

Features

- $BV_{CEO} > -400V$
- $I_C = -0.5A$ High Continuous Collector Current
- $I_{CM} = -1.5A$ Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)} < -400mV @ -0.5A$
- h_{FE} Specified up to $-2A$ for a High Gain Hold-Up
- **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-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

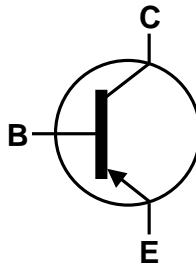
Mechanical Data

- Package: SOT223 (Type DN)
- 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 (E3)
- Weight: 0.112 grams (Approximate)

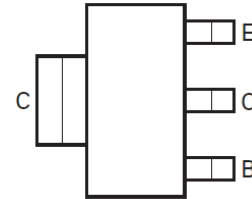


SOT223

Top View



Device Symbol



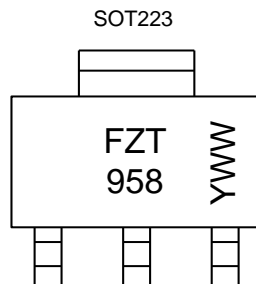
Top View
Pin-Out

Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
FZT958TA	SOT223 (Type DN)	FZT958	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 958 = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Last Digit of Year (ex: 3 = 2023)
 WW or $\bar{W}W$ = Week Code (01 to 53)

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	-400	V
Collector-Emitter Voltage	V _{CEO}	-400	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current	I _C	-0.5	A
Peak Pulse Current	I _{CM}	-1.5	A

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

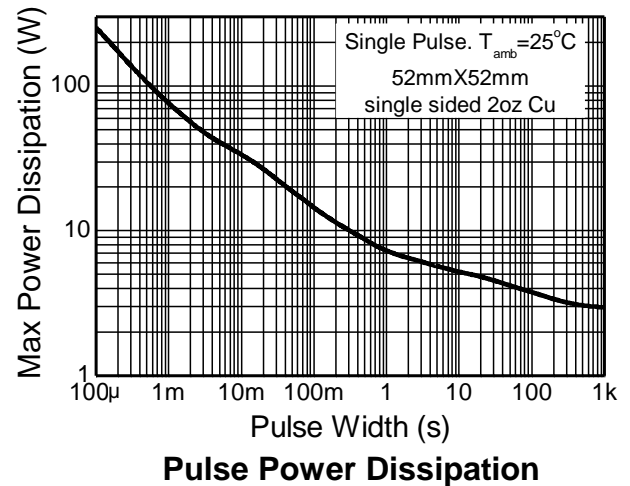
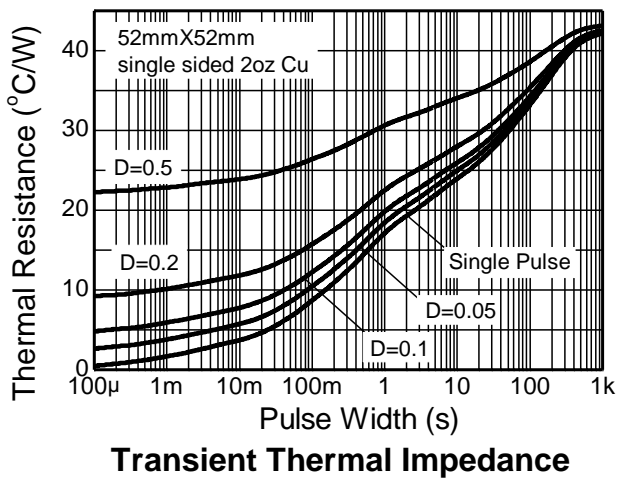
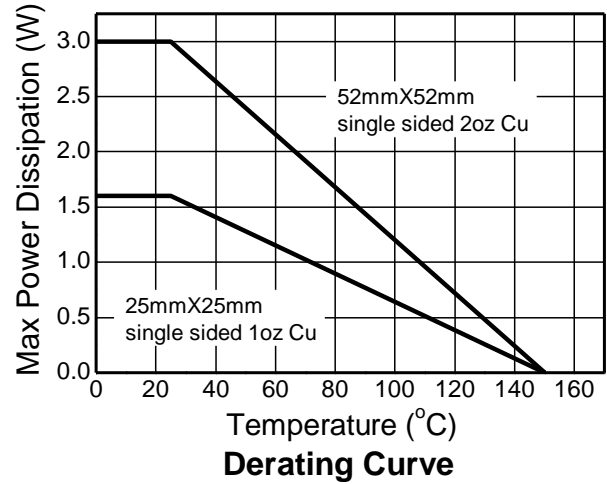
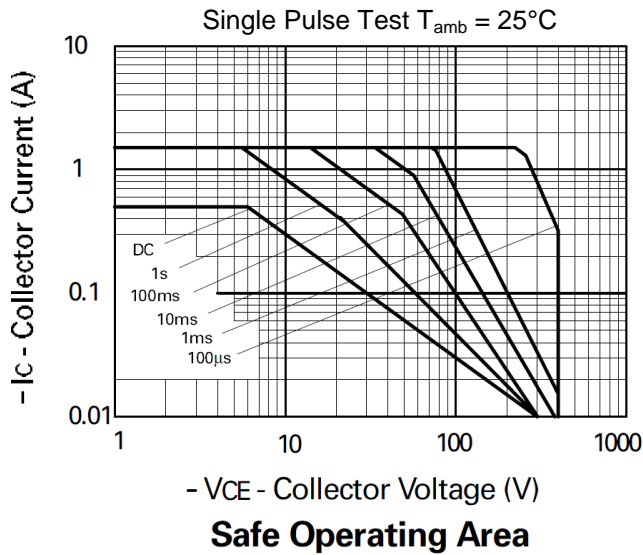
Characteristic	Symbol	Value	Unit
Power Dissipation Linear Derating Factor	P _D	3.0	W
		24	
		1.6	
Thermal Resistance, Junction to Ambient	R _{θJA}	12.8	°C/W
		42	
Thermal Resistance, Junction to Lead	R _{θJL}	78	°C/W
		8.8	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 8)

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

- Notes:
5. For a device mounted with the collector lead on 52mm x 52mm 2oz copper that is on a single-sided 1.6mm FR-4 PCB; device is measured under still air conditions whilst operating in steady-state.
 6. Same as Note 5, except the device is mounted on 25mm x 25mm 1oz 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

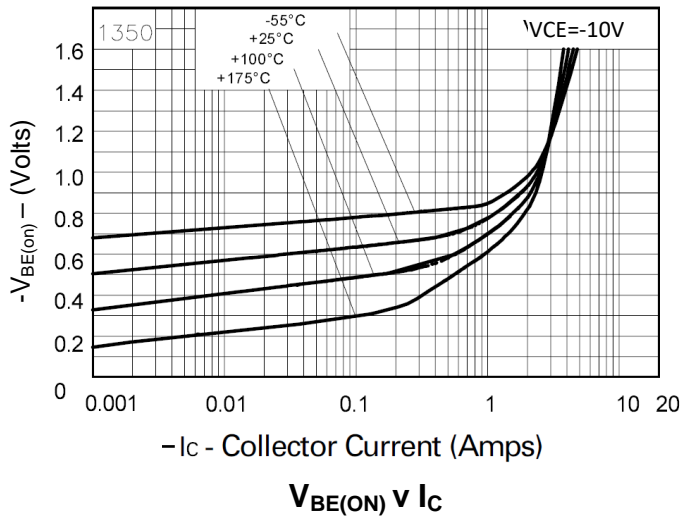
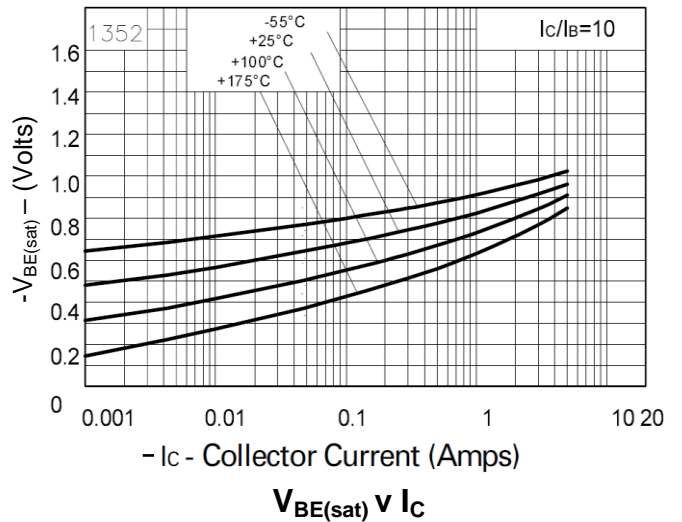
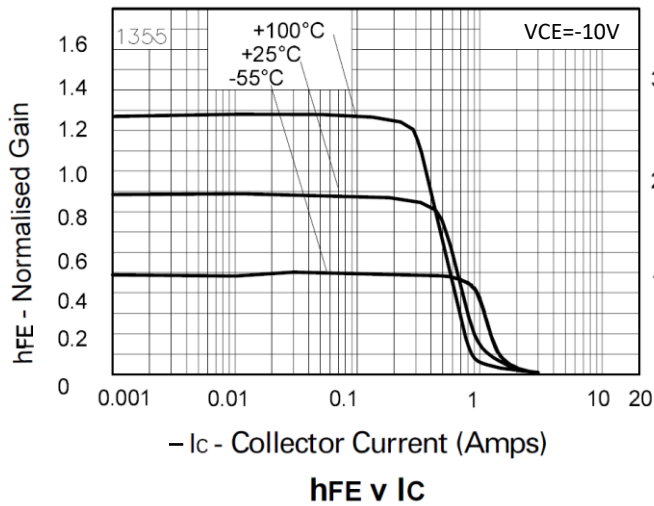
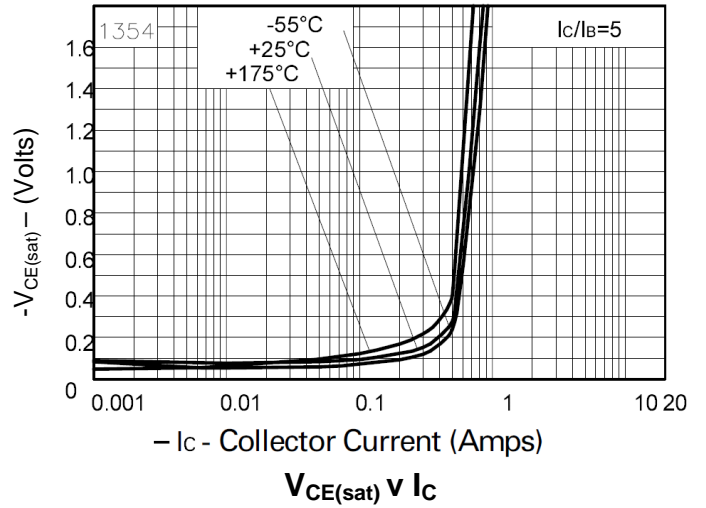
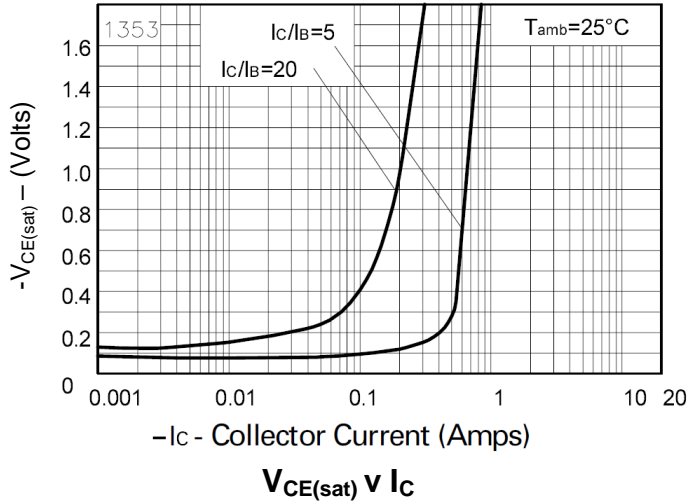


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-400	-600	—	V	I _C = -100μA
Collector-Emitter Breakdown Voltage	BV _{CER}	-400	-600	—	V	I _C = -1μA, R _B ≤ 1kΩ
Collector-Emitter Breakdown Voltage (Note 9)	BV _{CEO}	-400	-550	—	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8	—	V	I _E = -100μA
Collector Cut-Off Current	I _{CBO}	—	—	-50	nA	V _{CB} = -300V
		—	—	-1	μA	V _{CB} = -300V, T _A = +100°C
Collector Cut-Off Current	I _{CER}	—	—	-50	nA	V _{CE} = -300V, R ≤ 1kΩ
		—	—	-1	μA	V _{CE} = -300V, R ≤ 1kΩ, T _A = +100°C
Emitter Cut-Off Current	I _{EBO}	—	—	-10	nA	V _{EB} = -6V
DC Current Transfer Static Ratio (Note 9)	h _{FE}	100	200	—	—	I _C = -10mA, V _{CE} = -10V
		100	200	300	—	I _C = -0.5A, V _{CE} = -10V
		10	20	—	—	I _C = -1A, V _{CE} = -10V
Collector-Emitter Saturation Voltage (Note 9)	V _{CE(sat)}	—	-100	-150	mV	I _C = -10mA, I _B = -1mA
		—	-150	-200	mV	I _C = -100mA, I _B = -10mA
		—	-340	-400	mV	I _C = -500mA, I _B = -100mA
Base-Emitter Saturation Voltage (Note 9)	V _{BE(sat)}	—	-830	-950	mV	I _C = -0.5A, I _B = -100mA
Base-Emitter Turn-On Voltage (Note 9)	V _{BE(on)}	—	-725	-840	mV	I _C = -0.5A, V _{CE} = -10V
Transitional Frequency	f _T	—	85	—	MHz	I _C = -100mA, V _{CE} = -10V, f = 50MHz
Output Capacitance	C _{obo}	—	19	—	pF	V _{CB} = -20V, f = 1MHz
Switching Time	t _{on}	—	104	—	ns	V _{CC} = -100V, I _C = -500mA,
	t _{off}	—	2,400	—	ns	I _{B1} = -I _{B2} = -50mA

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

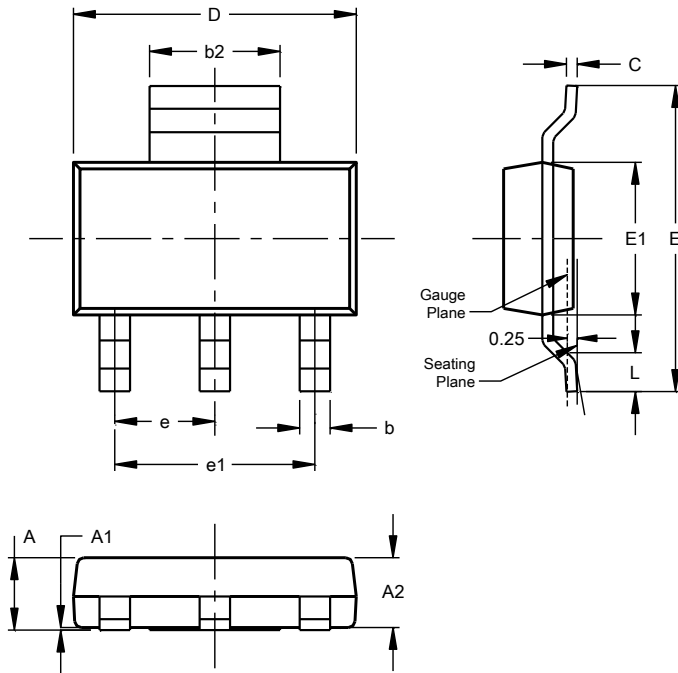
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



Package Outline Dimensions

Please see <https://www.diodes.com/design/support/packaging/diodes-packaging/> for the latest version.

SOT223 (Type DN)

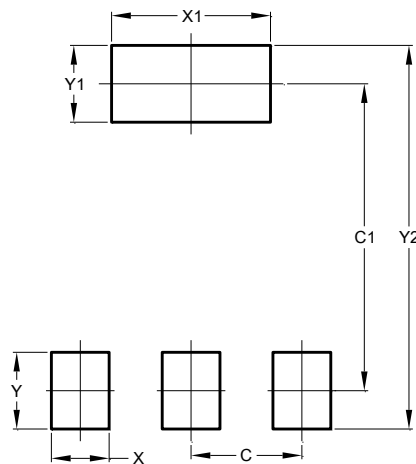


SOT223 (Type DN)			
Dim	Min	Max	Typ
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

Suggested Pad Layout

Please see <https://www.diodes.com/design/support/packaging/diodes-packaging/> 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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