


150V NPN MEDIUM POWER TRANSISTOR IN SOT223

Features

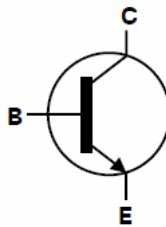
- $BV_{CEO} > 150V$
- $I_C = 1A$ high Continuous Current
- Low Saturation Voltage
- Complementary PNP Type – FZT755
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

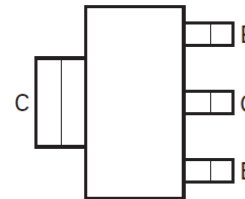
- Case: SOT223
- Case material: molded plastic. "Green" molding compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 
- Weight: 0.112 grams (approximate)



Top View



Device Symbol



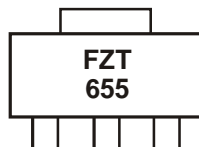
Top View
Pin-Out

Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT655TA	FZT655	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> 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



FZT655 = Product type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	150	V
Collector-Emitter Voltage	V _{CEO}	150	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	I _C	1	A
Peak Pulse Current	I _{CM}	2	A

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

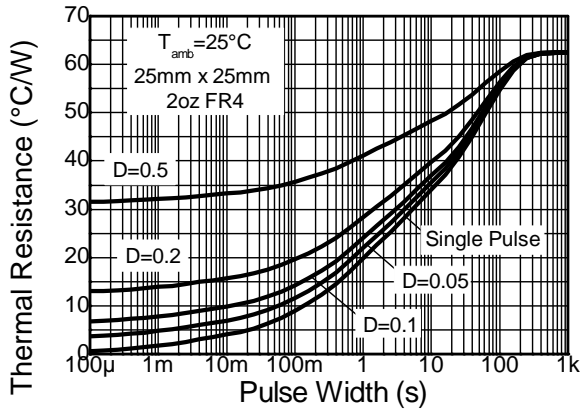
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	2	W
		3	W
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	°C/W
		41.7	°C/W
Thermal Resistance, Junction to Leads (Note 7)	R _{θJL}	19.41	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 8)

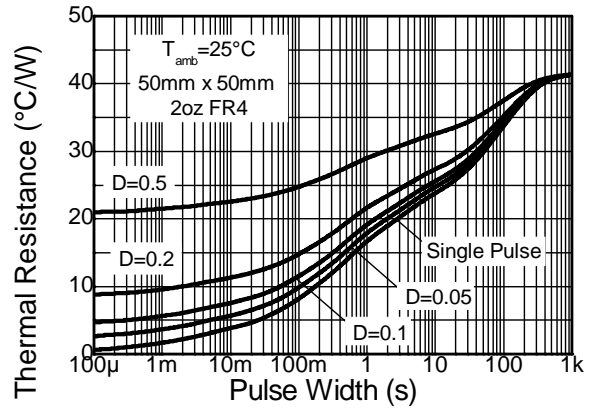
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

- Notes:
5. For a device 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.
 6. Same as note (5), except the device is mounted on 50mm X 50mm single sided 2oz weight 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.

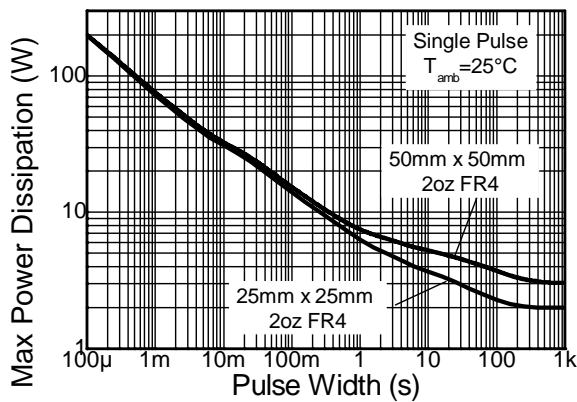
Thermal Characteristics and Derating Information



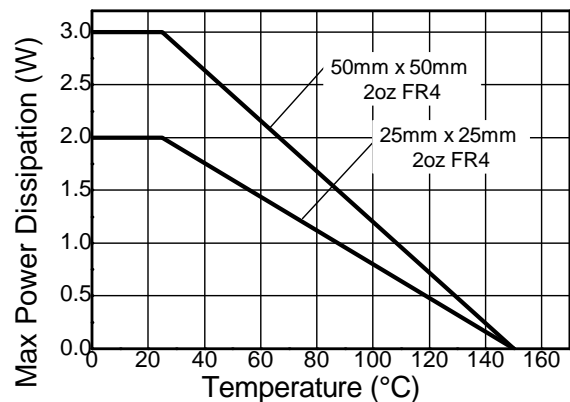
Transient Thermal Impedance



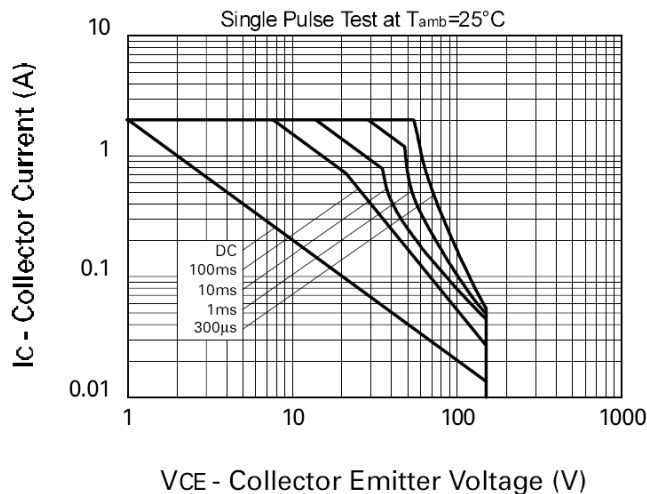
Transient Thermal Impedance



Pulse Power Dissipation



Derating Curve



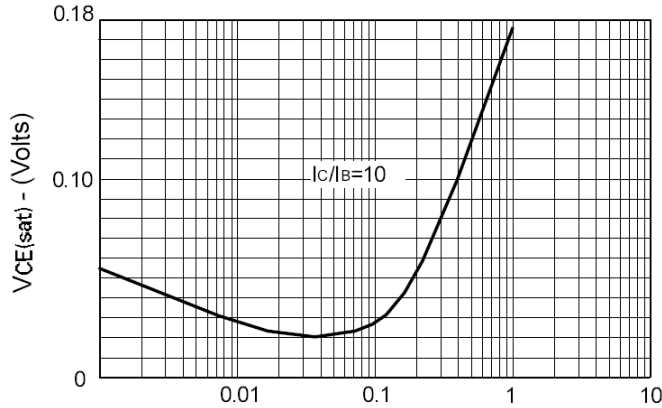
Safe Operating Area

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	150	–	–	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	150	–	–	V	$I_C = 1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8.1	–	V	$I_E = 100\mu\text{A}$
Collector Cut-off Current	I_{CBO}	–	<10	100	nA	$V_{CB} = 125\text{V}$
Emitter Cut-off Current	I_{EBO}	–	<10	100	nA	$V_{EB} = 5.6\text{V}$
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(sat)}$	–	120	500	mV	$I_C = 500\text{mA}, I_B = 50\text{mA}$
		–	180	500		$I_C = 1\text{A}, I_B = 200\text{mA}$
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(sat)}$	–	0.85	1.1	V	$I_C = 500\text{mA}, I_B = 50\text{mA}$
Base-Emitter Turn-On Voltage (Note 9)	$V_{BE(on)}$	–	0.74	1.0	V	$I_C = 500\text{mA}, V_{CE} = 5\text{V}$
DC Current Gain (Note 9)	h_{FE}	50	85	–	–	$I_C = 10\text{mA}, V_{CE} = 5\text{V}$
		50	100	300		$I_C = 500\text{mA}, V_{CE} = 5\text{V}$
		20	50	–		$I_C = 1\text{A}, V_{CE} = 5\text{V}$
Current Gain-Bandwidth Product	f_T	30	–	–	MHz	$V_{CE} = 20\text{V}, I_C = 10\text{mA}, f = 20\text{MHz}$
Output Capacitance (Note 9)	C_{obo}	–	–	20	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$

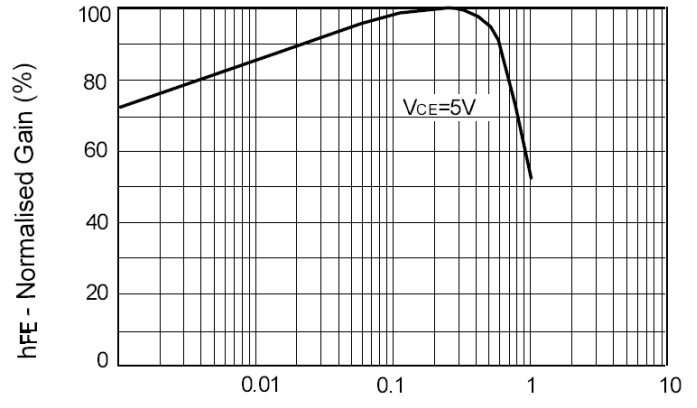
Notes: 9. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$

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



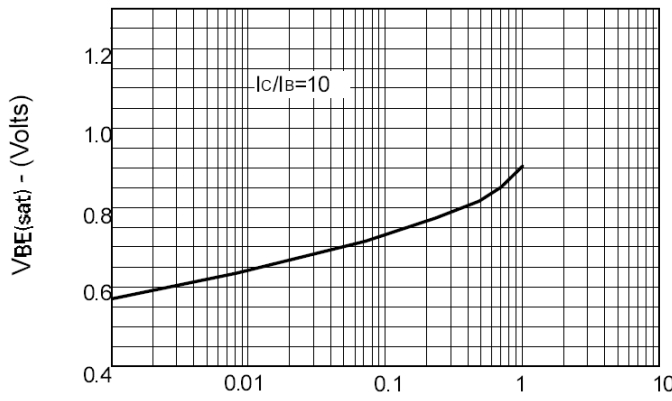
IC - Collector Current (Amps)

VCE(sat) v IC



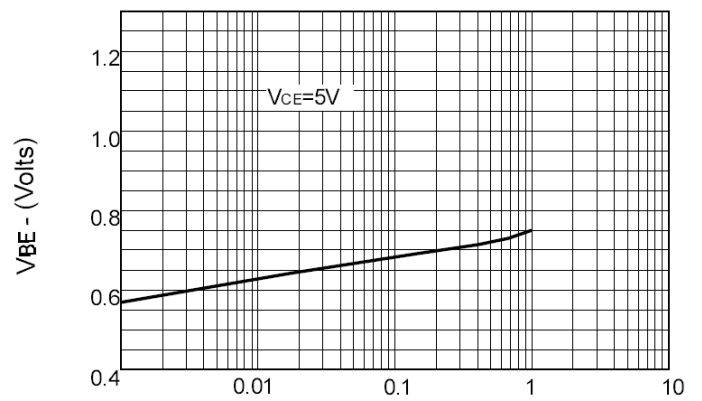
IC - Collector Current (Amps)

hFE v IC



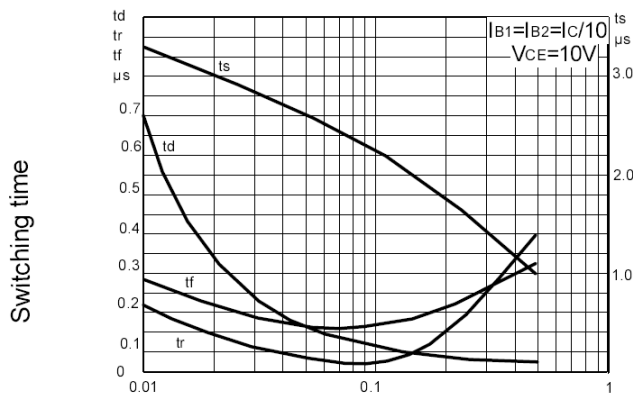
IC - Collector Current (Amps)

VBE(sat) v IC



IC - Collector Current (Amps)

VBE(on) v IC

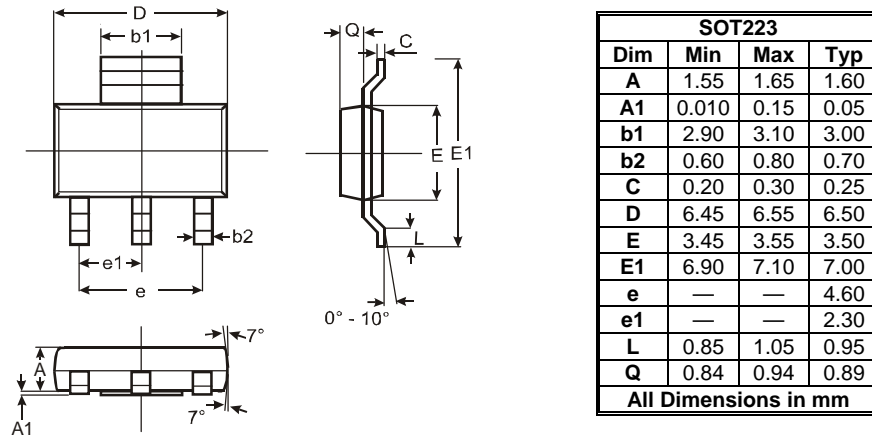


IC - Collector Current (Amps)

Switching Speeds

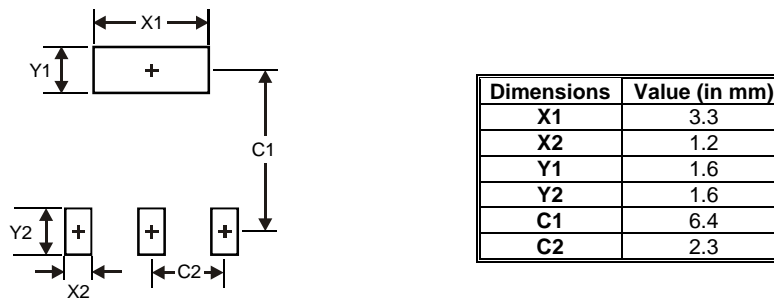
Package Outline Dimensions

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



Suggested Pad Layout

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



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