


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
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DIODES™ FZT855Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**

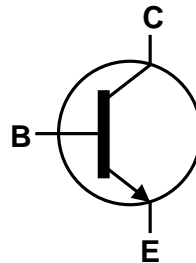
<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

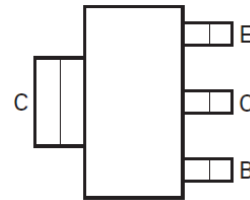
- Package: SOT223
- Package Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208 
- Weight: 0.112 grams (Approximate)



Top View



Device Symbol



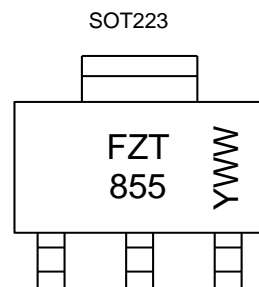
Top View
Pin-Out

Ordering Information (Note 4)

Product	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
				Qty	Carrier
FZT855QTA	FZT855	7	12	1,000	Reel
FZT855QTC	FZT855	13	12	4,000	Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



FZT 855 = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Last Digit of Year (ex: 2 = 2022)
 WW or $\bar{W}W$ = Week Code (01–53)

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

Characteristic	Symbol	Value	Unit
Power Dissipation Linear Derating Factor	P_D	3.0	W
		24	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	1.6	mW/°C
		12.8	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	42	°C/W
		78	
Thermal Resistance Junction to Lead	$R_{\theta JL}$	8.8	
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	4000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
5. For a device surface mounted on 52mm X 52mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions; device measured when operating in steady state condition.
 6. Same as Note 5, except the device is mounted on 25mm x 25mm single sided 1oz 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

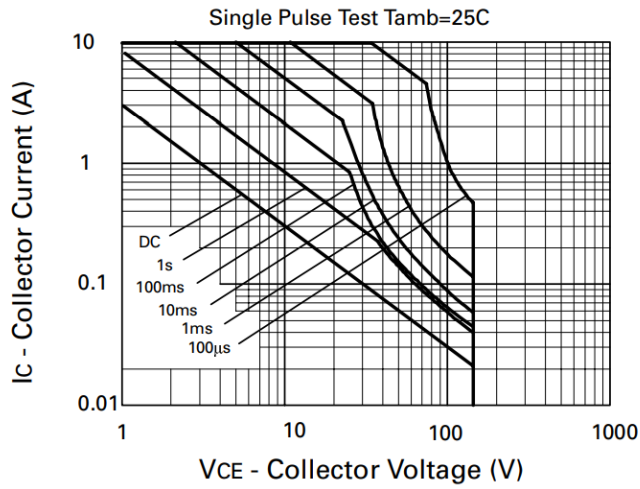


Fig. 1 Safe Operating Area

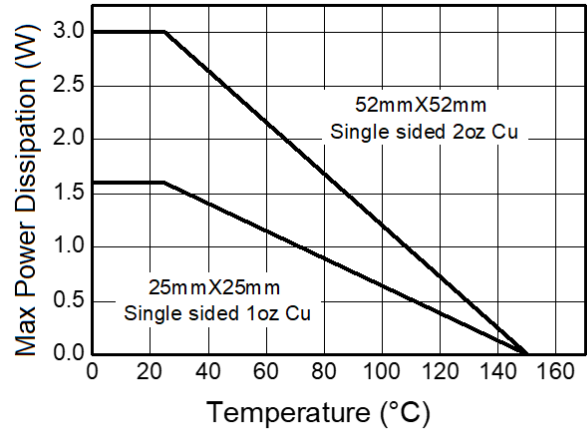


Fig. 2 Derating Curve

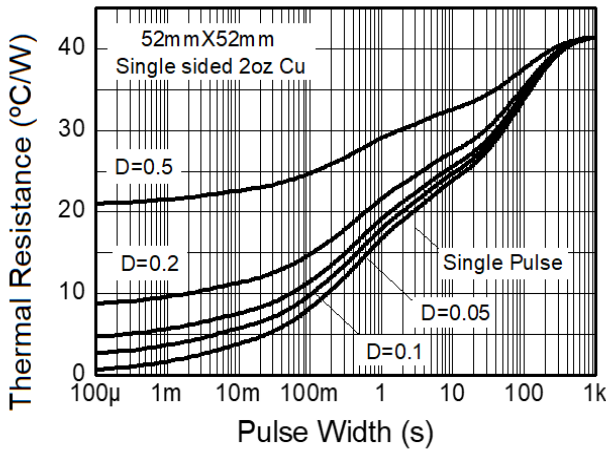


Fig. 3 Transient Thermal Impedance

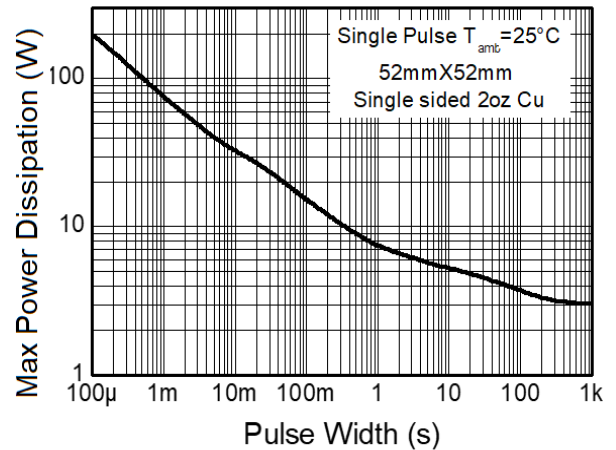


Fig. 4 Pulse Power Dissipation

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	250	375	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage	BV _{CER}	250	375	—	V	I _C = 1μA, R _B ≤ 1kΩ
Collector-Emitter Breakdown Voltage (Note 9)	BV _{CEO}	150	180	—	V	I _C = 1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	7	8	—	V	I _E = 100μA
Collector Cut-Off Current	I _{CBO}	—	—	50 1	nA μA	V _{CB} = 200V V _{CB} = 200V, @T _A = +100°C
Collector Cut-Off Current	I _{CER}	—	—	50 1	nA μA	V _{CE} = 200V, R ≤ 1kΩ V _{CE} = 200V, R ≤ 1kΩ, @T _A = +100°C
Emitter Cut-Off Current	I _{EBO}	—	—	10	nA	V _{EB} = 6V
Collector-Emitter Saturation Voltage (Note 9)	V _{CE(sat)}	—	20 35 60 250	40 65 110 355	mV	I _C = 100mA, I _B = 5mA I _C = 500mA, I _B = 50mA I _C = 1A, I _B = 100mA I _C = 5A, I _B = 500mA
Base-Emitter Saturation Voltage (Note 9)	V _{BE(sat)}	—	—	1,250	mV	I _C = 5A, I _B = 500mA
Base-Emitter Turn-On Voltage (Note 9)	V _{BE(on)}	—	—	1,100	mV	I _C = 5A, V _{CE} = 5V
DC Current Gain (Note 9)	h _{FE}	100 100 15 —	200 200 30 10	— 300 — —	—	I _C = 10mA, V _{CE} = 5V I _C = 1A, V _{CE} = 5V I _C = 5A, V _{CE} = 5V I _C = 10A, V _{CE} = 5V
Current Gain-Bandwidth Product (Note 9)	f _T	—	90	—	MHz	V _{CE} = 10V, I _C = 100mA f = 50MHz
Output Capacitance	C _{obo}	—	22	—	pF	V _{CB} = 10V, f = 1MHz
Switching Times	t _{on} t _{off}	—	66 2,130	—	ns ns	I _C = 1A, V _{CC} = 50V I _{B1} = -I _{B2} = 100mA

Note: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

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

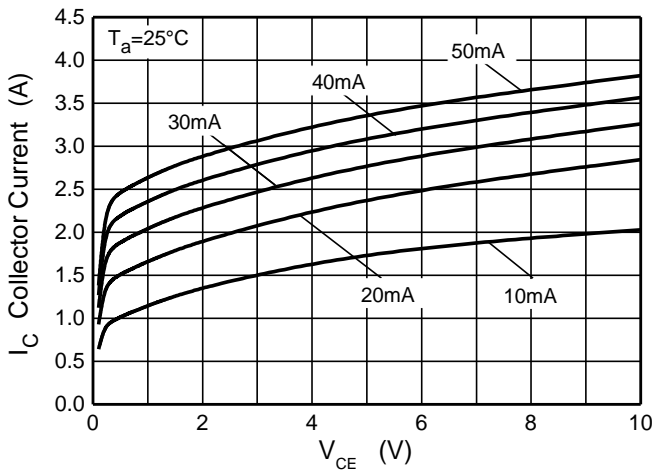


Fig. 5 I_C v V_{CE}

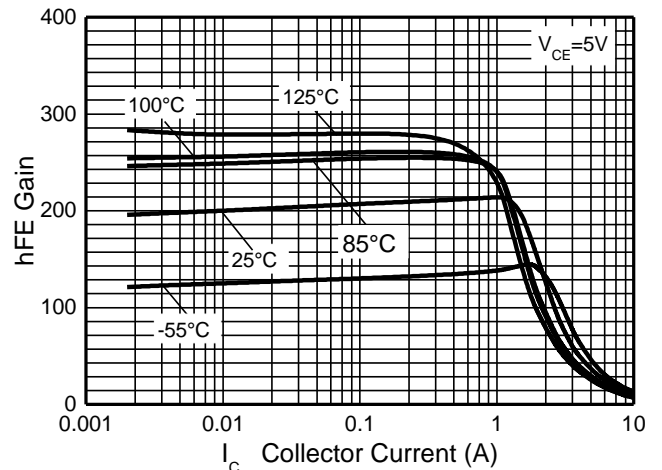


Fig. 6 hFE v I_C

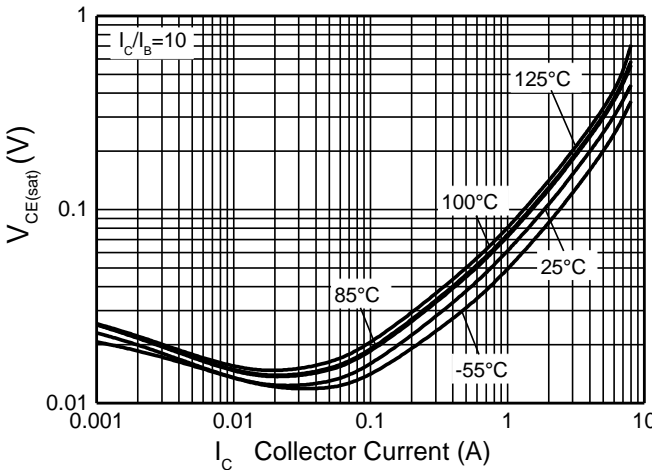


Fig. 7 $V_{CE(sat)}$ v I_C

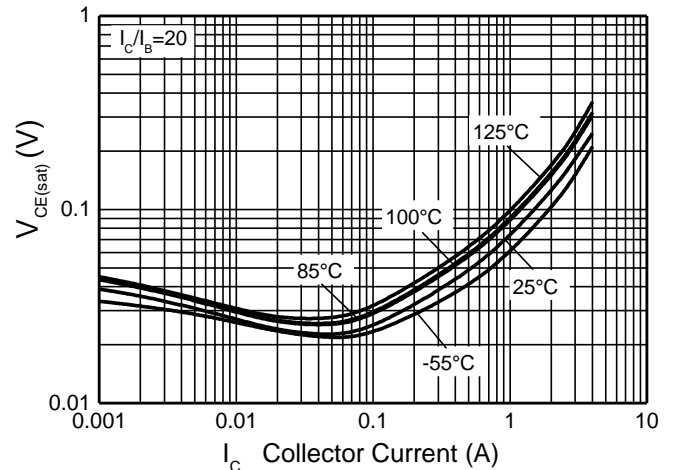


Fig. 8 $V_{CE(sat)}$ v I_C

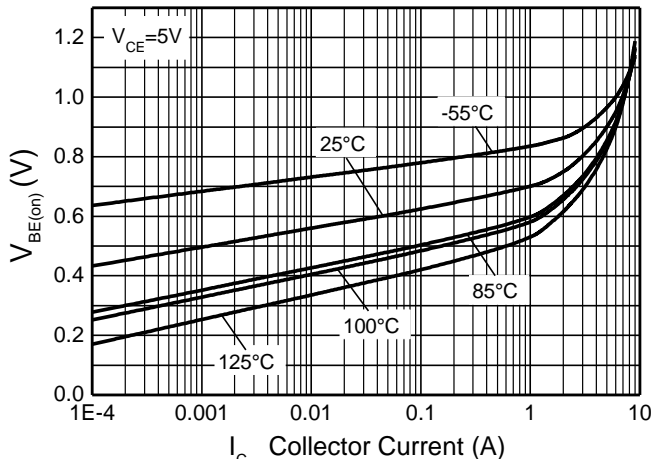


Fig. 9 $V_{BE(on)}$ v I_C

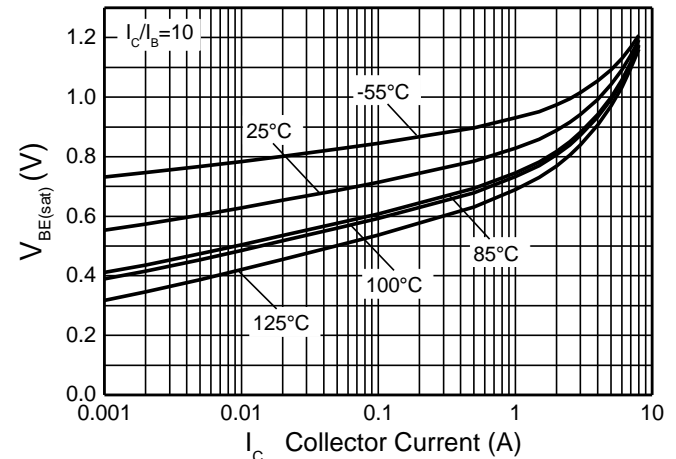


Fig. 10 $V_{BE(sat)}$ v I_C

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

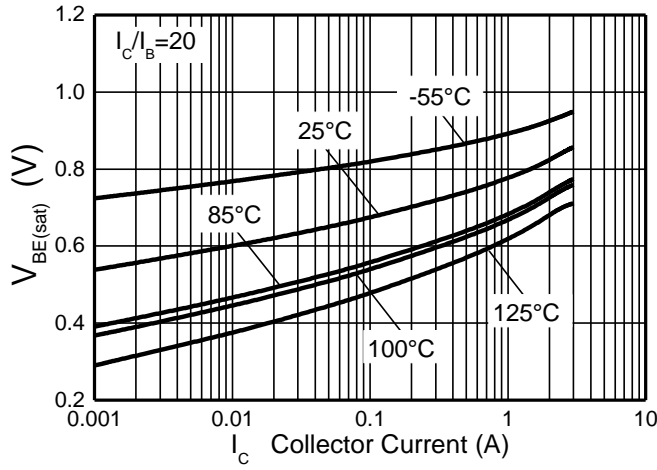


Fig. 11 $V_{BE(sat)}$ v I_C

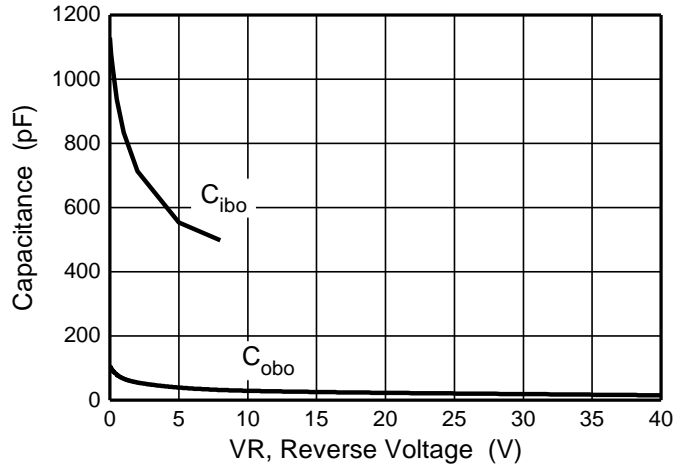
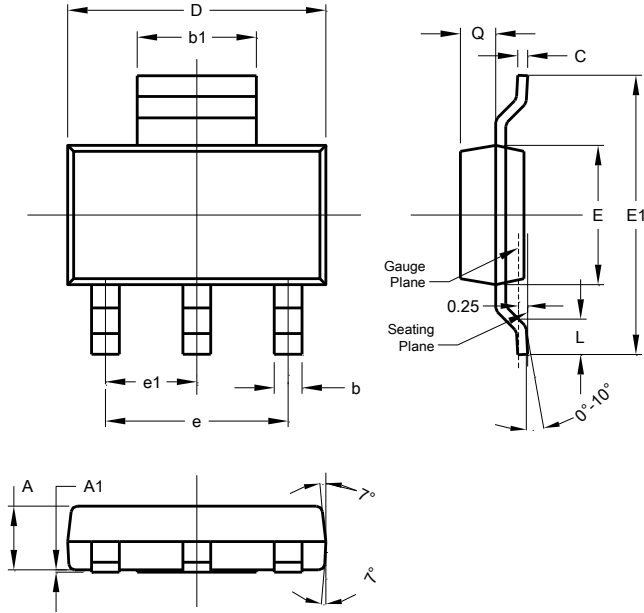


Fig. 12 Typical Junction Capacitance

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT223

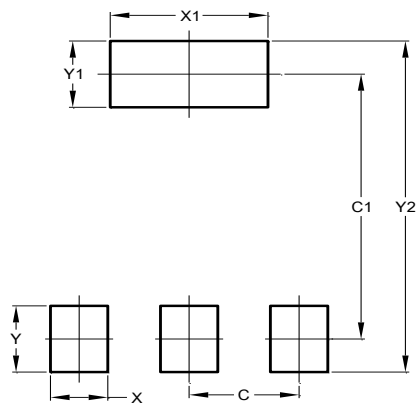


SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT223



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

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