

150V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT23

Features and Benefits

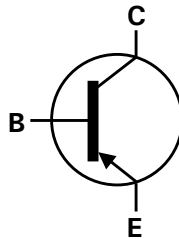
- $BV_{CEO} > -150V$
- Maximum Continuous Collector Current $I_C = -600mA$
- Excellent h_{FE} Characteristics up to $I_C = -50mA$
- Low Saturation Voltages
- Complementary part number ZXTN5551FL
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

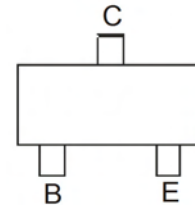
- Case: SOT23
- UL Flammability Rating 94V-0
- Case material: molded Plastic.
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (Approximate)



Top View



Device Symbol



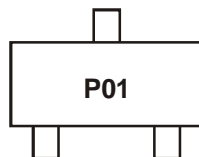
Top View
Pin-Out

Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP5401FLTA	P01	7	8	3,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> 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 <http://www.diodes.com>

Marking Information



P01 = Product Type Marking Code

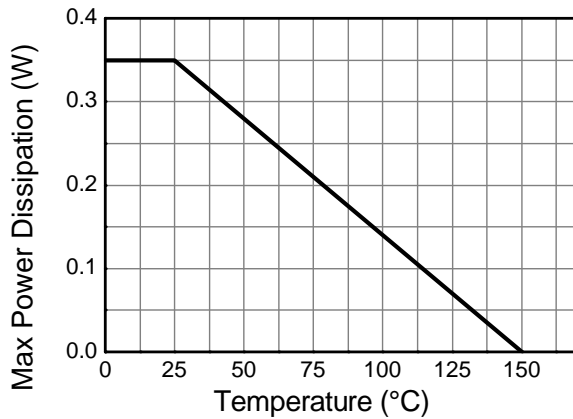
Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-160	V
Collector-Emitter Voltage	V_{CEO}	-150	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-600	mA
Peak Pulse Current	I_{CM}	-1	A

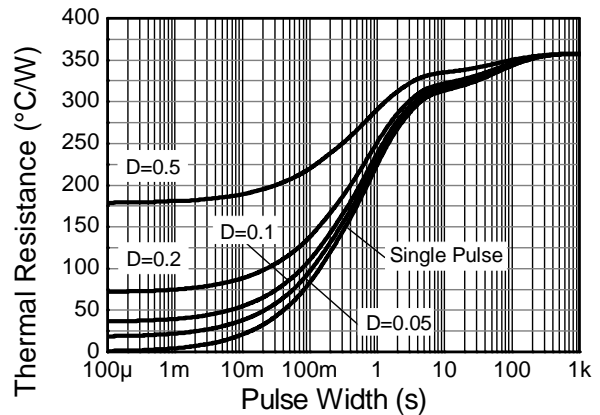
Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector Power Dissipation	P_D	(Note 5)	310
		(Note 6)	350
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	(Note 5)	403
		(Note 6)	357
Thermal Resistance, Junction to Leads	$R_{\theta JL}$	350	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

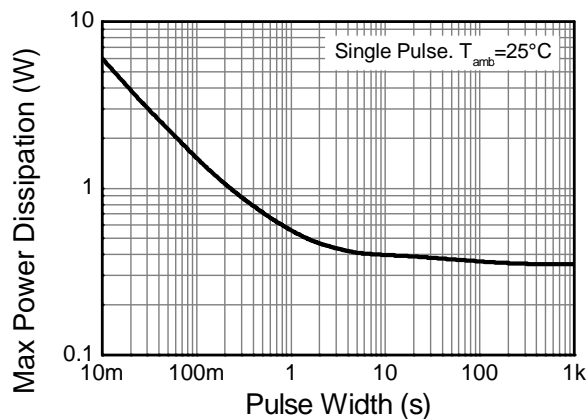
Notes: 5. For the device mounted on minimum recommended pad layout FR4 PCB with high coverage of single sided 1oz copper in still air condition;
6. Same as Note 5, expect the device is mounted on 15mm X 15mm X 1.6mm FR4 PCB
7. Thermal resistance from junction to solder-point (at the end of the collector lead).



Derating Curve



Transient Thermal Impedance



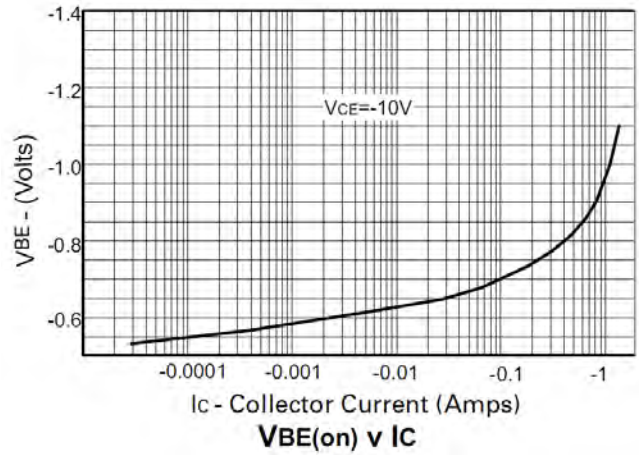
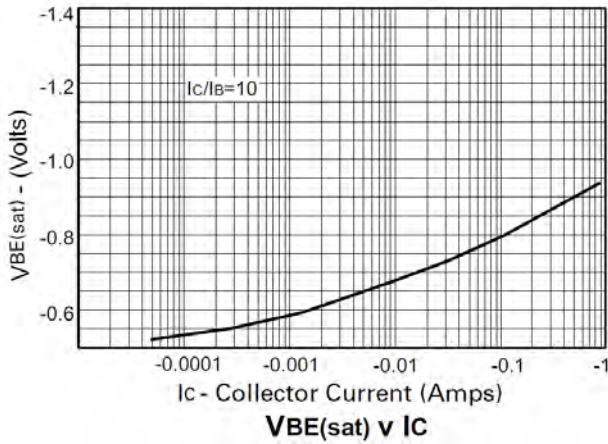
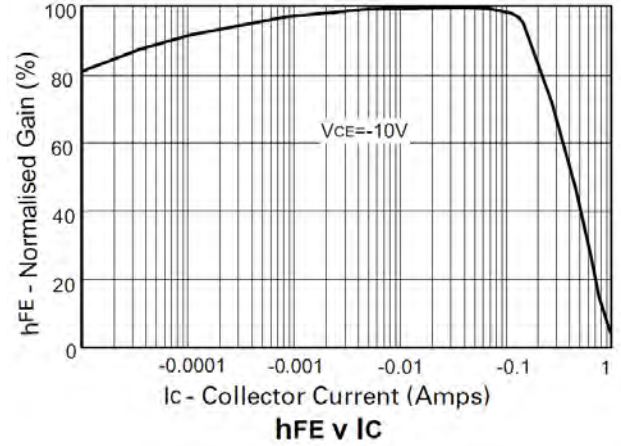
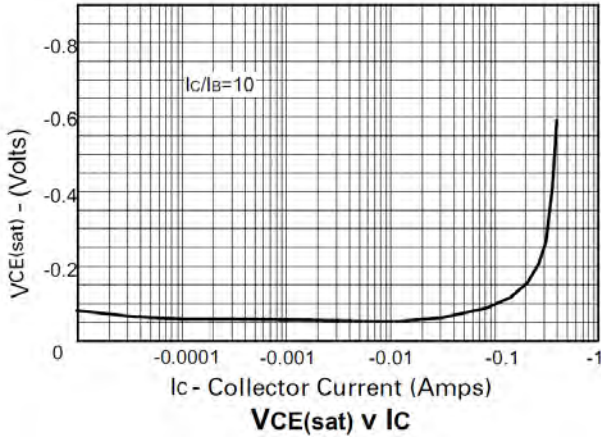
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

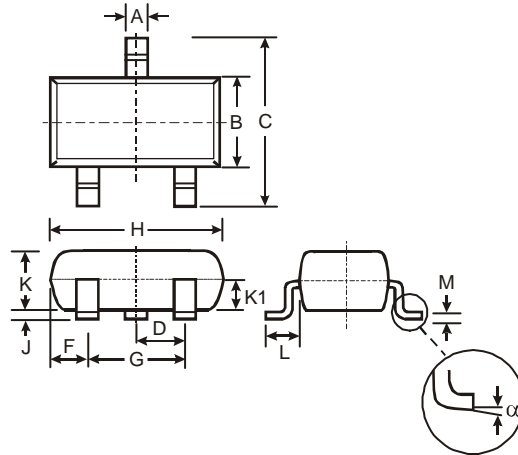
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-160	-270	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV _{CEO}	-150	-240	-	V	I _C = -1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-5	-8.1	-	V	I _E = -100μA
Collector Cutoff Current	I _{CBO}	-	< -1 -	-50 -50	nA μA	V _{CB} = -120V V _{CB} = -120V, T _{amb} = 100°C
Static Forward Current Transfer Ratio (Note 8)	h _{FE}	50 60 50	135 135 130	- 240 -	-	I _C = -1mA, V _{CE} = -5V I _C = -10mA, V _{CE} = -5V I _C = -50mA, V _{CE} = -5V
Collector-Emitter Saturation Voltage (Note 8)	V _{CE(sat)}	- -	-50 -70	-200 -500	mV	I _C = -10mA, I _B = -1mA I _C = -50mA, I _B = -5mA
Base-Emitter Saturation Voltage (Note 8)	V _{BE(sat)}	-	-700 -750	-1000 -1000	mV	I _C = -10mA, I _B = -1mA I _C = -50mA, I _B = -5mA
Output Capacitance	C _{obo}	-	-	10	pF	V _{CB} = -10V, f = 1MHz
Transition Frequency	f _T	-	100	-	MHz	V _{CE} = -10V, I _C = -10mA, f = 100MHz
Delay Time	t _d	-	386	-	ns	V _{CC} = -50V, I _C = -100mA, I _{B1} = I _{B2} = -10mA
Rise Time	t _r	-	202	-	ns	
Storage Time	t _s	-	1720	-	ns	
Fall Time	t _f	-	275	-	ns	

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

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

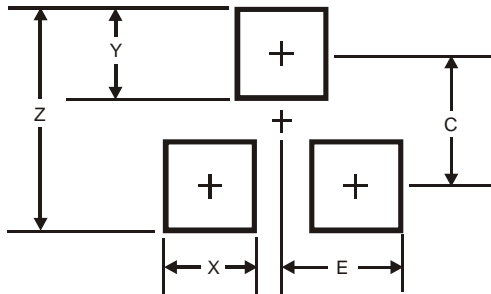


Package Outline Dimensions



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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.