

ZX5T1951G

60V PNP MEDIUM POWER TRANSISTOR IN SOT223

Features

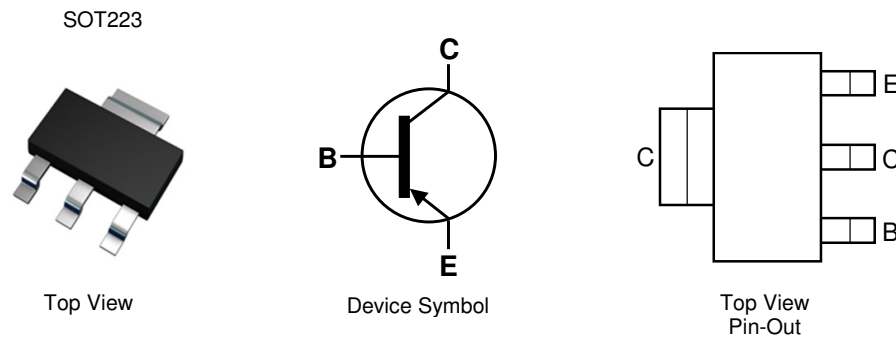
- $BV_{CEO} > -60V$
- $I_C = -6A$ Continuous Collector Current
- Low Saturation Voltage $V_{CE(sat)} < -95mV$ max @ -1A
- $R_{CE(sat)} = 40m\Omega$ for a low Equivalent On-Resistance
- h_{FE} Specified up to -10A for a High Gain Hold-Up
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT223
- Case 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 ③
- Weight: 0.112 grams (Approximate)

Applications

- Motor Driving
- DC-DC Modules
- Backlight Inverters
- Actuator, Relay, and Solenoid Drivers

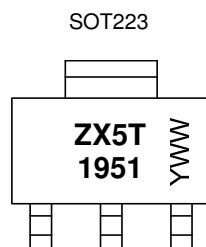


Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZX5T1951GTA	ZX5T1951	7	12	1,000

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See http://www.diodes.com/quality/lead_free.html 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/products/packages.html>.

Marking Information



ZX5T1951 = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Last Digit of Year (ex: 5= 2015)
 WW or $\bar{W}W$ = Week Code (01~53)

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-90	V
Collector-Emitter Voltage	V _{CES}	-90	V
Collector-Base Voltage	V _{CEO}	-60	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current (Note 5)	I _C	-6	A
Peak Pulse Current	I _{CM}	-15	A
Base Current	I _B	-1	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

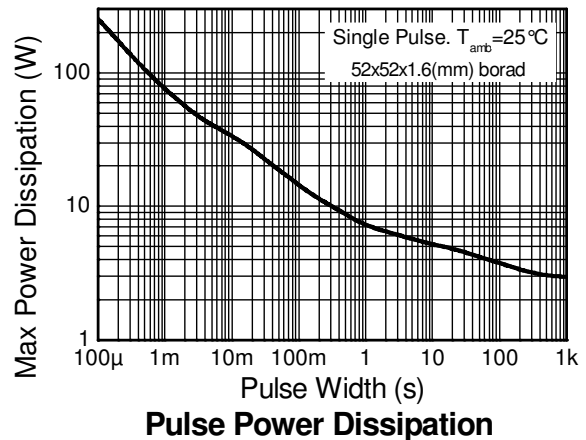
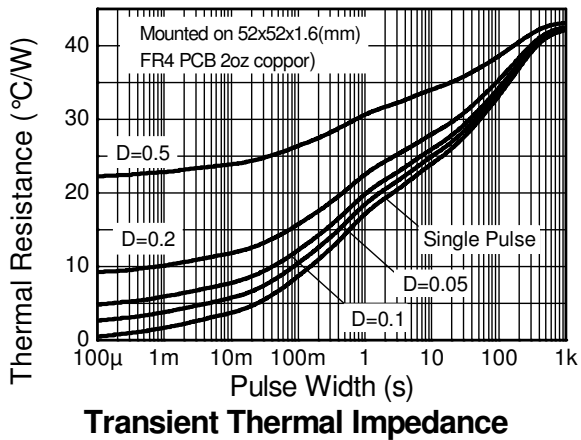
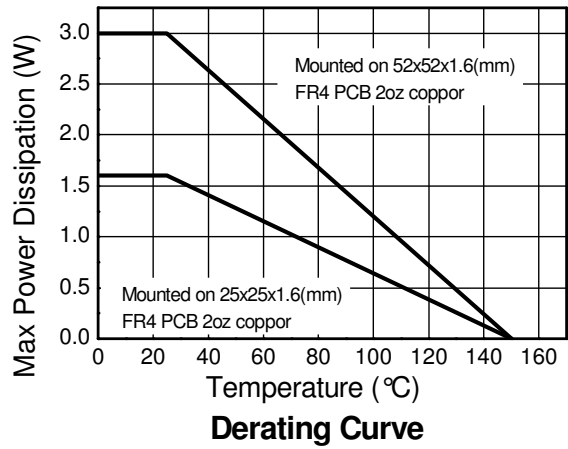
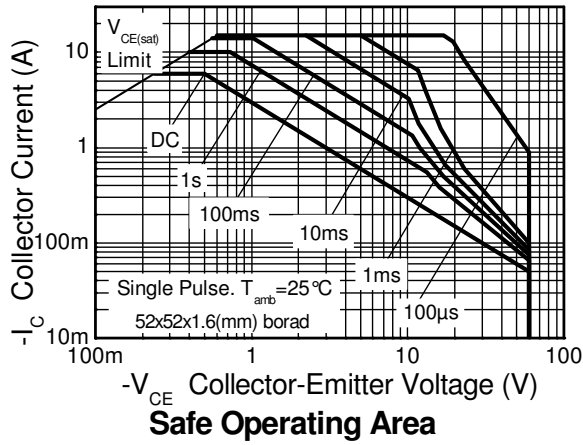
Characteristic	Symbol	Value	Unit
Power Dissipation Linear Derating Factor	P _D	3.0 24	W mW / °C
		(Note 5)	
Thermal Resistance, Junction to Ambient	R _{θJA}	1.6 12.8	°C/W
		(Note 6)	
Thermal Resistance Junction to Lead	R _{θJL}	42 78	°C/W
		(Note 7)	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 8)

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 collector lead on 52mm x 52mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 6. Same as Note 5, except the device is mounted on 25mm x 25mm 1oz copper.
 7. Thermal resistance from junction to solder-point (at the end of the collector lead).
 8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics

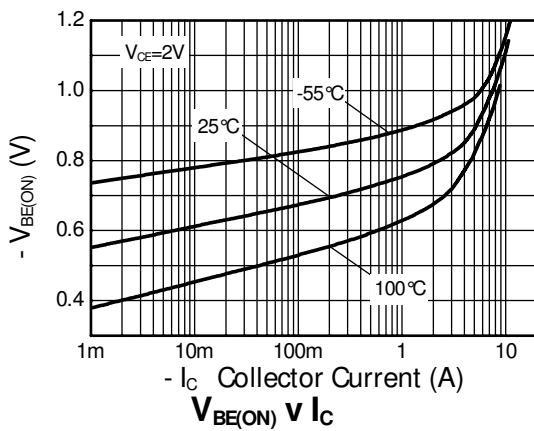
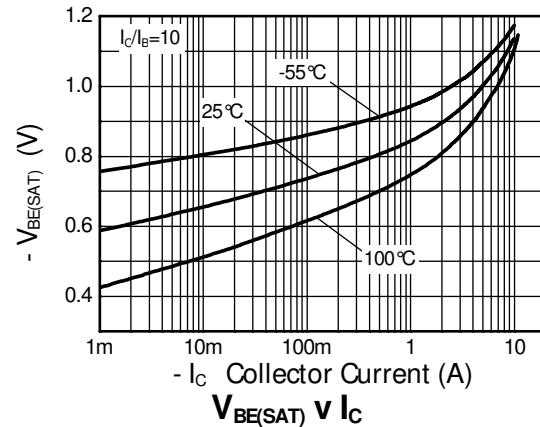
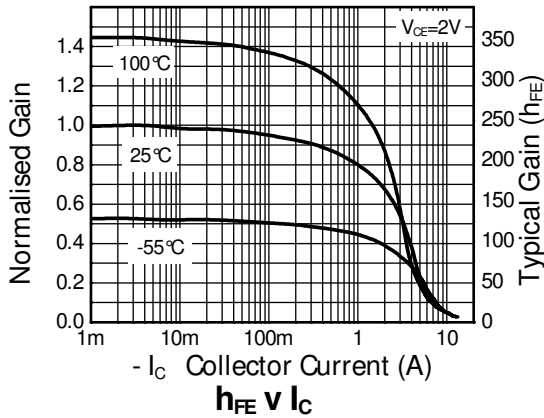
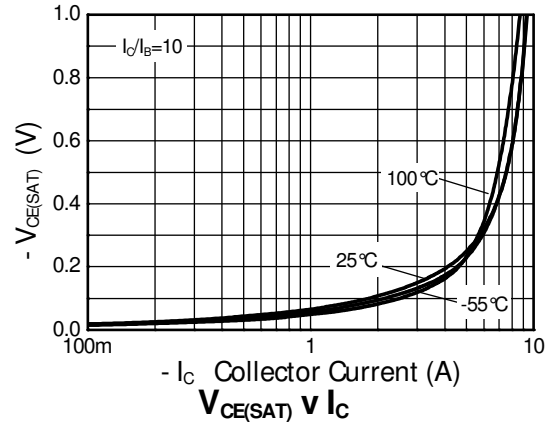
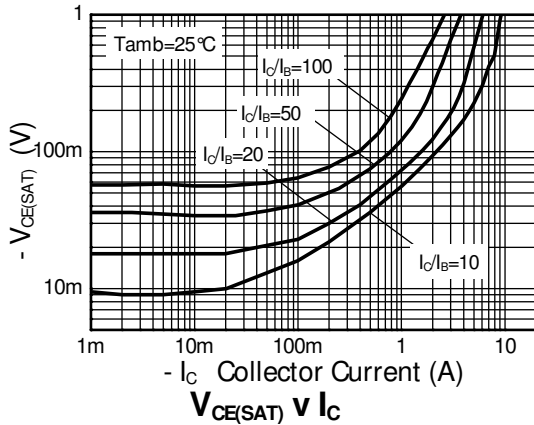


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-90	-120	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage	BV _{CES}	-90	-120	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV _{CEO}	-60	-80	-	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8	-	V	I _E = -100μA
Collector-Base Cut-Off Current	I _{CBO}	-	<1	-50	nA	V _{CB} = -72V
Collector-Emitter Cut-Off Current	I _{CES}	-	<1	-50	nA	V _{CB} = -72V
Emitter Cutoff Current	I _{EBO}	-	<1	-10	nA	V _{EB} = -6V
Static Forward Current Transfer Ratio (Note 9)	h _{FE}	100	240	-	-	I _C = -10mA, V _{CE} = -2V
		100	180	300		I _C = -2A, V _{CE} = -2V
		40	70	-		I _C = -5A, V _{CE} = -2V
		5	14	-		I _C = -10A, V _{CE} = -2V
Collector-Emitter Saturation Voltage (Note 9)	V _{CE(sat)}	-	-16	-30	mV	I _C = -100mA, I _B = -10mA
		-	-55	-95		I _C = -1A, I _B = -100mA
		-	-85	-130		I _C = -2A, I _B = -200mA
		-	-200	-260		I _C = -5A, I _B = -500mA
Base-Emitter Saturation Voltage (Note 9)	V _{BE(sat)}	-	-1	-1.15	V	I _C = -5A, I _B = -500mA
Base-Emitter Turn-On Voltage (Note 9)	V _{BE(on)}	-	-0.89	-1.0	V	I _C = -5A, V _{CE} = -2V
Output Capacitance (Note 9)	C _{obo}	-	33	70	pF	V _{CB} = -10V, f = 1MHz
Transition Frequency	f _T	-	120	-	MHz	V _{CE} = -10V, I _C = -100mA f = 50MHz
Switching Time	t _{on}	-	33	80	ns	V _{CC} = -10V, I _C = -2A I _{B1} = -I _{B2} = -200mA
	t _{off}	-	215	300		

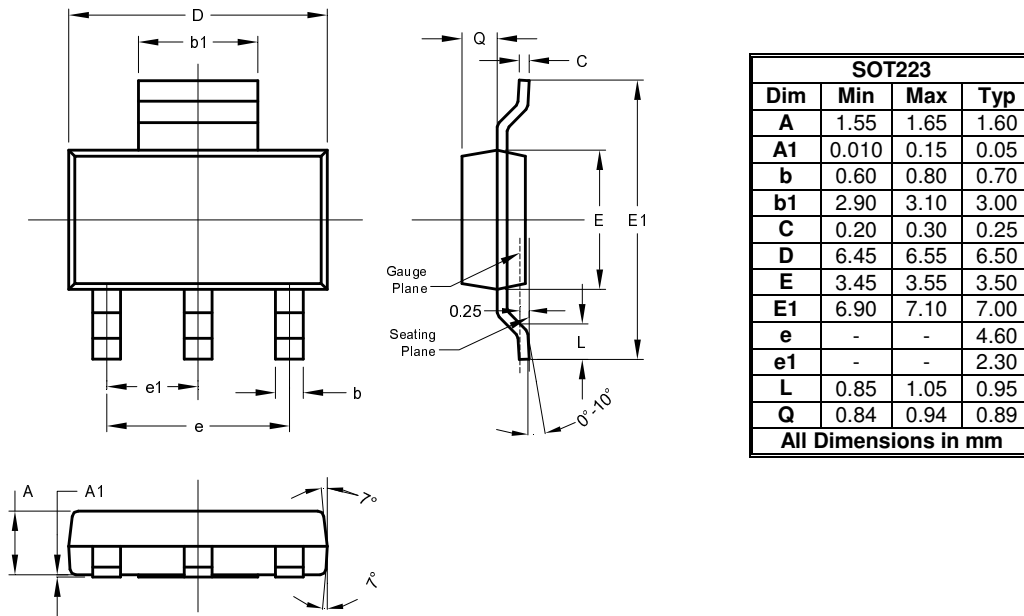
Note: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

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



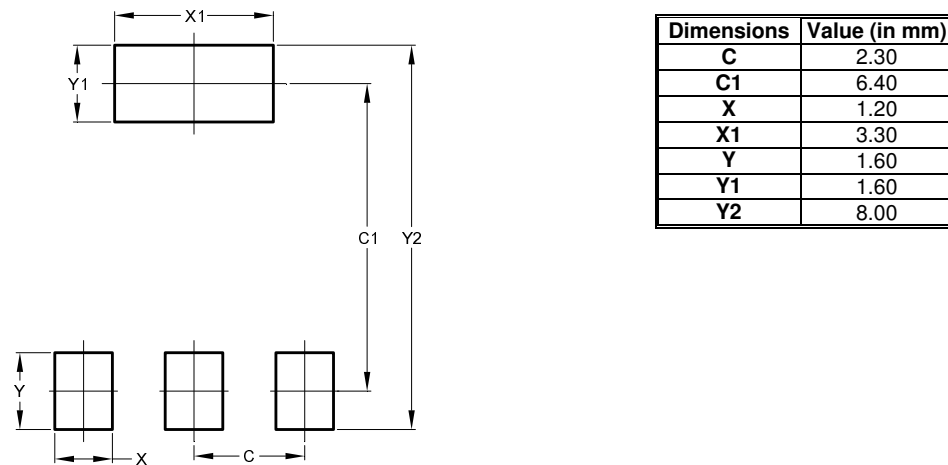
Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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