

Features

- $BV_{CEO} > 160V$
- $I_C = 600mA$ High Collector Current
- Complementary PNP Type Available (ZXTP5401FLQ)
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The ZXTN5551FLQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**

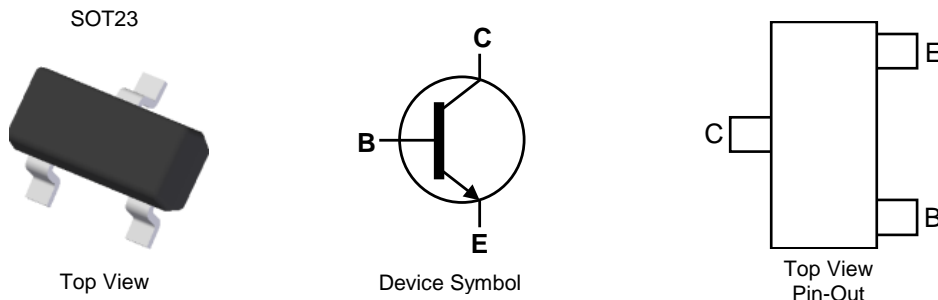
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: SOT23
- 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: 0.008 grams (Approximate)

Application

- High voltage amplification

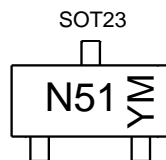


Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN5551FLQTA	Automotive	N51	7	8	3,000

- 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



N51 = Product Type Marking Code
 YM = Date Code Marking
 Y or \bar{Y} = Year (ex: J = 2022)
 M = Month (ex: 9 = September)

Date Code Key

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	I	J	K	L	M	N	O	P	R	S	T	U
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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
Continuous Collector Current (Note 5)	I_C	600	mA

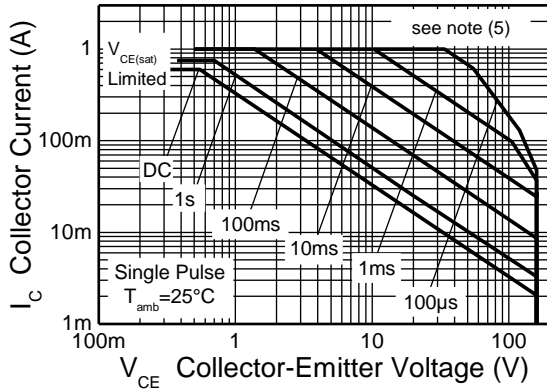
Thermal Characteristics (@ $T_A = +25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	330	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	379	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

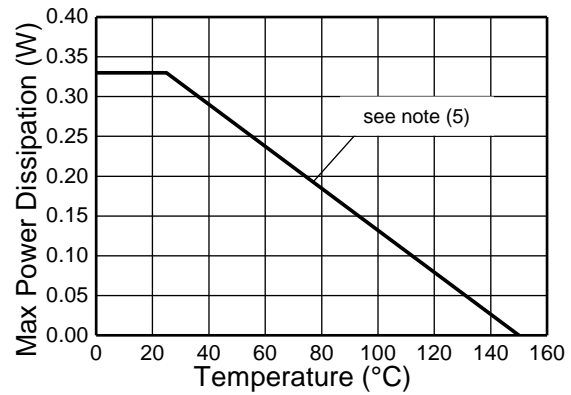
ESD Ratings (Note 6)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Charged Device Model	ESD CDM	1000	V	C3

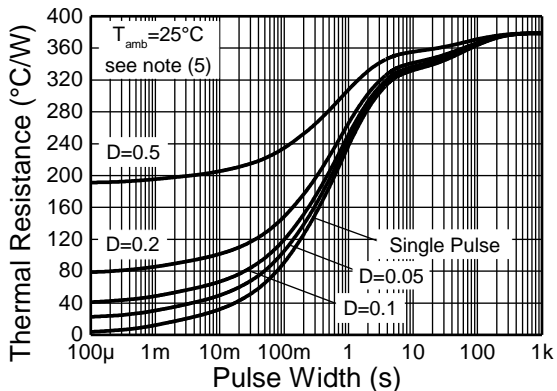
- Notes: 5. For a device mounted on 25mm x 25mm pad layout 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Refer to JEDEC specification JESD22-A114 and JESD22-A115.



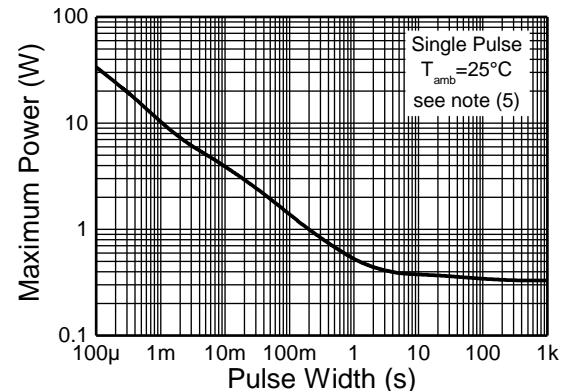
Safe Operating Area



Derating Curve



Transient Thermal Impedance



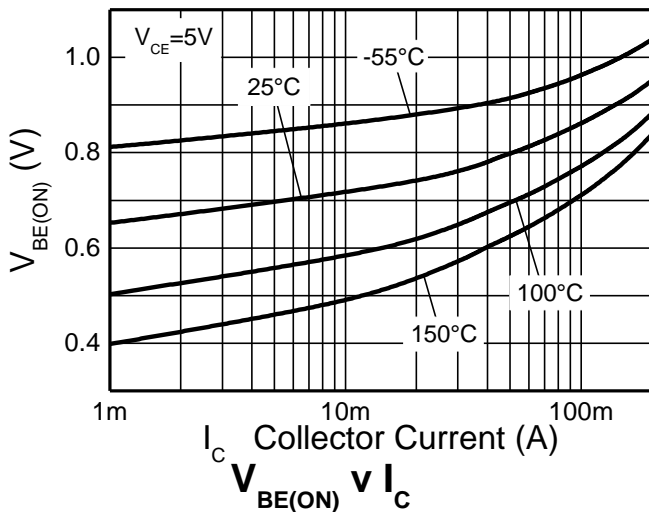
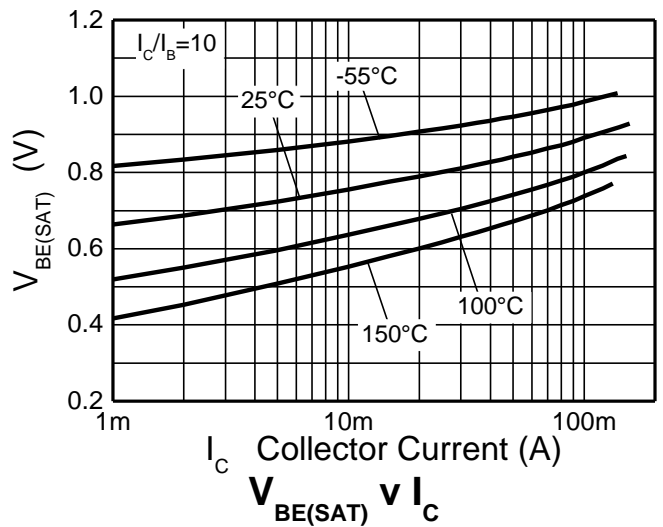
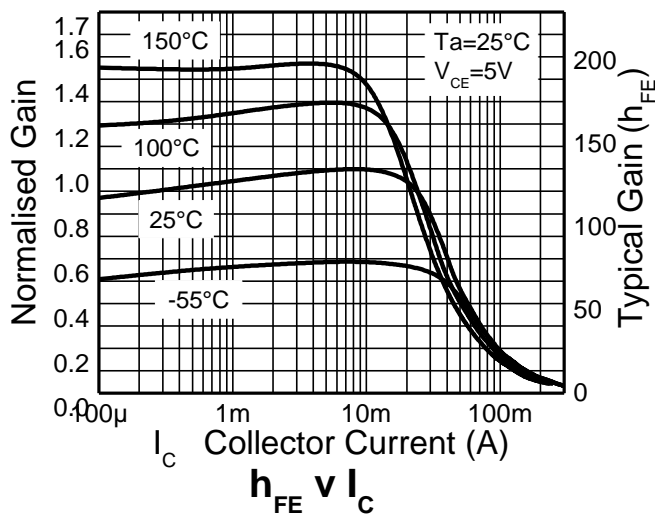
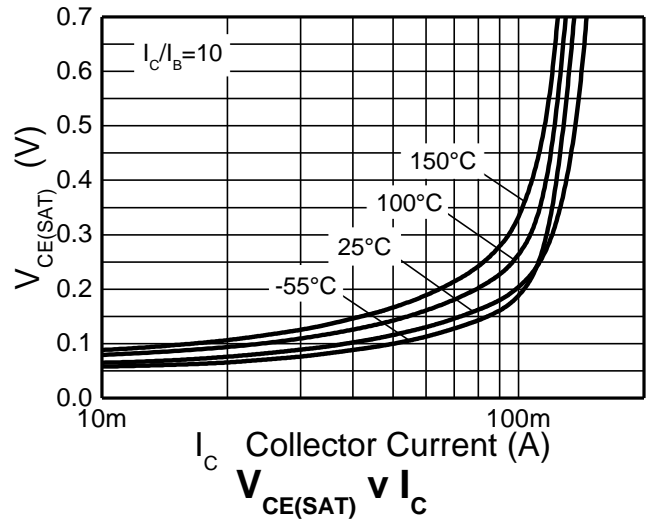
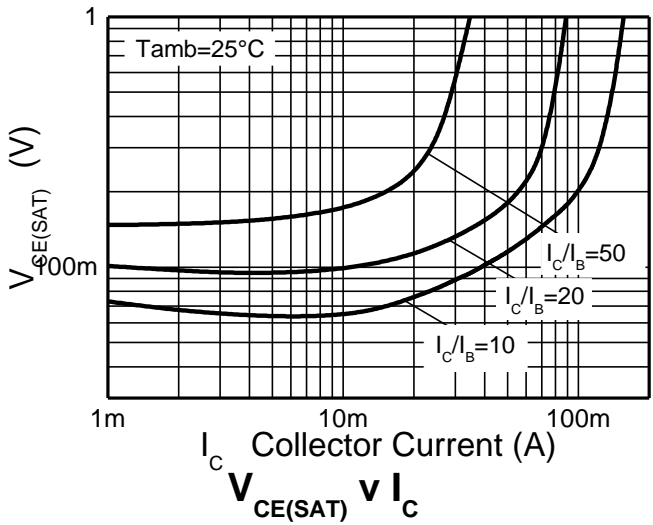
Pulse Power Dissipation

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Collector-Base Breakdown Voltage	BV_{CBO}	180	270	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	160	200	—	V	$I_C = 1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	6	7	—	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	<1	50	nA	$V_{CB} = 120\text{V}$
		—	—	50	μA	$V_{CB} = 120\text{V}, T_A = 100^\circ\text{C}$
ON CHARACTERISTICS (Note 7)						
DC Current Gain	h_{FE}	80	135	—	—	$I_C = 10\text{mA}, V_{CE} = 5\text{V}$
		80	145	250	—	$I_C = 10\text{mA}, V_{CE} = 5\text{V}$
		30	65	—	—	$I_C = 50\text{mA}, V_{CE} = 5\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	65	150	V	$I_C = 10\text{mA}, I_B = 1\text{mA}$
			115	200		$I_C = 50\text{mA}, I_B = 5\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	760	1000	mV	$I_C = 10\text{mA}, I_B = 1\text{mA}$
			840	1200		$I_C = 50\text{mA}, I_B = 5\text{mA}$
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	—	—	6	pF	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$
Small Signal Current Gain	h_{fe}	50	—	260	—	$V_{CE} = 10\text{V}, I_C = 1\text{mA}, f = 1\text{kHz}$
Transition Frequency	f_T	—	130	—	MHz	$V_{CE} = 10\text{V}, I_C = 10\text{mA}, f = 1\text{kHz}$
Delay time	t_d	—	95	—	nS	$V_{CC} = 10\text{V}, I_C = 10\text{mA}, I_{B1} = -I_{B2} = 1\text{mA}$
Rise Time	t_r	—	64	—	nS	
Storage Time	t_s	—	1256	—	nS	
Fall Time	t_f	—	140	—	nS	

Note: 7. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

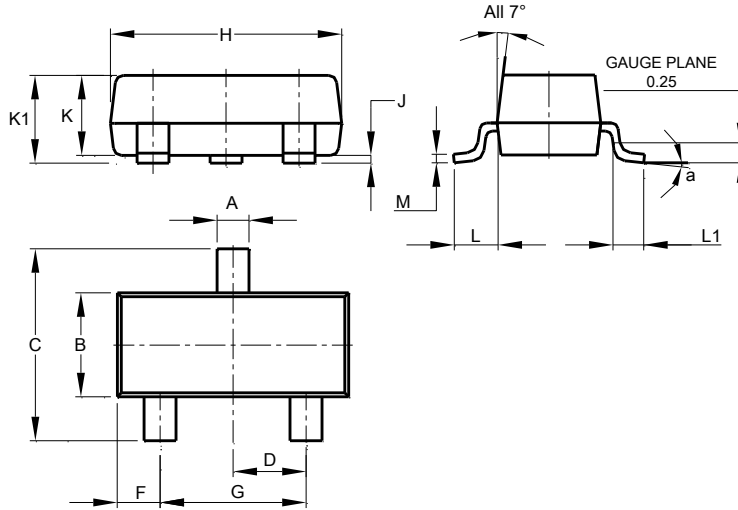
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

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

SOT23

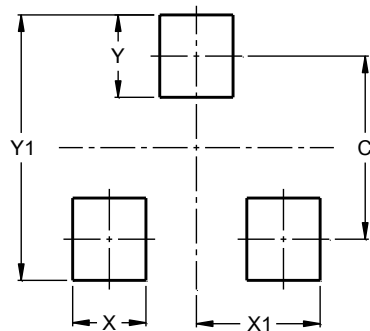


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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