

**100V PNP HIGH PERFORMANCE TRANSISTOR IN SOT223**

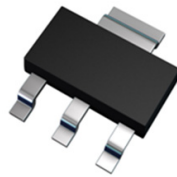
**Features**

- $BV_{CEO} > -100V$
- $I_C = -2A$  high Continuous Current
- $I_{CM} = -6A$  Peak Pulse Current
- Low Saturation Voltage  $V_{CE(sat)} < -300mV @ -1A$
- Complementary NPN Type: FZT653
- **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)**

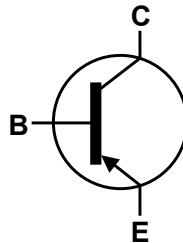
**Mechanical Data**

- 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)

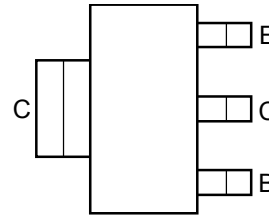
SOT223



Top View



Device Symbol



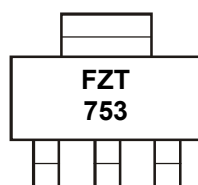
Top View  
Pin-Out

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

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT753TA	AEC-Q101	FZT753	7	12	1,000
FZT753QTA	Automotive	FZT753	7	12	1,000
FZT753TC	AEC-Q101	FZT753	13	12	4,000
FZT753QTC	Automotive	FZT753	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/quality/lead\\_free.html](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. 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. For more information, please refer to [http://www.diodes.com/quality/product\\_compliance\\_definitions/](http://www.diodes.com/quality/product_compliance_definitions/).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>

**Marking Information**



FZT753 = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-120	V
Collector-Emitter Voltage	$V_{CEO}$	-100	V
Emitter-Base Voltage	$V_{EBO}$	-7	V
Continuous Collector Current	$I_C$	-2	A
Peak Pulse Current	$I_{CM}$	-6	A

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

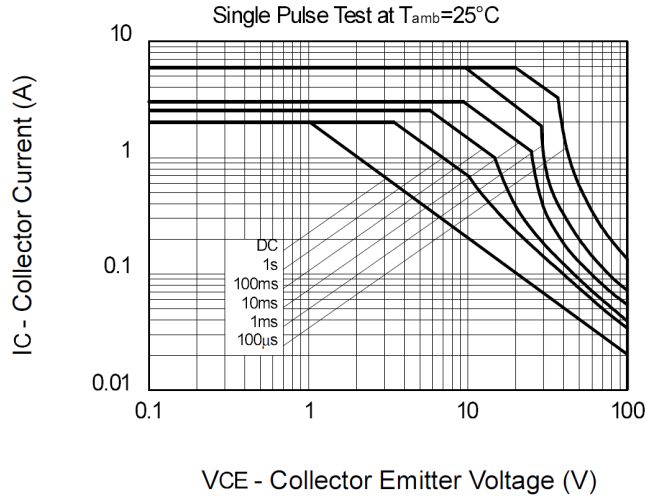
Characteristic	Symbol	Value	Unit
Power Dissipation	(Note 6)	2	W
	(Note 7)	3	W
Thermal Resistance, Junction to Ambient	(Note 6)	62.5	$^\circ\text{C/W}$
	(Note 7)	41.7	$^\circ\text{C/W}$
Thermal Resistance, Junction to Leads	(Note 8)	12.9	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

**ESD Ratings** (Note 9)

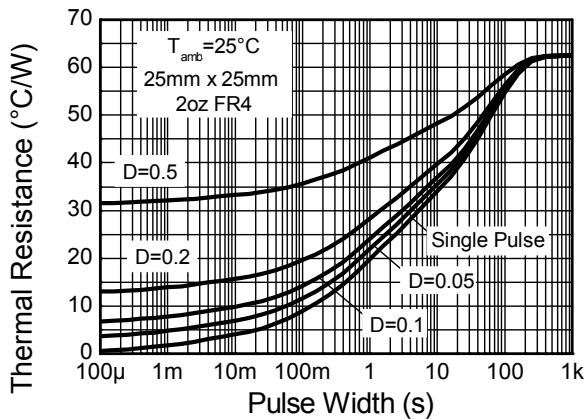
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
6. For a device mounted with the collector lead on 25mm x 25mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in steady-state.
  7. Same as note (6), except the device is mounted on 50mm x 50mm 2oz copper.
  8. Thermal resistance from junction to solder-point (at the end of the collector lead).
  9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

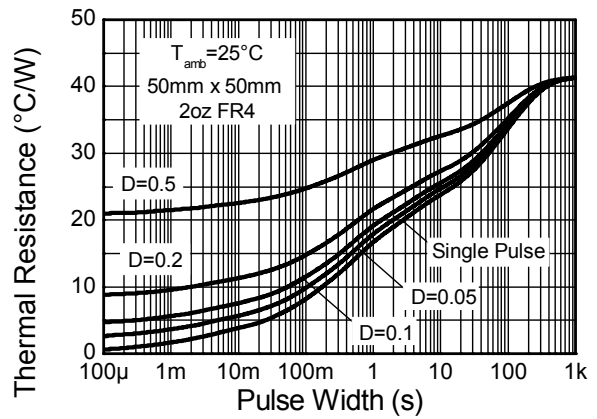
**Thermal Characteristics and Derating Information**



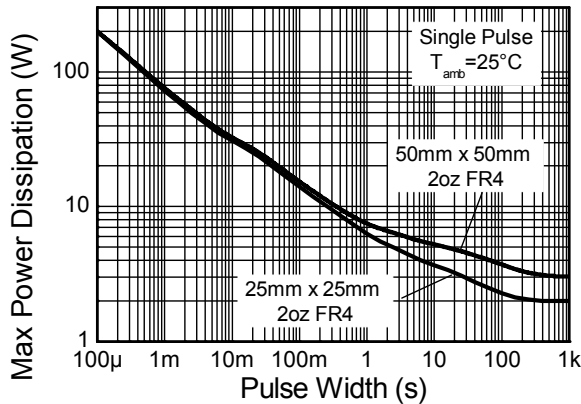
**Safe Operating Area**



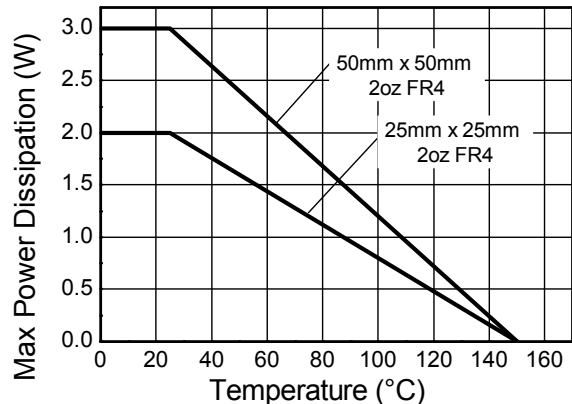
**Transient Thermal Impedance**



**Transient Thermal Impedance**



**Pulse Power Dissipation**



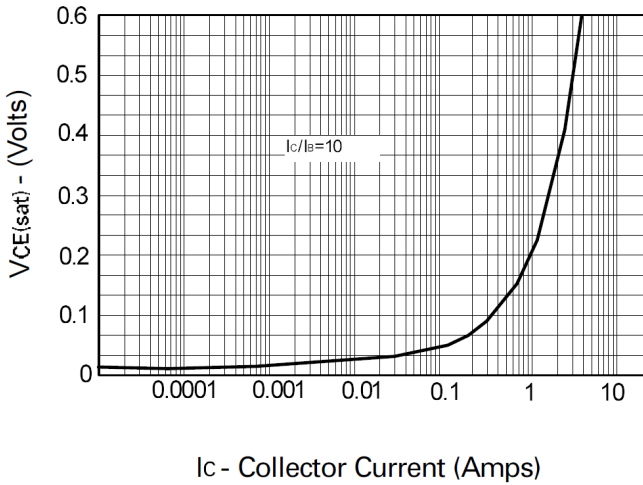
**Derating Curve**

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

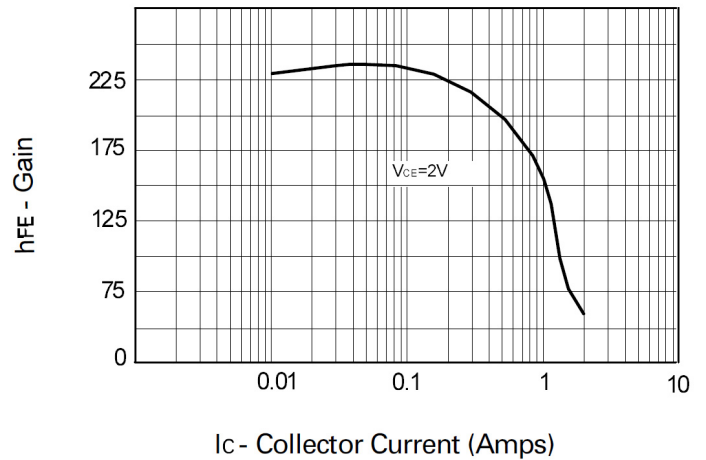
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-120	–	–	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage (Note 10)	BV <sub>CEO</sub>	-100	–	–	V	I <sub>C</sub> = -1mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	–	–	V	I <sub>E</sub> = -100μA
Collector Cut-off Current	I <sub>CBO</sub>	–	<1	-100	nA	V <sub>CB</sub> = -100V
		–	–	-10	μA	V <sub>CB</sub> = -100V, T <sub>A</sub> = 125°C
Emitter Cut-off Current	I <sub>EBO</sub>	–	<1	-100	nA	V <sub>EB</sub> = -5.6V
Collector-Emitter Saturation Voltage (Note 10)	V <sub>CE(sat)</sub>	–	-0.17	-0.3	V	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
		–	-0.30	-0.5		I <sub>C</sub> = -2A, I <sub>B</sub> = -200mA
Base-Emitter Saturation Voltage (Note 10)	V <sub>BE(sat)</sub>	–	-0.9	-1.25	V	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
Base-Emitter Turn-On Voltage (Note 10)	V <sub>BE(on)</sub>	–	-0.8	-1.0	V	I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
DC Current Gain (Note 10)	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
		55	170	–		I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
		25	55	–		I <sub>C</sub> = -2A, V <sub>CE</sub> = -2V
Current Gain-Bandwidth Product (Note 10)	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>	–	600	–	ns	I <sub>B1</sub> = -I <sub>B2</sub> = -50mA
Output Capacitance (Note 10)	C <sub>obo</sub>	–	–	30	pF	V <sub>CB</sub> = -10V, f = 1MHz

Notes: 10. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

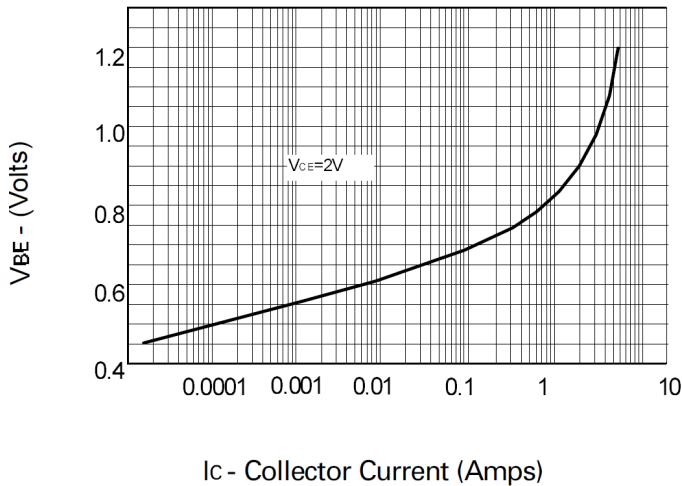
**Typical Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)



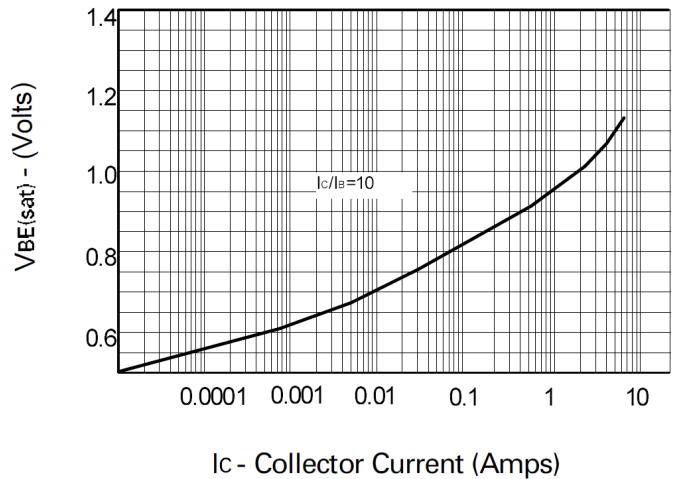
**VCE(sat) v IC**



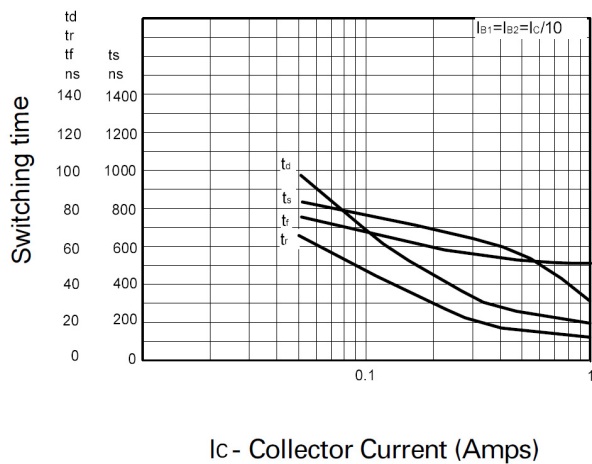
**hFE v IC**



**VBE(on) v IC**



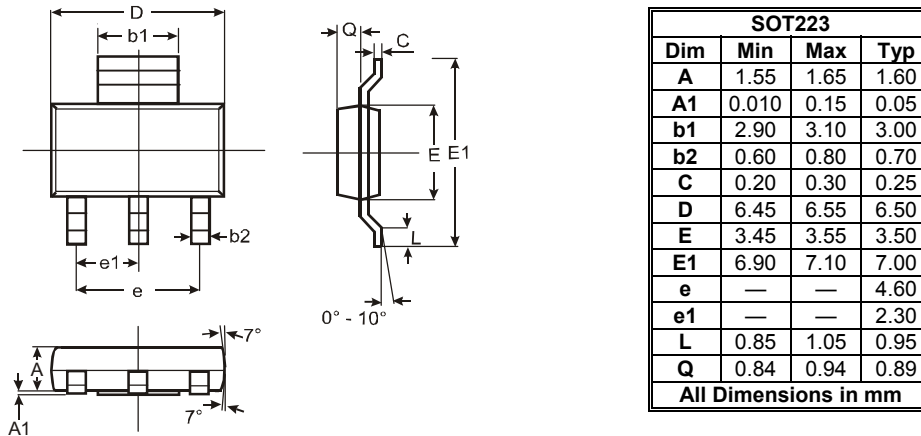
**VBE(sat) v IC**



**Switching Speeds**

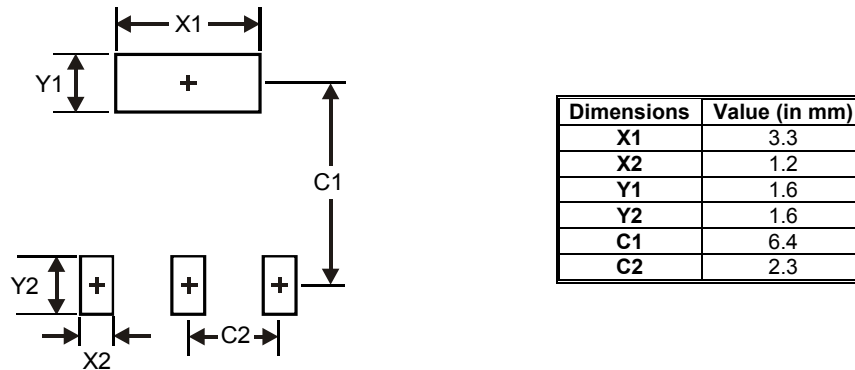
## Package Outline Dimensions

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



## Suggested Pad Layout

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



Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

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