

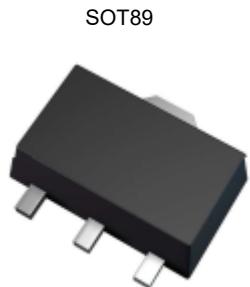
Features

- $BV_{CEO} > 160V$
- $I_C = 600mA$ 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](#) or your local Diodes representative.

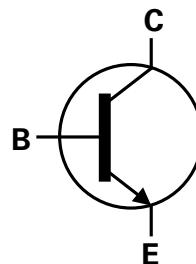
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

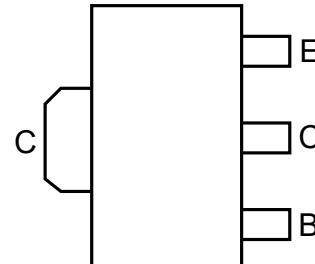
- Package: SOT89
- Package Material: Molded Plastic, "Green" Molding Compound
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.052 grams (Approximate)



Top View



Device Symbol



Top View
Pinout

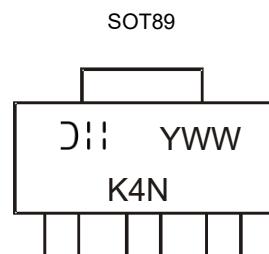
Ordering Information (Note 4)

Orderable 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



DII = Manufacturer's Marking
K4N = Product Type Marking Code
YWW = Date Code Marking
Y or Y = Last Digit of Year (ex: 5 = 2025)
WW = Week Code (01 to 52)

Absolute Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	600	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	0.75	W
		1.2	
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	166	°C/W
		104	
Operating and Storage Temperature Range	T_J, T_{STG}	-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
Electrostatic Discharge - Charged Device Model	ESD CDM	1,000	V	IV

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 and JESD22-C101.

Thermal Characteristics and Derating Information

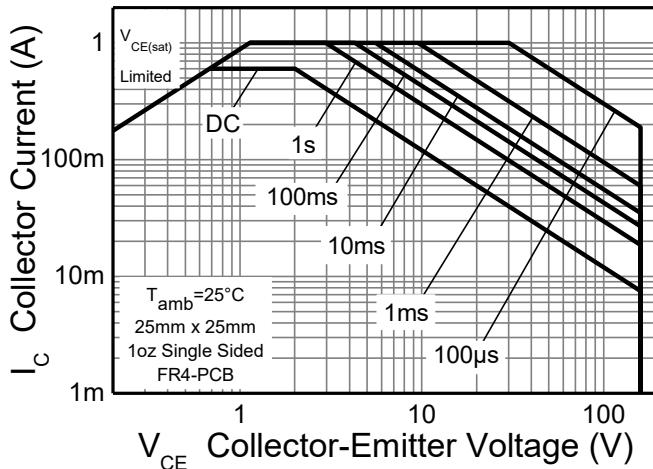


Fig 1. Safe Operating Area

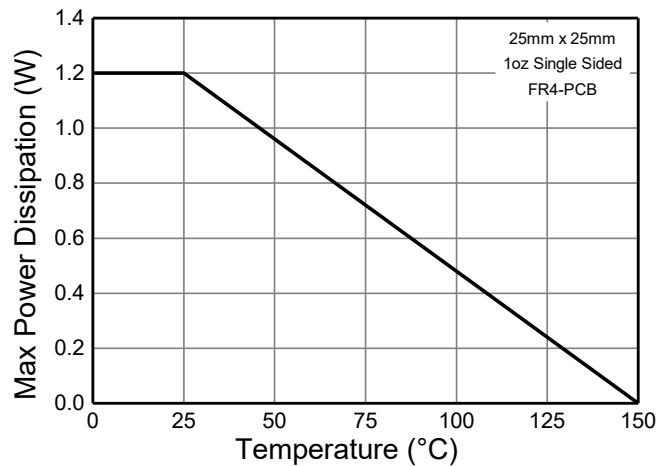


Fig 2. Derating Curve

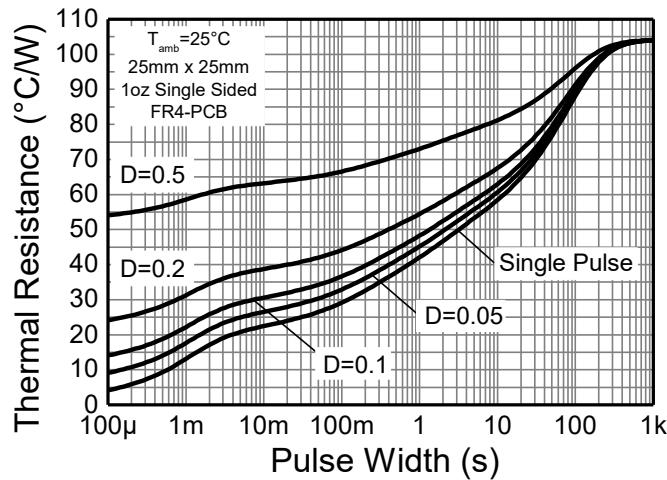


Fig 3. Transient Thermal Impedance

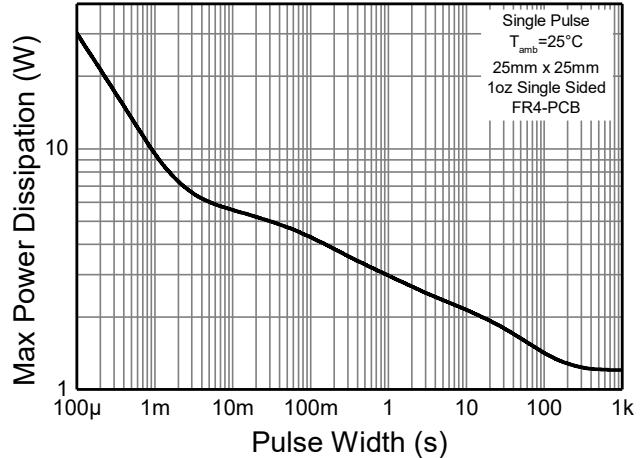


Fig 4. Pulse Power Dissipation

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	180	—	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	160	—	—	V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	6.0	—	—	V	$I_E = 100\mu\text{A}$
Collector Cut-off Current	ICBO	—	—	50	nA	$V_{\text{CB}} = 120\text{V}$
				50	μA	$V_{\text{CB}} = 120\text{V}, T_A = +100^\circ\text{C}$
Emitter Cut-off Current	IEBO	—	—	50	nA	$V_{\text{EB}} = 4\text{V}$
ON CHARACTERISTICS (Note 8)						
Static Forward Current Transfer Ratio	h_{FE}	80	—	—	—	$I_C = 1\text{mA}, V_{\text{CE}} = 5\text{V}$
		80		250		$I_C = 10\text{mA}, V_{\text{CE}} = 5\text{V}$
		30		—		$I_C = 50\text{mA}, V_{\text{CE}} = 5\text{V}$
Collector-Emitter Saturation Voltage	$\text{V}_{\text{CE}(\text{sat})}$	—	—	0.15 0.20	V	$I_C = 10\text{mA}, I_B = 1\text{mA}$ $I_C = 50\text{mA}, I_B = 5\text{mA}$
Base-Emitter Saturation Voltage	$\text{V}_{\text{BE}(\text{sat})}$	—	—	1.0	V	$I_C = 10\text{mA}, I_B = 1\text{mA}$ $I_C = 50\text{mA}, I_B = 5\text{mA}$
SMALL-SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	100	—	300	MHz	$I_C = 10\text{mA}, V_{\text{CE}} = 10\text{V}, f = 100\text{MHz}$
Output Capacitance	C_{obo}	—	—	6	pF	$V_{\text{CB}} = 10\text{V}, I_E = 0, f = 1\text{MHz}$
Small-Signal Current Gain	h_{fe}	50	—	200	—	$V_{\text{CB}} = 10\text{V}, I_C = 1\text{mA}, f = 1\text{kHz}$
Noise Figure	NF	—	—	8	dB	$V_{\text{CB}} = 5\text{V}, I_C = 200\mu\text{A}, R_S = 1\text{k}\Omega, f = 1\text{kHz}$

Note: 8. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

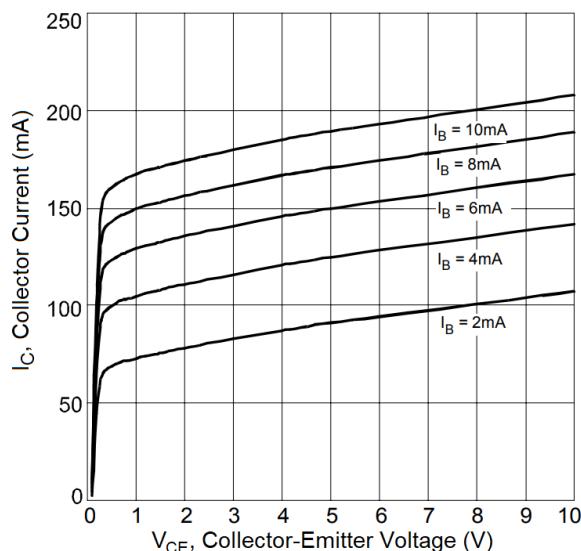
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)


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

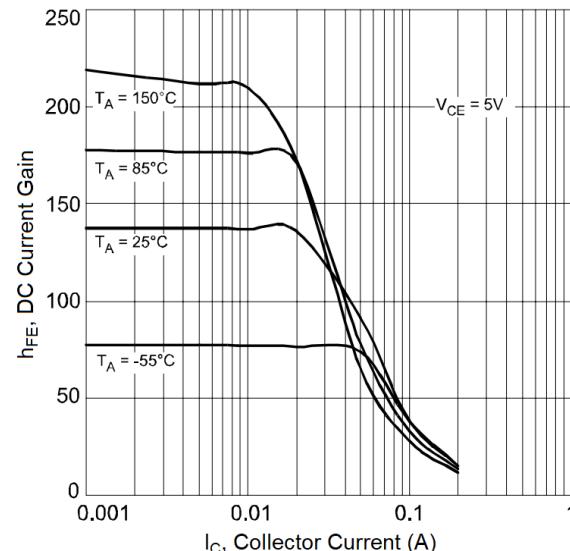


Fig 6. Typical DC Current Gain vs. Collector Current

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

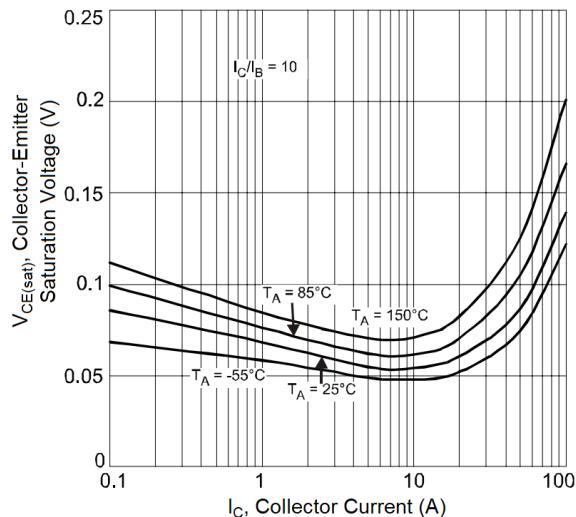


Fig 7. Typical Collector-Emitter Saturation Voltage vs. Collector Current

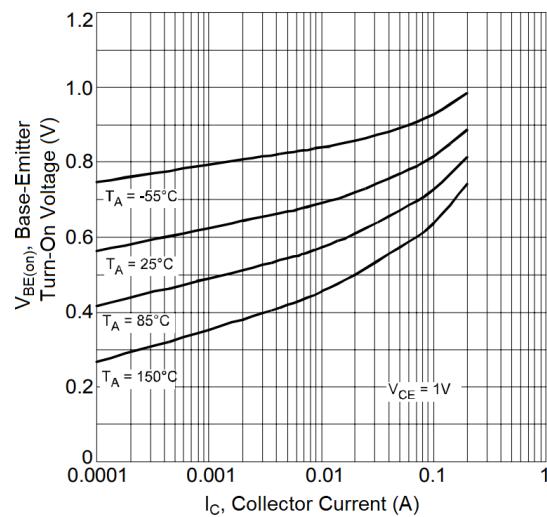


Fig 8. Typical Base-Emitter Turn-On Voltage vs. Collector Current

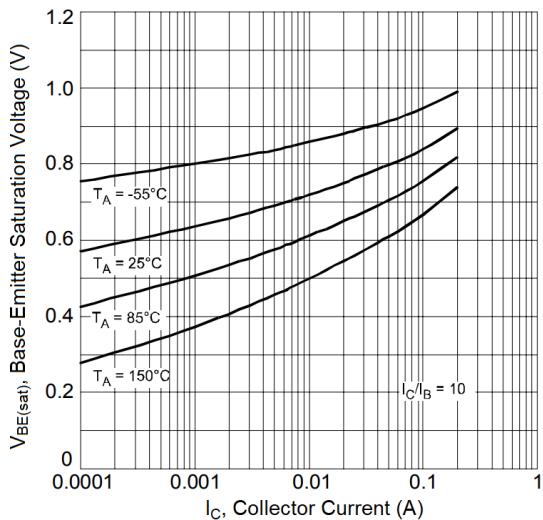


Fig 9. Typical Base-Emitter Saturation Voltage vs. Collector Current

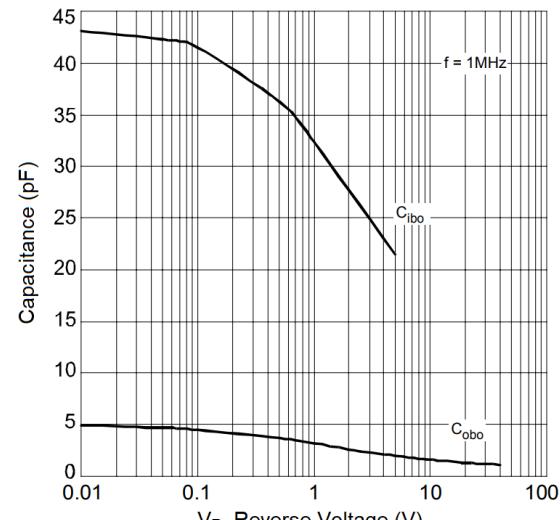


Fig 10. Typical Capacitance Characteristics

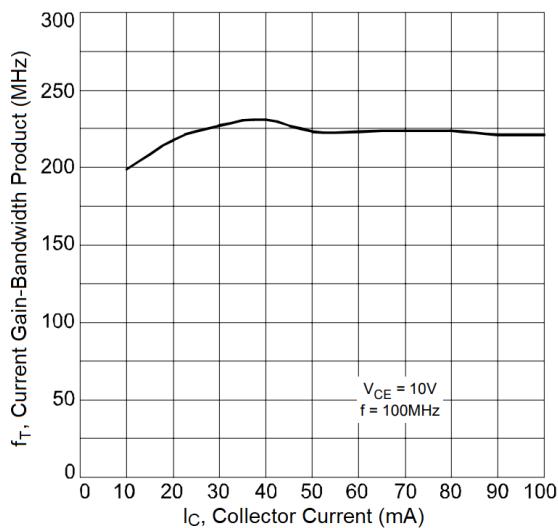
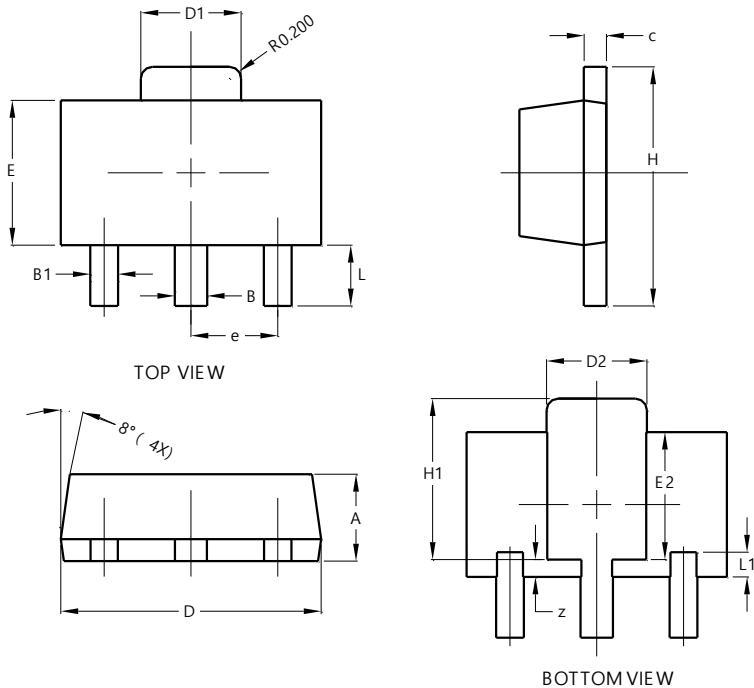


Fig 11. Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions

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

SOT89



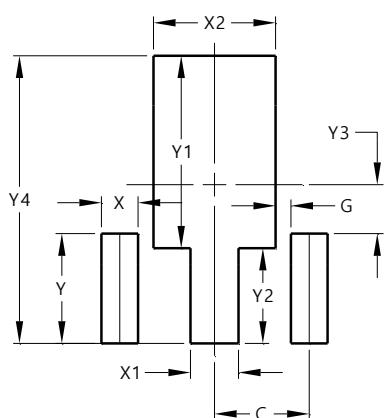
SOT89			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.327	0.527	0.427
z	0.20	0.40	0.30

All Dimensions in mm

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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