

150V NPN MEDIUM POWER TRANSISTOR IN SOT223

Features

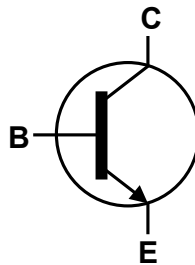
- $BV_{CEO} > 150V$
- $I_C = 5A$ high Continuous Collector Current
- $I_{CM} = 10A$ Peak Pulse Current
- Very Low Saturation Voltage $V_{CE(sat)} < 110mV @ 1A$
- $R_{CE(sat)} = 50m\Omega$ for a Low Equivalent On-Resistance
- h_{FE} Specified Up to 10A for a High Gain Hold Up
- Complementary PNP Type: FZT955
- **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

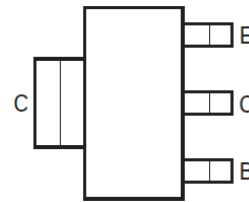
- Case: SOT223
- Case Material: Molded Plastic. "Green" Molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 ③
- Weight: 0.112 grams (approximate)



Top View



Device Symbol



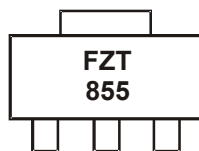
Top View
Pin-Out

Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT855TA	FZT855	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



FZT855 = Product type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	250	V
Collector-Emitter Voltage	V _{CEO}	150	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	I _C	5	A
Peak Pulse Current	I _{CM}	10	A
Base Current	I _B	1	A

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

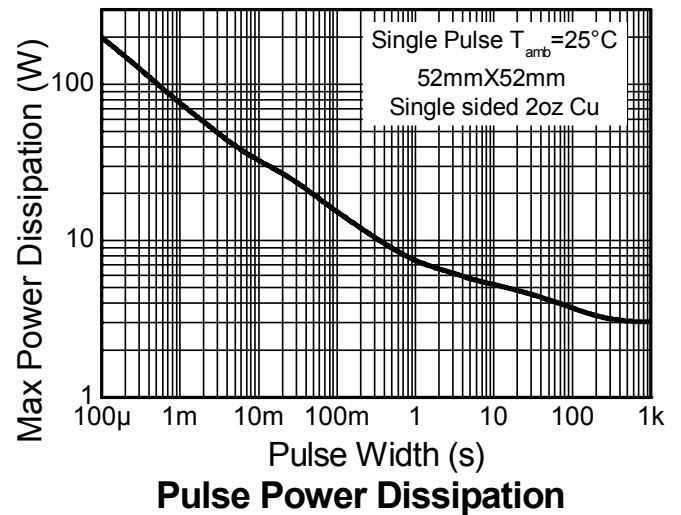
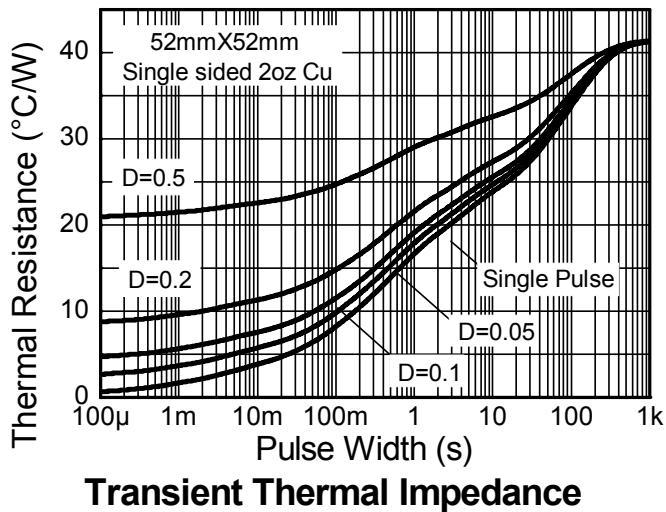
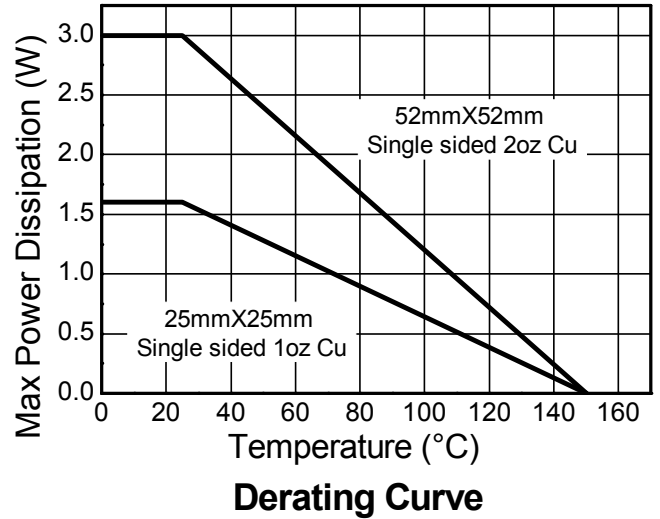
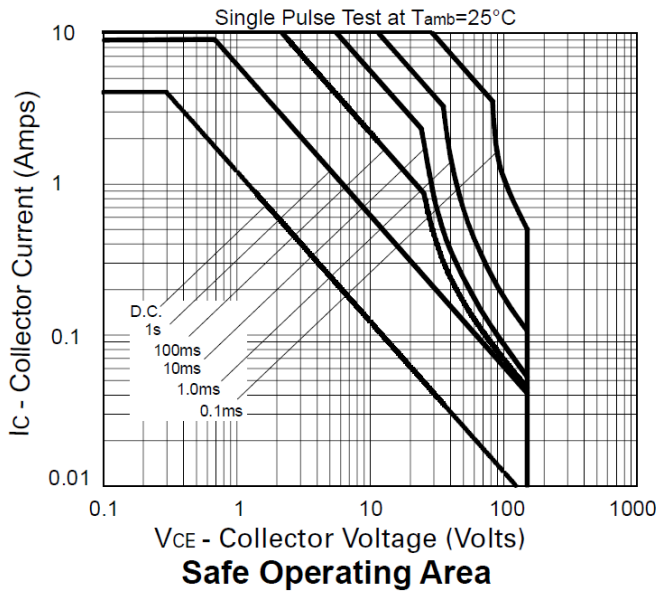
Characteristic		Symbol	Value	Unit
Power Dissipation Linear derating factor	(Note 5)	P _D	3.0	W
	(Note 6)		24	
Thermal Resistance, Junction to Ambient	(Note 5)	R _{θJA}	42	°C/W
	(Note 6)	R _{θJA}	78	
Thermal Resistance Junction to Lead	(Note 7)	R _{θJL}	8.84	
Operating and Storage Temperature Range		T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 8)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

- Notes:
- For a device surface mounted on 50mm X 50mm FR4 PCB with high coverage of single sided 2 oz copper, in still air conditions; device measured when operating in steady state condition.
 - Same as note (5), except the device is mounted on 25mm X 25mm single sided 1oz weight copper.
 - Thermal resistance from junction to solder-point (at the end of the collector lead).
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

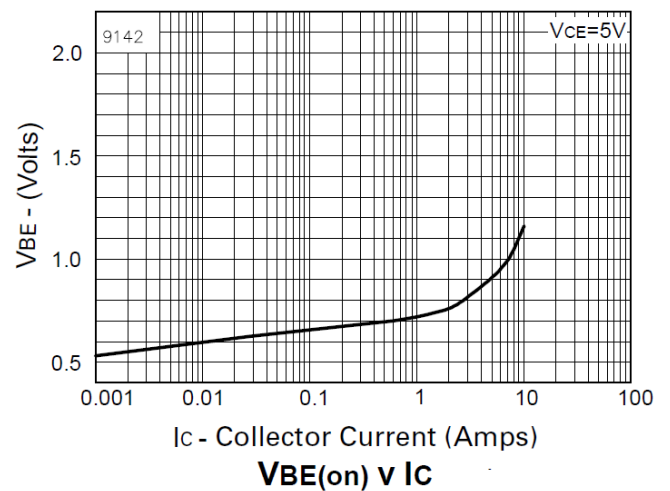
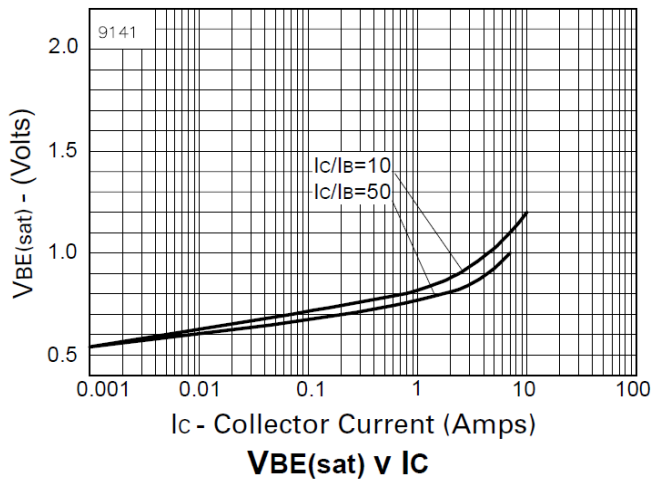
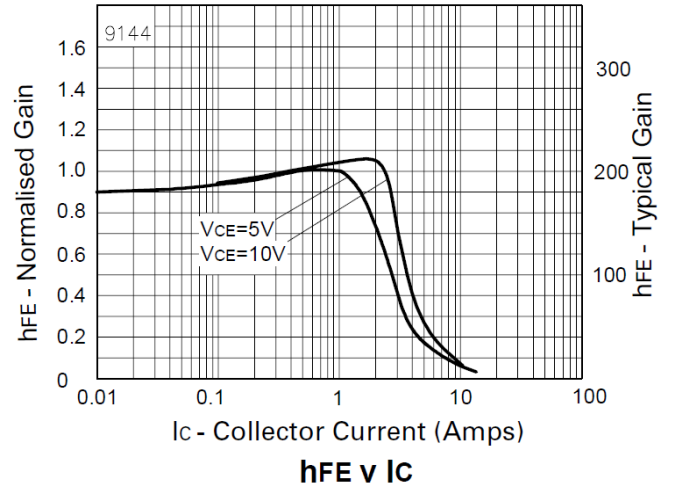
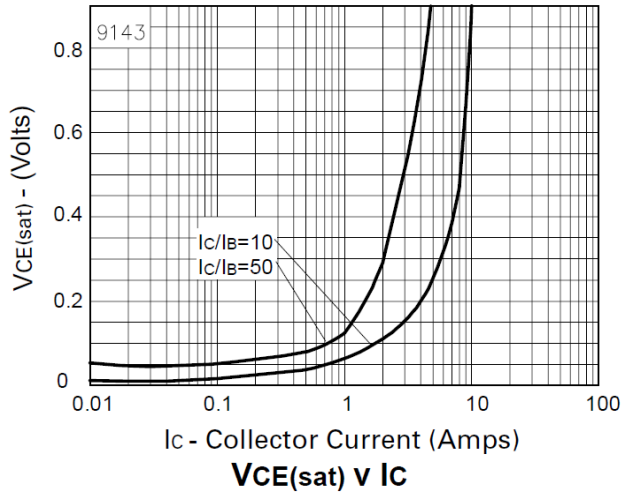


Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	250	375	–	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CER}	250	375	–	V	$I_C = 1\mu\text{A}, R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	150	180	–	V	$I_C = 1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8	–	V	$I_E = 100\mu\text{A}$
Collector Cut-off Current	I_{CBO}	–	–	50 1	nA μA	$V_{CB} = 200\text{V}$ $V_{CB} = 200\text{V}, @T_A = +100^\circ\text{C}$
Collector Cut-off Current	I_{CER} $R \leq 1\text{k}\Omega$	–	–	50 1	nA μA	$V_{CB} = 200\text{V}$ $V_{CB} = 200\text{V}, @T_A = +100^\circ\text{C}$
Emitter Cut-off Current	I_{EBO}	–	–	10	nA	$V_{EB} = 6\text{V}$
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(sat)}$	–	20 35 60 260	40 65 110 355	mV	$I_C = 100\text{mA}, I_B = 5\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$ $I_C = 1\text{A}, I_B = 100\text{mA}$ $I_C = 5\text{A}, I_B = 500\text{mA}$
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(sat)}$	–	–	1250	mV	$I_C = 5\text{A}, I_B = 500\text{mA}$
Base-Emitter Turn-On Voltage (Note 9)	$V_{BE(on)}$	–	–	1100	mV	$I_C = 5\text{A}, V_{CE} = 5\text{V}$
DC Current Gain (Note 9)	h_{FE}	100 100 15	200 200 30 10	– 300 – –		$I_C = 10\text{mA}, V_{CE} = 5\text{V}$ $I_C = 1\text{A}, V_{CE} = 5\text{V}$ $I_C = 5\text{A}, V_{CE} = 5\text{V}$ $I_C = 10\text{A}, V_{CE} = 5\text{V}$
Current Gain-Bandwidth Product (Note 9)	f_T	–	90	–	MHz	$V_{CE} = 10\text{V}, I_C = 100\text{mA}$ $f = 50\text{MHz}$
Output Capacitance (Note 9)	C_{obo}	–	22	–	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Switching Times	t_{on} t_{off}	–	66 2130	–	ns ns	$I_C = 1\text{A}, V_{CC} = 50\text{V}$ $I_{B1} = -I_{B2} = 100\text{mA}$

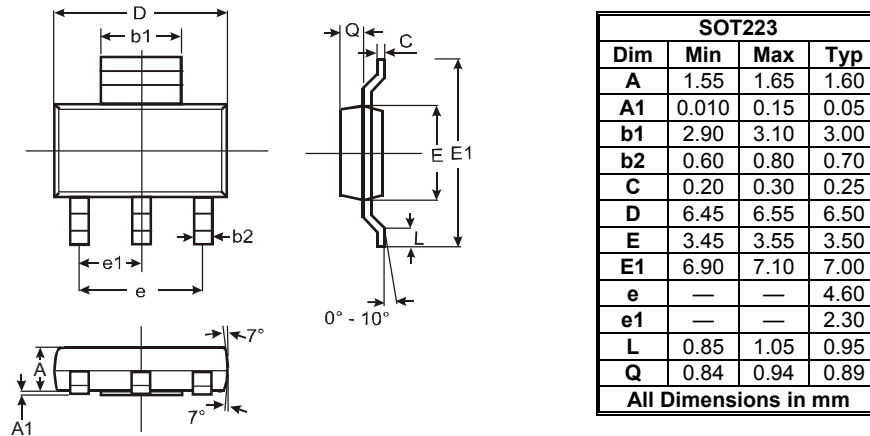
Notes: 9. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$

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



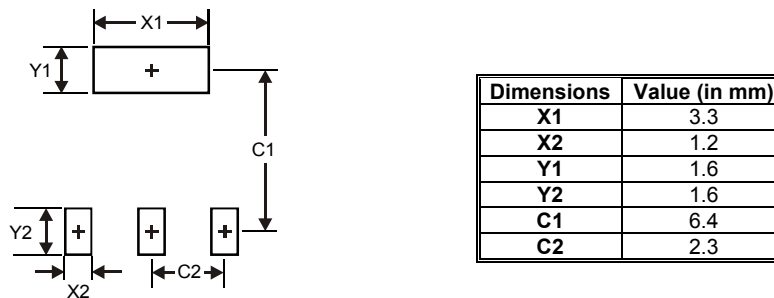
Package Outline Dimensions

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.



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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