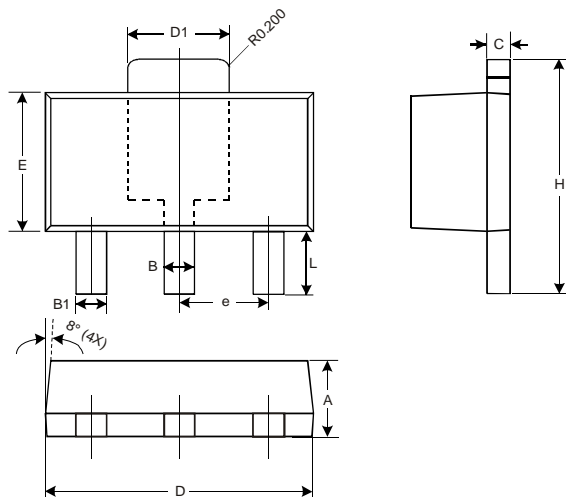
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/ap02007.pdf>.

## Marking Information



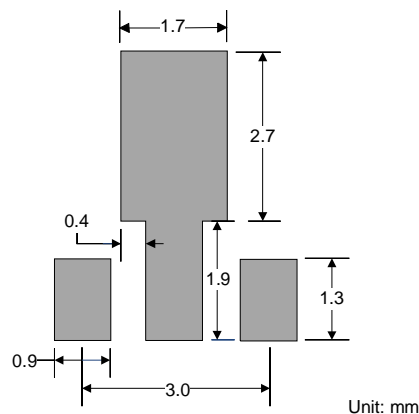
KP2 = Product Type Marking Code  
 YWW = Date Code Marking  
 Y = Last digit of year ex: 7 = 2007  
 WW = Week code 01 - 52

## Package Outline Dimensions



SOT89-3L			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.45	0.55	0.50
B1	0.37	0.47	0.42
C	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.50	1.70	1.60
E	2.40	2.60	2.50
e	—	—	1.50
H	3.95	4.25	4.10
L	0.90	1.20	1.05
All Dimensions in mm			

## Suggested Pad Layout



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