


## Features

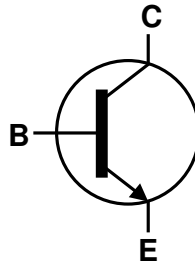
- $BV_{CEO} > 160V$
- $I_C = 600mA$  High Collector Current
- Complementary PNP Type: DXT5401
- Ideal for Medium Power Switching or Amplification Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

## Mechanical Data

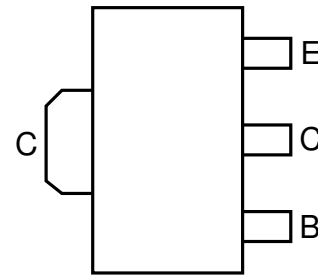
- Package: SOT89
- Package Material: Molded Plastic, "Green" Molding Compound  
UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 
- Weight: 0.052 grams (Approximate)



Top View



Device Symbol



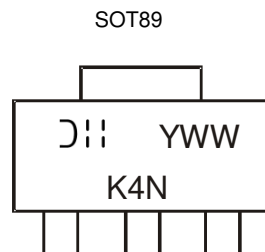
Top View  
Pin-Out


## Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
DXT5551-13	SOT89	K4N	13	12	2,500	Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



 = Manufacturer's Marking  
 K4N = Product Type Marking Code  
 YWW = Date Code Marking  
 Y or  $\bar{Y}$  = Last Digit of Year (ex: 3 = 2023)  
 WW = Week Code (01 to 52)

### Absolute Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	180	V
Collector-Emitter Voltage	V <sub>CEO</sub>	160	V
Emitter-Base Voltage	V <sub>EBO</sub>	6	V
Collector Current	I <sub>C</sub>	600	mA

### Thermal Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	0.75	W
		1.2	
Thermal Resistance, Junction to Ambient Air	R <sub>θJA</sub>	166	°C/W
		104	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

### ESD Ratings (Note 7)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
5. For a device mounted with the exposed collector pad on minimum recommended pad layout 1oz copper that is on a single-sided 1.6mm FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.
  6. Same as note 5, except the device is mounted with the exposed collector pad on 25mm x 25mm 1oz copper.
  7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b>						
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	180	—	—	V	I <sub>C</sub> = 100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV <sub>CEO</sub>	160	—	—	V	I <sub>C</sub> = 10mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	6.0	—	—	V	I <sub>E</sub> = 100μA
Collector Cut-off Current	I <sub>CBO</sub>	—	—	50	nA	V <sub>CB</sub> = 120V
				50	μA	V <sub>CB</sub> = 120V, T <sub>A</sub> = +100°C
Emitter Cut-off Current	I <sub>EBO</sub>	—	—	50	nA	V <sub>EB</sub> = 4V
<b>ON CHARACTERISTICS (Note 8)</b>						
Static Forward Current Transfer Ratio	h <sub>FE</sub>	80	—	—	—	I <sub>C</sub> = 1mA, V <sub>CE</sub> = 5V
		80		250		I <sub>C</sub> = 10mA, V <sub>CE</sub> = 5V
		30		—		I <sub>C</sub> = 50mA, V <sub>CE</sub> = 5V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	—	—	0.15	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA
				0.20		I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	—	—	1.0	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA
						I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Transition Frequency	f <sub>T</sub>	100	—	300	MHz	I <sub>C</sub> = 10mA, V <sub>CE</sub> = 10V, f = 100MHz
Output Capacitance	C <sub>obo</sub>	—	—	6	pF	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz
Small Signal Current Gain	h <sub>fe</sub>	50	—	200	—	V <sub>CB</sub> = 10V, I <sub>C</sub> = 1mA, f = 1kHz
Noise Figure	NF	—	—	8	dB	V <sub>CB</sub> = 5V, I <sub>C</sub> = 200μA, R <sub>S</sub> = 1kΩ, f = 1kHz

Note: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

**Typical Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

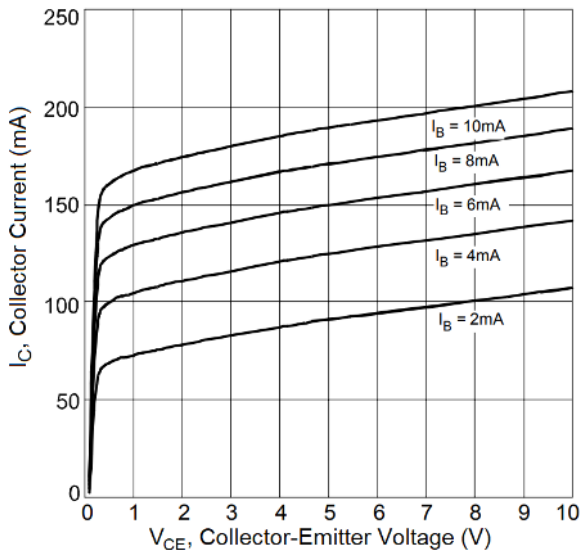


Fig.1 Typical Collector Current vs. Collector-Emitter Voltage

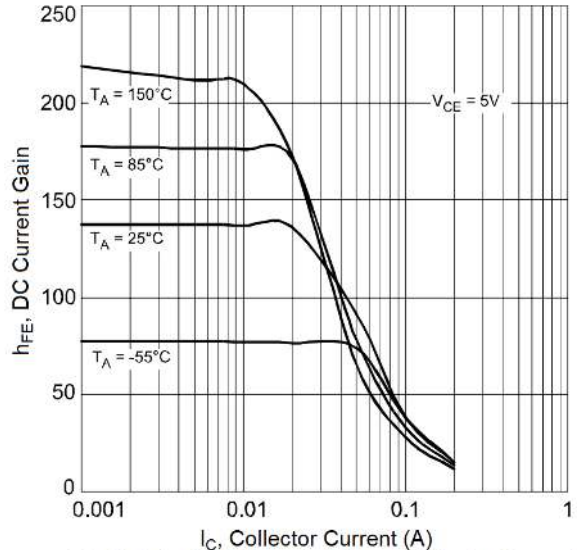


Fig.2 Typical DC Current Gain vs. Collector Current

**Typical Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.) (continued)

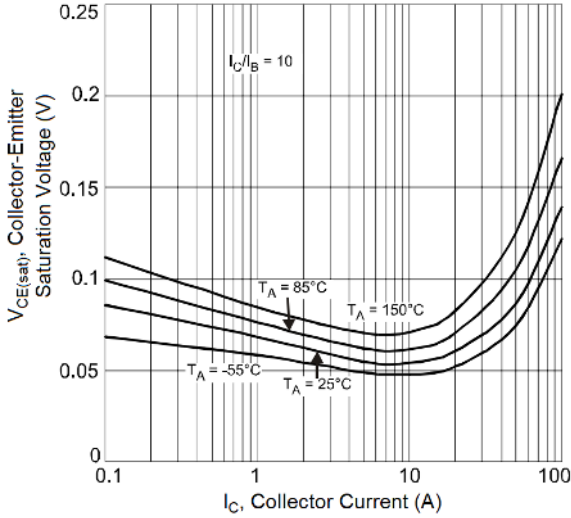


Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

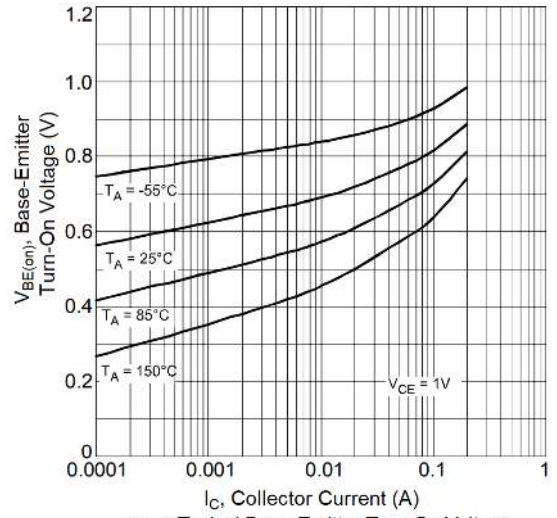


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

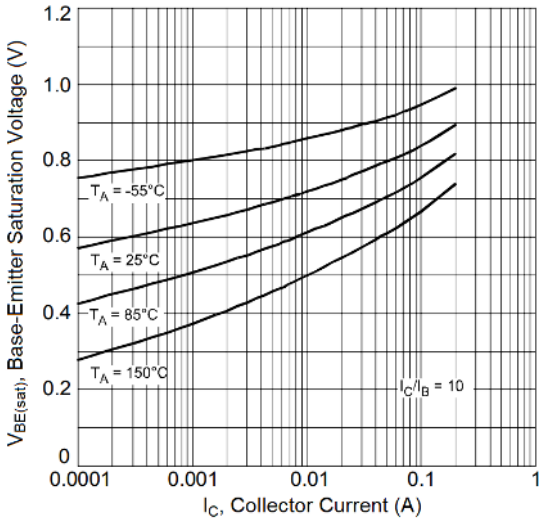


Fig. 5 Typical Base-Emitter Saturation Voltage vs. Collector Current

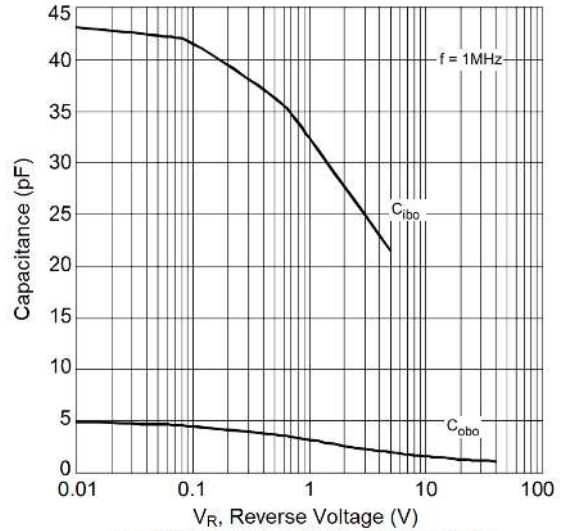


Fig. 6 Typical Capacitance Characteristics

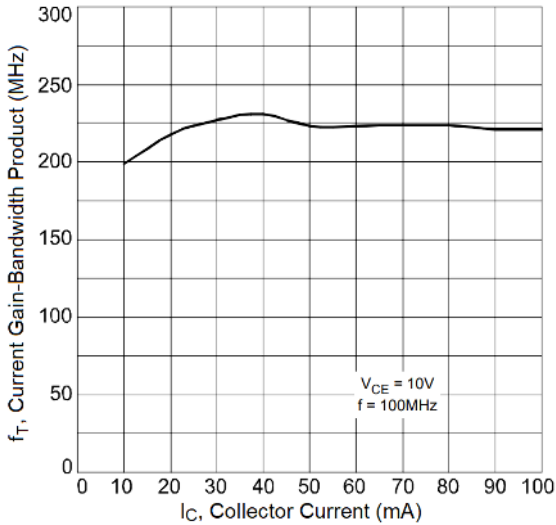
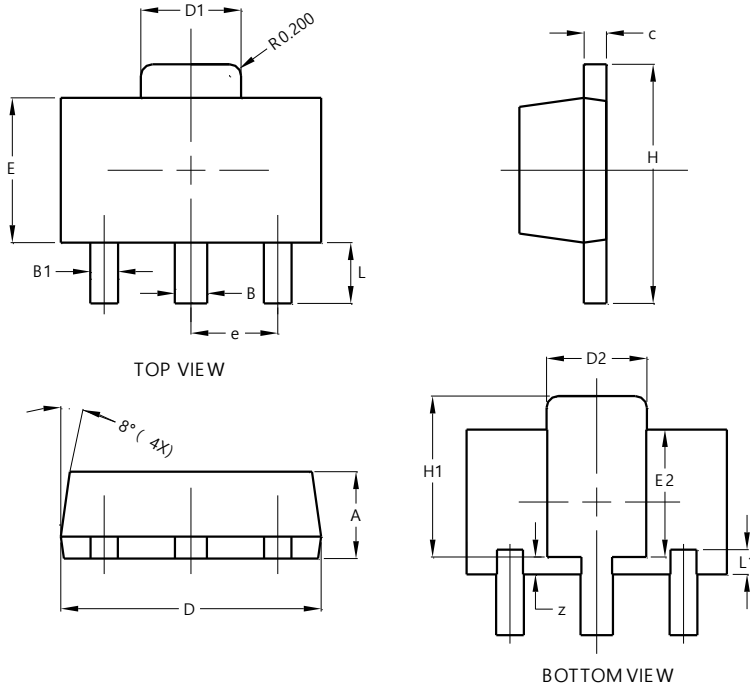


Fig. 7 Typical Gain-Bandwidth Product vs. Collector Current

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT89**

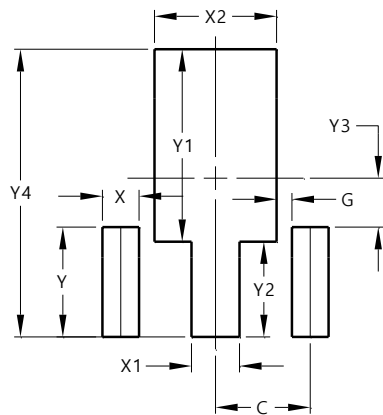


SOT89			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.327	0.527	0.427
z	0.20	0.40	0.30
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT89**



Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.730
Y1	3.030
Y2	1.500
Y3	0.770
Y4	4.530

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