

**60V PNP HIGH PERFORMANCE TRANSISTOR IN SOT223**

**Features**

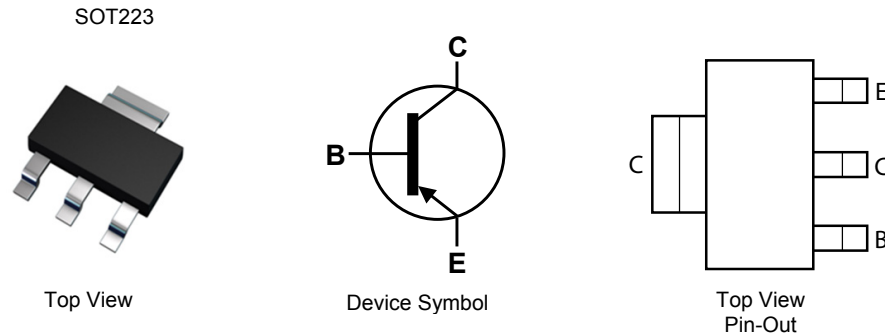
- $BV_{CEO} > -60V$
- $I_C = -3A$  high Continuous Current
- $I_{CM} = -6A$  Peak Pulse Current
- Low Saturation Voltage  $V_{CE(sat)} < -300mV @ -1A$
- Complementary NPN Type: FZT651
- **Lead-Free Finish; RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP capable (Note 4)**

**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 Ⓔ
- Weight: 0.112 grams (approximate)

**Applications**

- Automotive lighting
- MOSFET and IGBT gate driving

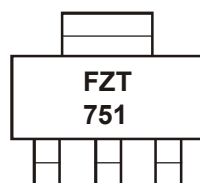


**Ordering Information** (Notes 4 & 5)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT751TA	AEC-Q101	FZT751	7	12	1,000
FZT751QTA	Automotive	FZT751	7	12	1,000
FZT751TC	AEC-Q101	FZT751	13	12	4,000
FZT751QTC	Automotive	FZT751	13	12	4,000

- 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> 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified.
  5. For packaging details, go to our website at <http://www.diodes.com>

**Marking Information**



FZT751 = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-80	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-60	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Continuous Collector Current	I <sub>C</sub>	-3	A
Peak Pulse Current	I <sub>CM</sub>	-6	A

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

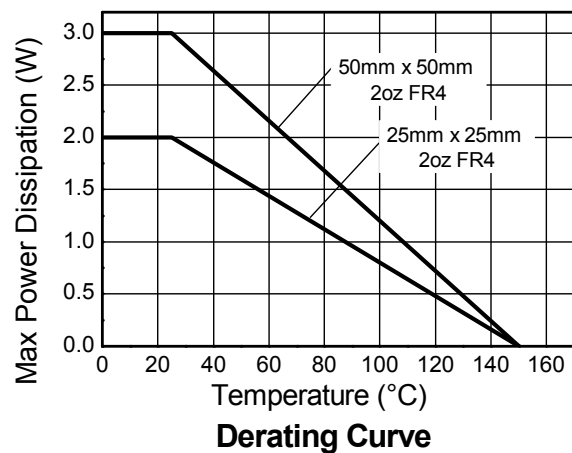
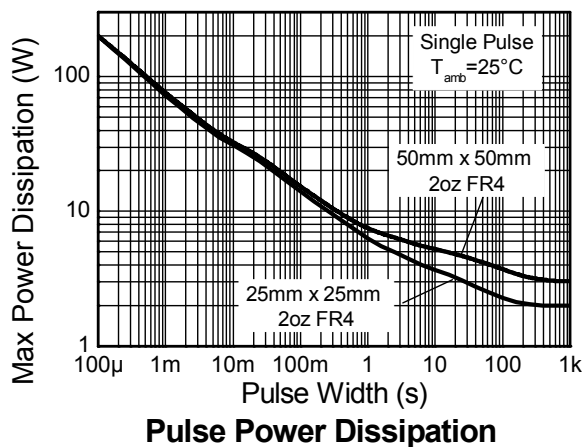
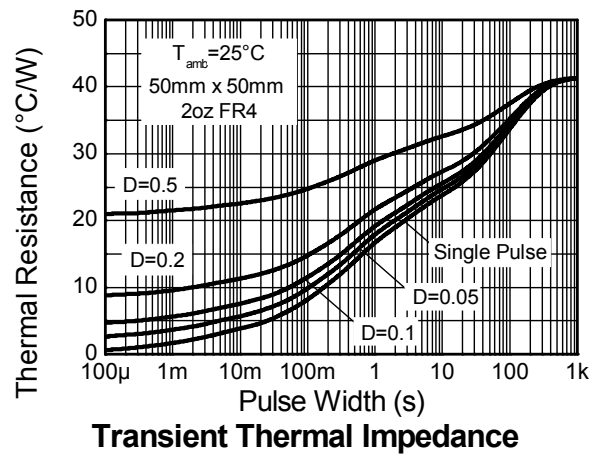
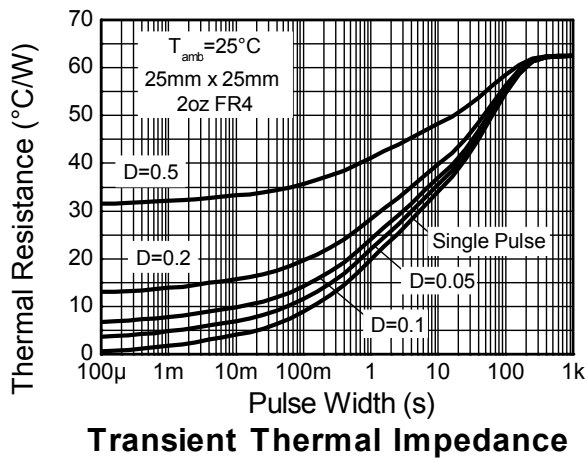
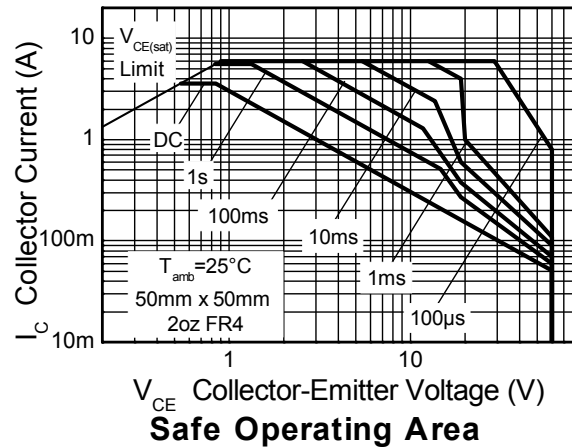
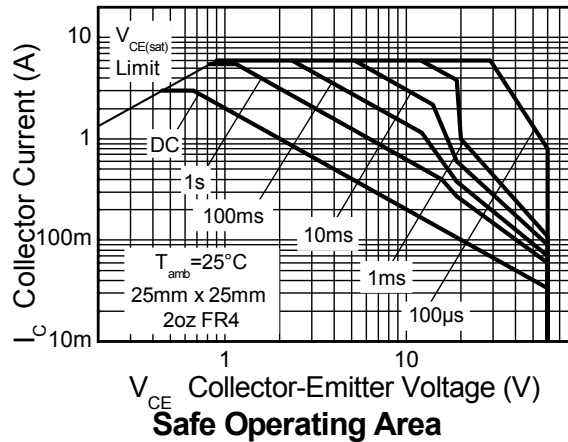
Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	2	W
		3	W
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	62.5	°C/W
		41.7	°C/W
Thermal Resistance, Junction to Leads	R <sub>θJL</sub>	12.93	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**ESD Ratings** (Note 10)

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:
7. For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; device measured when operating in steady state condition.
  8. Same as note (7), except the device is mounted on 50mm X 50mm single sided 2oz weight copper.
  9. Thermal resistance from junction to solder-point (at the end of the collector lead).
  10. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

**Thermal Characteristics and Derating Information**

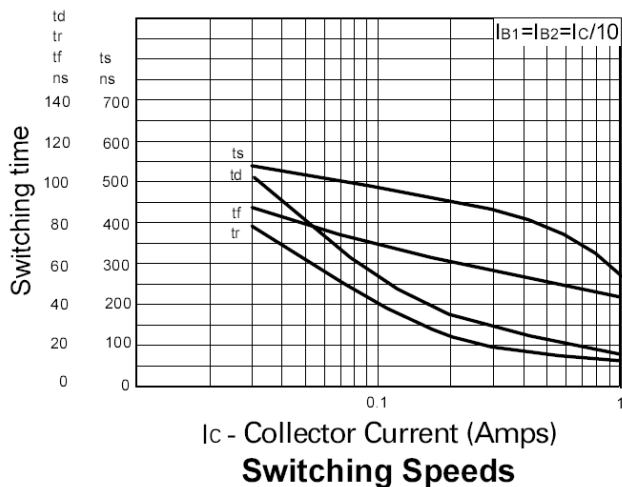
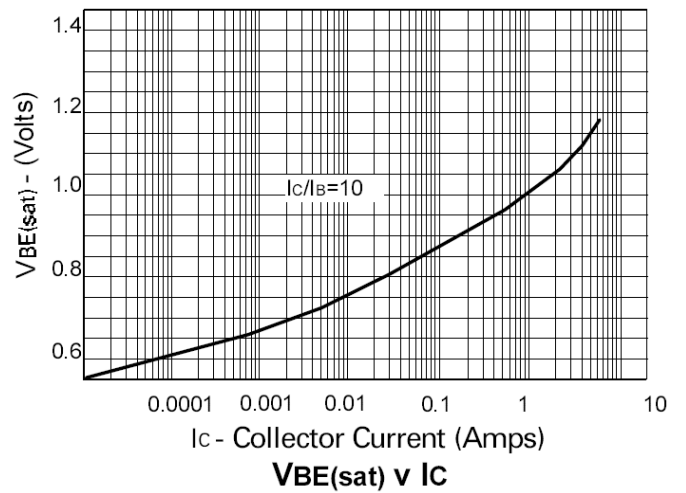
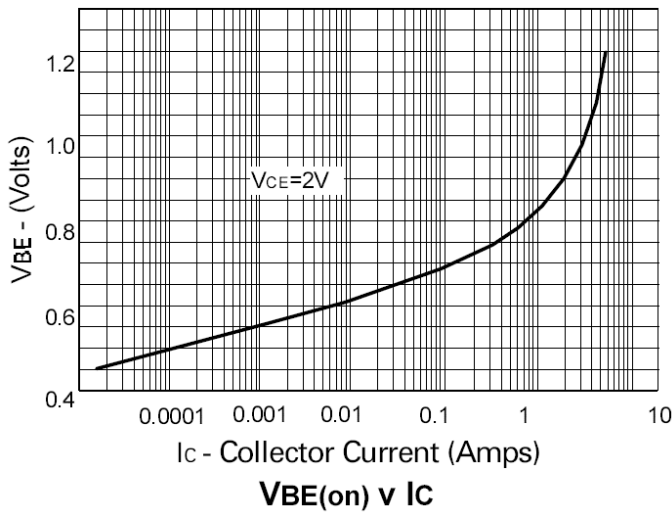
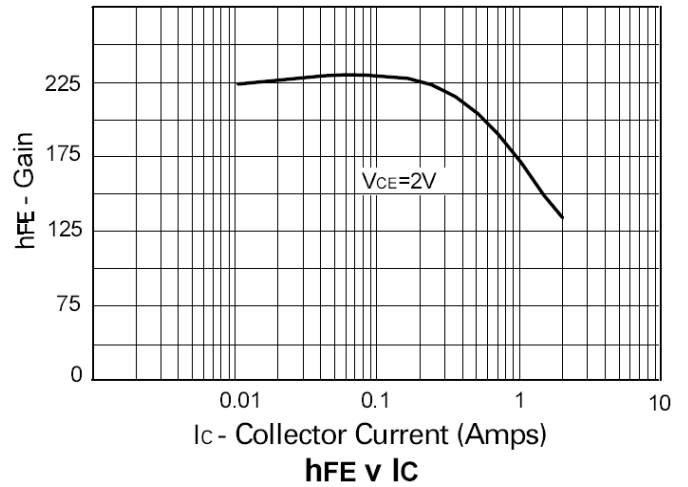
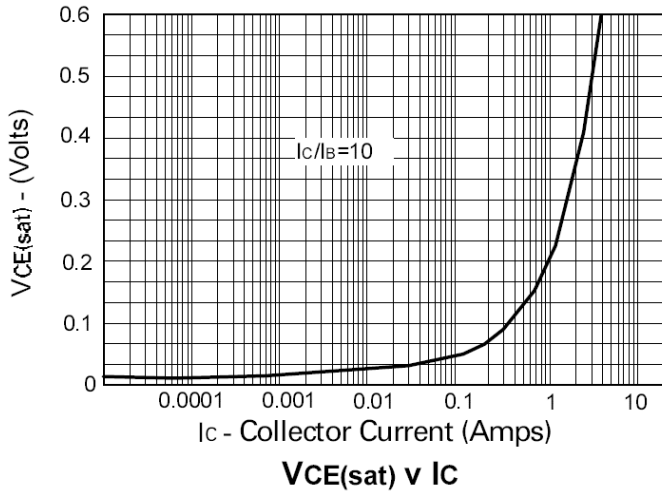


**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-80	–	–	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage (Note 11)	BV <sub>CEO</sub>	-60	–	–	V	I <sub>C</sub> = -10mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	–	–	V	I <sub>E</sub> = -100μA
Collector Cut-off Current	I <sub>CBO</sub>	–	<1	-100	nA	V <sub>CB</sub> = -60V
Emitter Cut-off Current	I <sub>EBO</sub>	–	<1	-100	nA	V <sub>CB</sub> = -60V, T <sub>amb</sub> = 100°C
Collector-Emitter Saturation Voltage (Note 11)	V <sub>CE(sat)</sub>	–	-0.15	-0.3	V	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
		–	-0.45	-0.6		I <sub>C</sub> = -3A, I <sub>B</sub> = -300mA
Base-Emitter Saturation Voltage (Note 11)	V <sub>CE(sat)</sub>	–	-0.9	-1.25	V	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
Base-Emitter Turn-On Voltage (Note 11)	V <sub>BE(on)</sub>	–	-0.8	-1.0	V	I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
DC Current Gain (Note 11)	h <sub>FE</sub>	70	200	–	–	I <sub>C</sub> = -50mA, V <sub>CE</sub> = -2V
		100	200	300		I <sub>C</sub> = -500mA, V <sub>CE</sub> = -2V
		80	170	–		I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
		40	150	–		I <sub>C</sub> = -2A, V <sub>CE</sub> = -2V
Current Gain-Bandwidth Product (Note 11)	f <sub>T</sub>	100	140	–	MHz	V <sub>CE</sub> = -5V, I <sub>C</sub> = -100mA f = 100MHz
Turn-On Time	t <sub>on</sub>	–	40	–	ns	V <sub>CC</sub> = -10V, I <sub>C</sub> = -500mA
Turn-Off Time	t <sub>off</sub>	–	450	–	ns	I <sub>B1</sub> = I <sub>B2</sub> = -50mA
Output Capacitance (Note 11)	C <sub>obo</sub>	–	–	30	pF	V <sub>CB</sub> = -10V, f = 1MHz

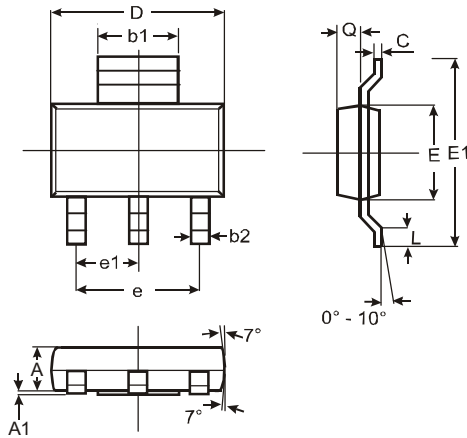
Notes: 11. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

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



## Package Outline Dimensions

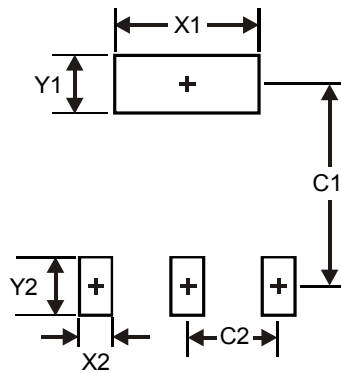
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b1	2.90	3.10	3.00
b2	0.60	0.80	0.70
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	—	—	4.60
e1	—	—	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

## Suggested Pad Layout

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



Dimensions	Value (in mm)
X1	3.3
X2	1.2
Y1	1.6
Y2	1.6
C1	6.4
C2	2.3

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