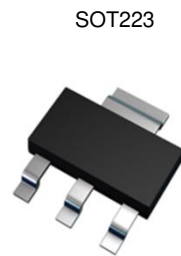


## Features

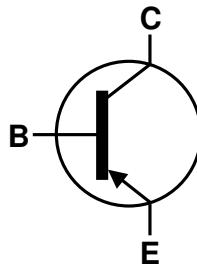
- $BV_{CEO} > -400V$
- $I_C = -500mA$  High Continuous Current
- $I_{CM} = -1A$  Peak Pulse Current
- Low Saturation Voltage  $V_{CE(sat)} < -250mV @ -50mA$
- $h_{FE} > 40$  Specified up to  $-200mA$  for High Current Gain Hold Up
- Complementary NPN Type: DIODES™ FZT658
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

## Mechanical Data

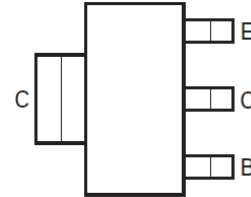
- Package: SOT223
- Package Material: Molded Plastic, "Green" Molding Compound; UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads; Solderable per MIL-STD-202, Method 208
- Weight: 0.112 grams (Approximate)



Top View



Device Symbol

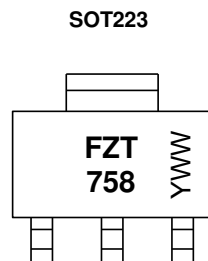

 Top View  
Pin-Out

## Ordering Information (Note 4)

Part Number	Compliance	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
						Qty.	Carrier
FZT758TA	Standard	SOT223	FZT758	7	12	1,000	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 758 = 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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-400	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-400	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Continuous Collector Current	I <sub>C</sub>	-0.5	A
Peak Pulse Current	I <sub>CM</sub>	-1	A

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

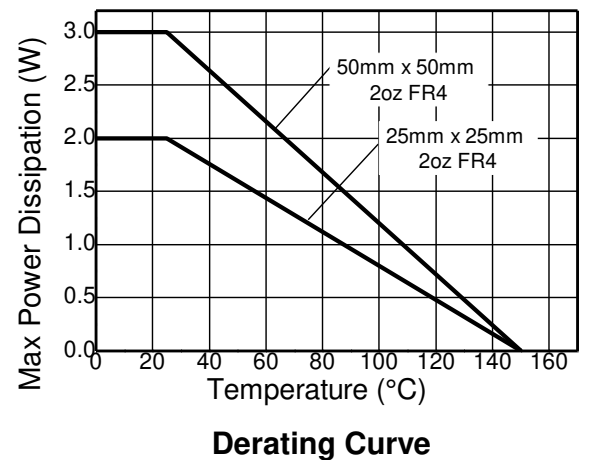
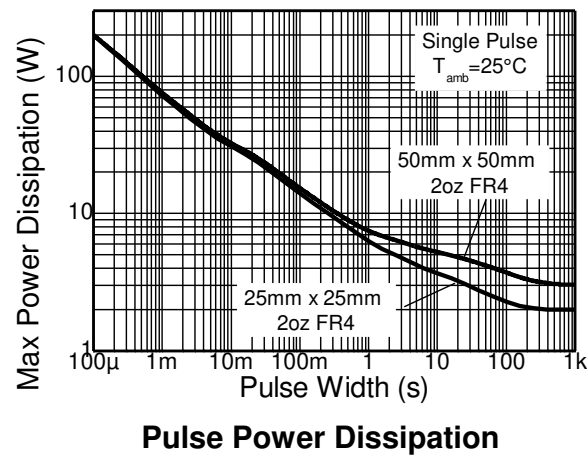
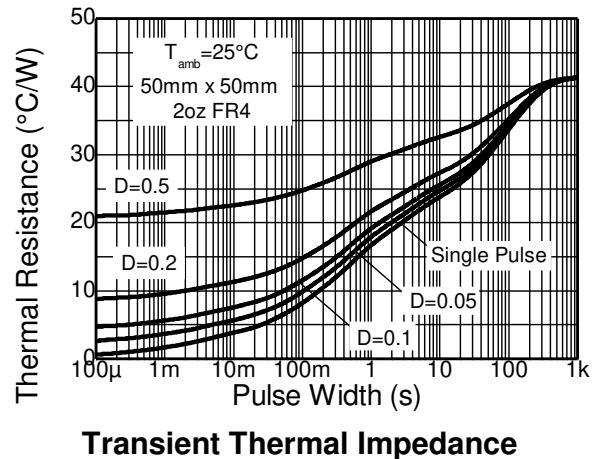
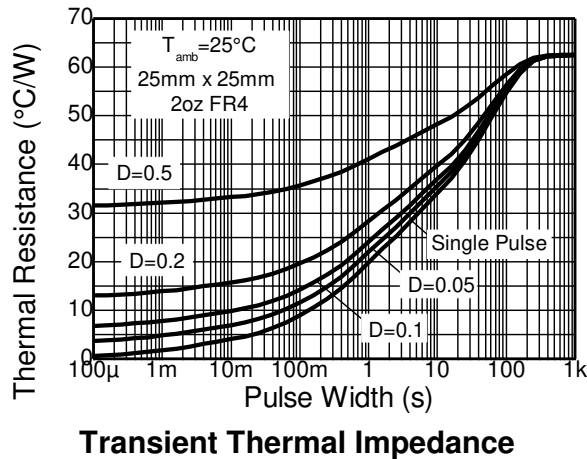
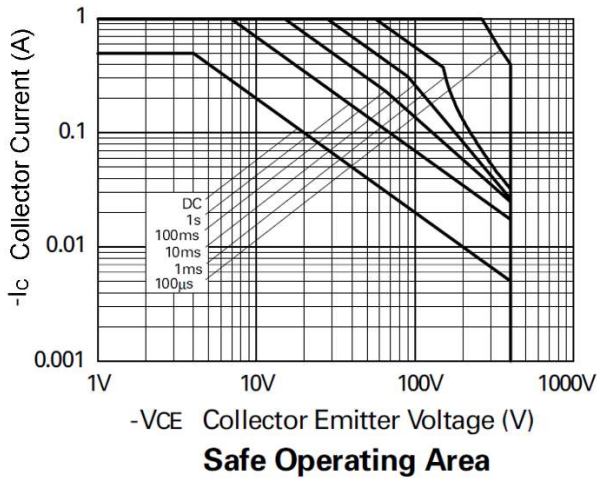
Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	(Note 5)	3.0
		(Note 6)	2.0
		(Note 7)	1.6
		(Note 8)	1.2
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	(Note 5)	41.7
		(Note 6)	62.5
		(Note 7)	78.1
		(Note 8)	104
Thermal Resistance Junction to Lead	R <sub>θJL</sub>	12.9	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**ESD Ratings** (Note 10)

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:
- For a device mounted with the collector lead on 50mm x 50mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
  - Same as Note 5, except the device is mounted on 25mm x 25mm 2oz copper.
  - Same as Note 5, except the device is mounted on 25mm x 25mm 1oz copper.
  - Same as Note 5, except the device is mounted on minimum recommended pad layout.
  - 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**

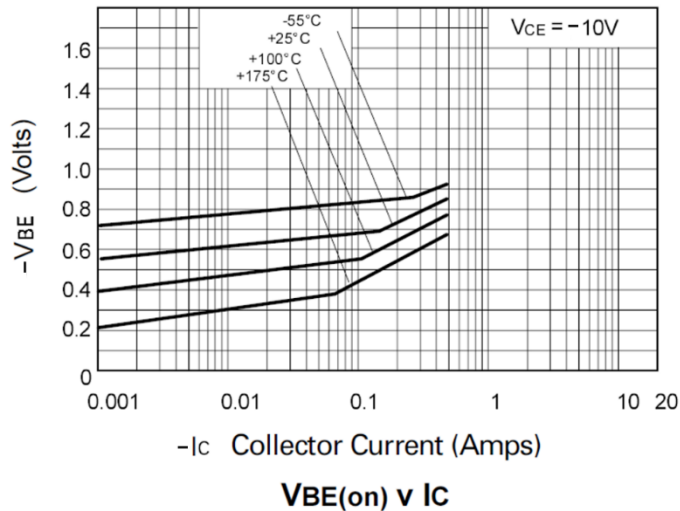
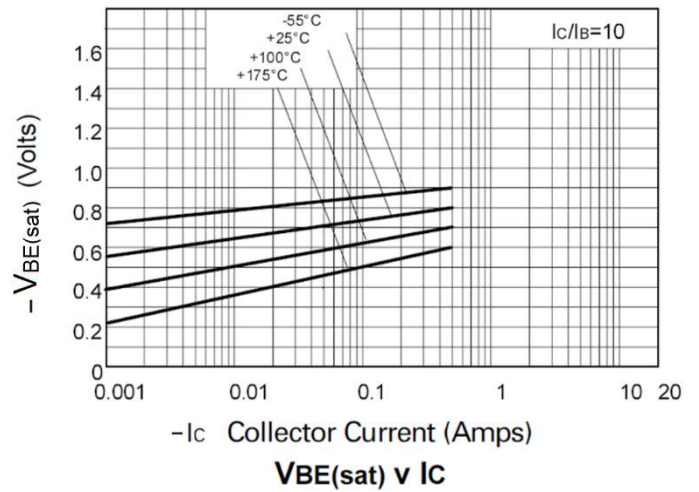
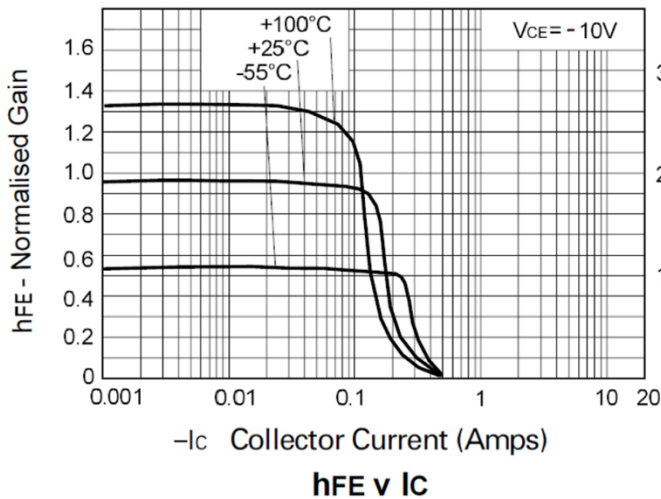
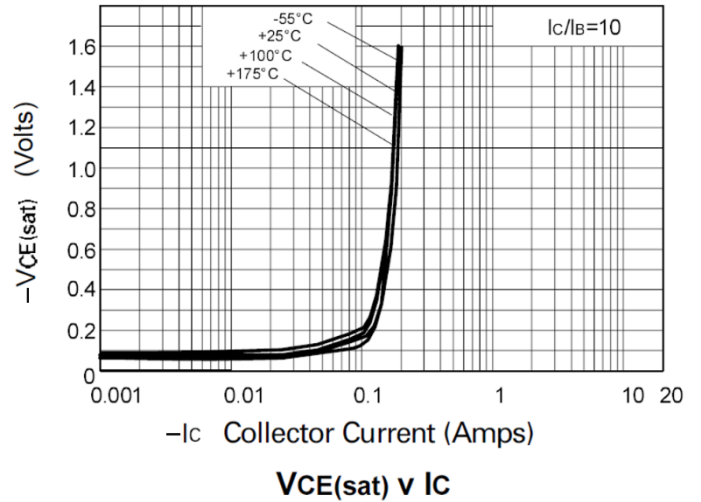
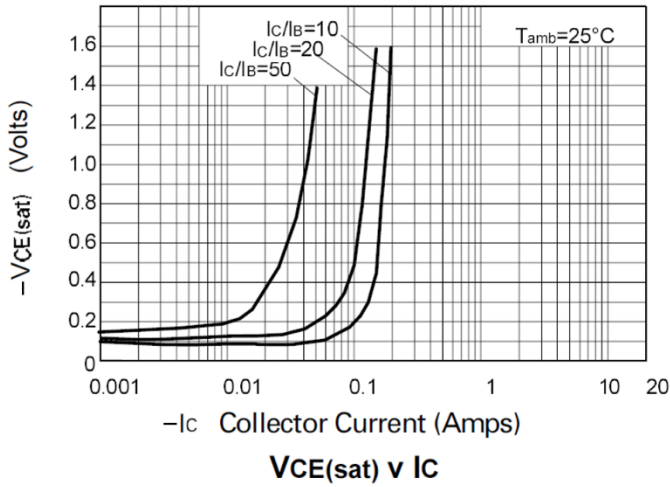


**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$BV_{CBO}$	-400	–	–	V	$I_C = -100\mu A$
Collector-Emitter Breakdown Voltage (Note 11)	$BV_{CEO}$	-400	–	–	V	$I_C = -10mA$
Emitter-Base Breakdown Voltage	$BV_{EBO}$	-7	–	–	V	$I_E = -100\mu A$
Collector Cut-Off Current	$I_{CBO}$	–	–	-100	nA	$V_{CB} = -320V$
Collector Cut-Off Current	$I_{CES}$	–	–	-100	nA	$V_{CE} = -320V$
Emitter Cut-Off Current	$I_{EBO}$	–	–	-20	nA	$V_{EB} = -6V$
Collector-Emitter Saturation Voltage (Note 11)	$V_{CE(sat)}$	–	–	-0.30	V	$I_C = -20mA, I_B = -1mA$
				-0.25		$I_C = -50mA, I_B = -5mA$
				-0.50		$I_C = -100mA, I_B = -10mA$
Base-Emitter Saturation Voltage (Note 11)	$V_{BE(sat)}$	–	–	-0.9	V	$I_C = -100mA, I_B = -10mA$
Base-Emitter Turn-On Voltage (Note 11)	$V_{BE(on)}$	–	–	-1.0	V	$I_C = -100mA, V_{CE} = -5V$
DC Current Gain (Note 11)	$h_{FE}$	50	–	–	–	$I_C = -1mA, V_{CE} = -5V$
		50	–	–		$I_C = -100mA, V_{CE} = -5V$
		40	–	–		$I_C = -200mA, V_{CE} = -10V$
Current Gain-Bandwidth Product (Note 11)	$f_T$	50	–	–	MHz	$V_{CE} = -20V, I_C = -20mA, f = 20MHz$
Output Capacitance (Note 11)	$C_{obo}$	–	–	20	pF	$V_{CB} = -20V, f = 1MHz$
Switching Times	$t_{on}$	–	140	–	ns	$I_C = -100mA, V_{CC} = -100V, I_{B1} = -10mA, I_{B2} = 20mA$
	$t_{off}$	–	2,000	–		

Note: 11. Measured under pulsed conditions. Pulse width  $\leq 300\mu s$ . Duty cycle  $\leq 2\%$ .

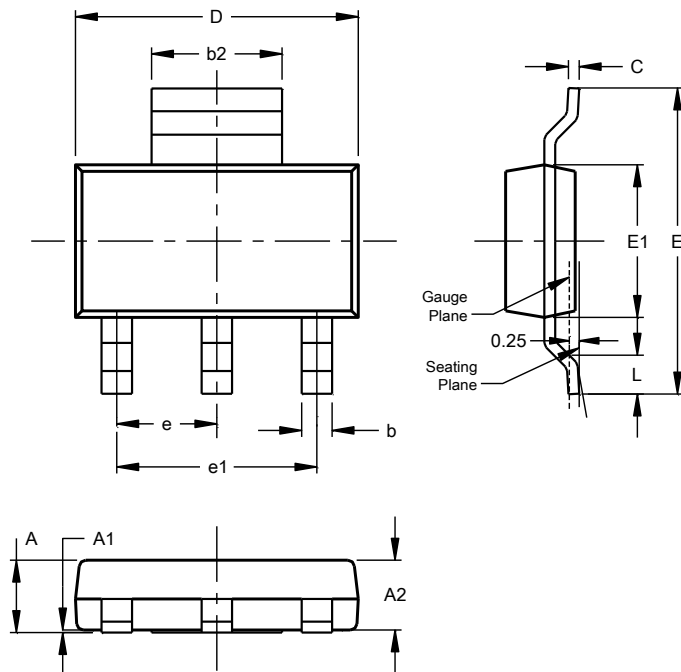
**Typical Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)



## Package Outline Dimensions

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

SOT223 (Type DN)

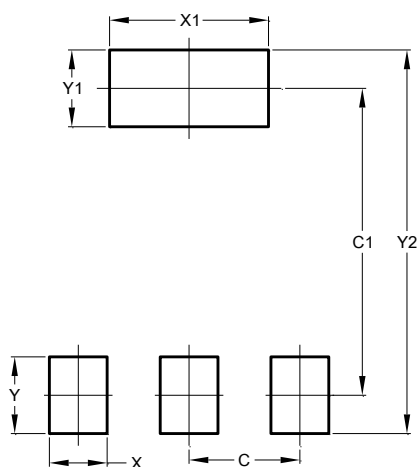


SOT223 (Type DN)			
Dim	Min	Max	Typ
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

## Suggested Pad Layout

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

SOT223 (Type DN)



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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