

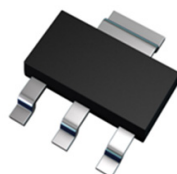
100V PNP HIGH PERFORMANCE TRANSISTOR IN SOT223
Features

- $BV_{CEO} > -100V$
- $I_C = -2A$ 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)**

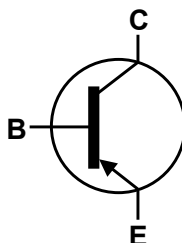
Mechanical Data

- 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 **(e3)**
- Weight: 0.112 grams (approximate)

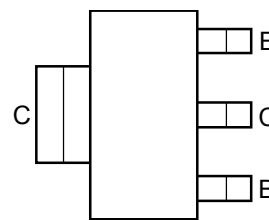
SOT223



Top View



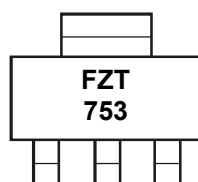
Device Symbol


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 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/.
 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°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°C, unless otherwise specified.)

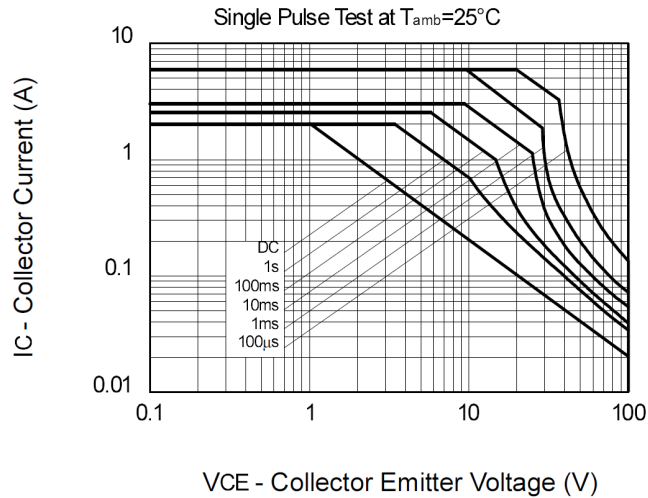
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	2	W
		3	W
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	°C/W
		41.7	°C/W
Thermal Resistance, Junction to Leads	R _{θJL}	12.9	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 9)

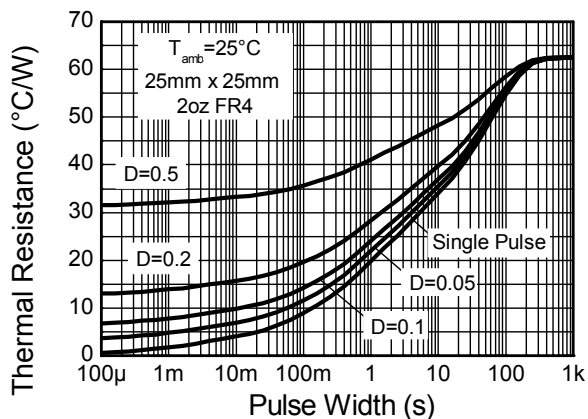
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- 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.

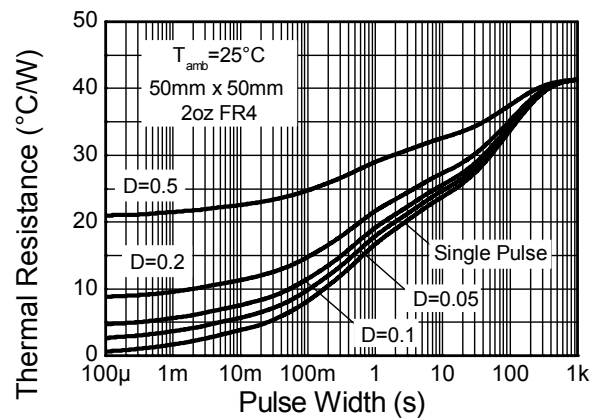
Thermal Characteristics and Derating Information



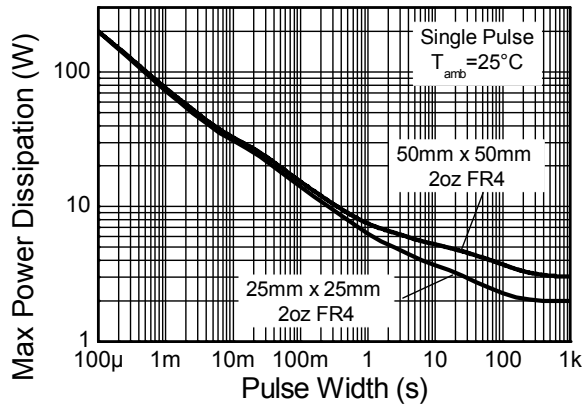
Safe Operating Area



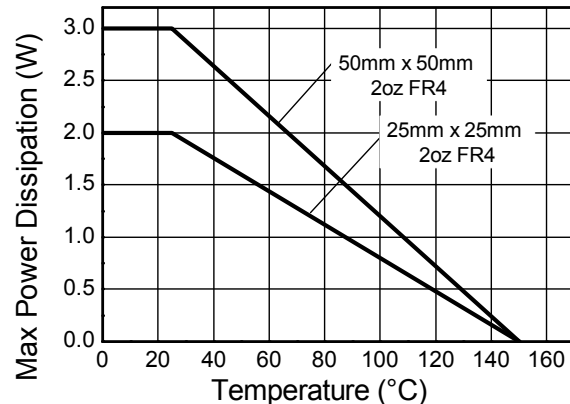
Transient Thermal Impedance



Transient Thermal Impedance



Pulse Power Dissipation



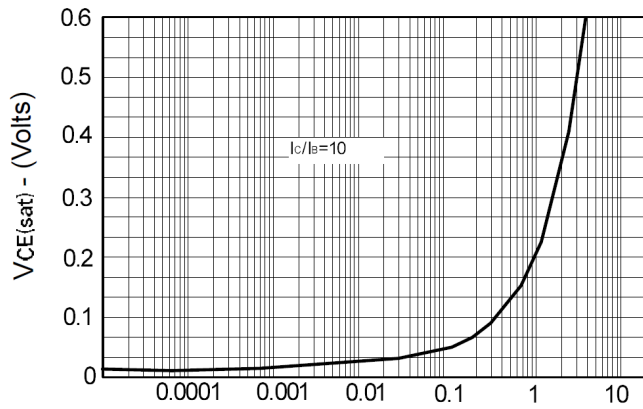
Derating Curve

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-120	—	—	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 10)	BV _{CEO}	-100	—	—	V	I _C = -1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	—	—	V	I _E = -100μA
Collector Cut-off Current	I _{CBO}	—	<1	-100	nA	V _{CB} = -100V
		—	—	-10	μA	V _{CB} = -100V, T _A = 125°C
Emitter Cut-off Current	I _{EBO}	—	<1	-100	nA	V _{EB} = -5.6V
Collector-Emitter Saturation Voltage (Note 10)	V _{CE(sat)}	—	-0.17	-0.3	V	I _C = -1A, I _B = -100mA
		—	-0.30	-0.5		I _C = -2A, I _B = -200mA
Base-Emitter Saturation Voltage (Note 10)	V _{BE(sat)}	—	-0.9	-1.25	V	I _C = -1A, I _B = -100mA
Base-Emitter Turn-On Voltage (Note 10)	V _{BE(on)}	—	-0.8	-1.0	V	I _C = -1A, V _{CE} = -2V
DC Current Gain (Note 10)	h _{FE}	70	200	—	—	I _C = -50mA, V _{CE} = -2V
		100	200	300		I _C = -500mA, V _{CE} = -2V
		55	170	—		I _C = -1A, V _{CE} = -2V
		25	55	—		I _C = -2A, V _{CE} = -2V
Current Gain-Bandwidth Product (Note 10)	f _T	100	140	—	MHz	V _{CE} = -5V, I _C = -100mA f = 100MHz
Turn-On Time	t _{on}	—	40	—	ns	V _{CC} = -10V, I _C = -500mA
Turn-Off Time	t _{off}	—	600	—	ns	I _{B1} = -I _{B2} = -50mA
Output Capacitance (Note 10)	C _{obo}	—	—	30	pF	V _{CB} = -10V, f = 1MHz

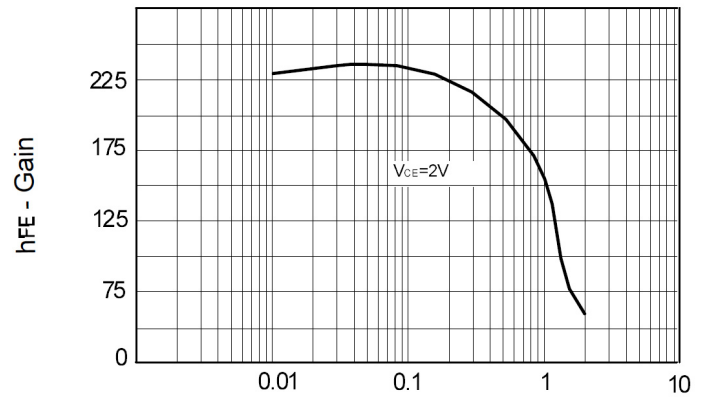
Notes: 10. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

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



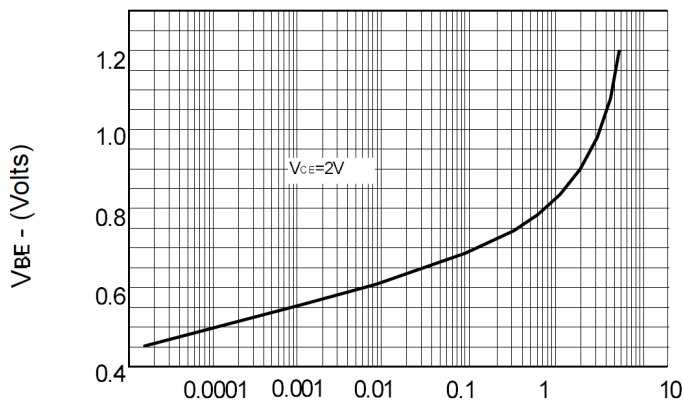
IC - Collector Current (Amps)

VCE(sat) v IC



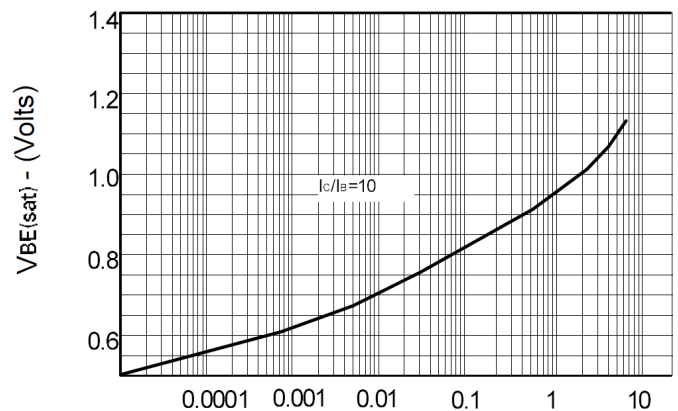
IC - Collector Current (Amps)

hFE v IC



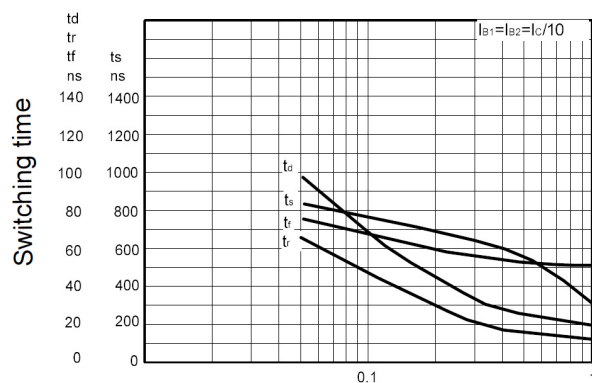
IC - Collector Current (Amps)

VBE(on) v IC



IC - Collector Current (Amps)

VBE(sat) v IC

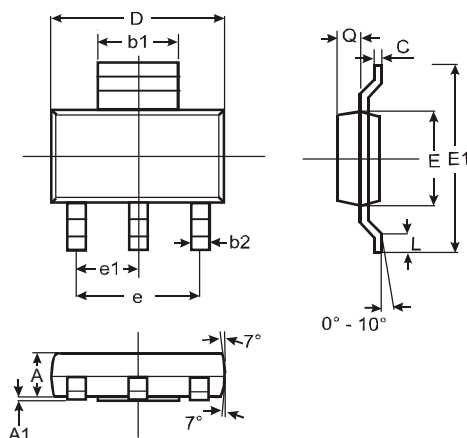


IC - Collector Current (Amps)

Switching Speeds

Package Outline Dimensions

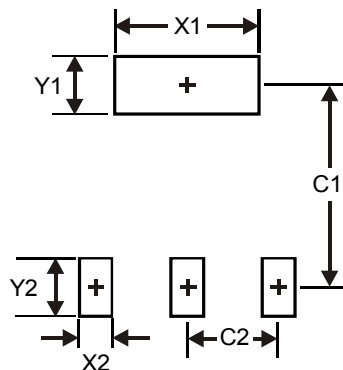
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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

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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