

Features

- $BV_{CEO} > 100V$
- $BV_{CBO} > 100V$
- $I_C = 1.5A$ High Continuous Current
- $h_{FE} > 10k$ for Very High Gain @100mA
- **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/>**

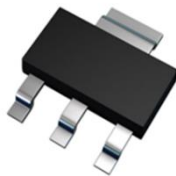
Mechanical Data

- Package: SOT223
- 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)

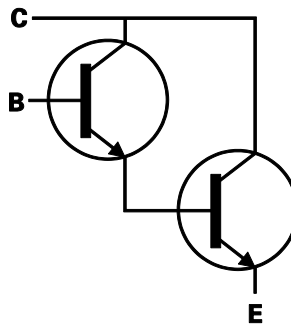
Applications

- Lamps
- Relays
- Solenoid driving

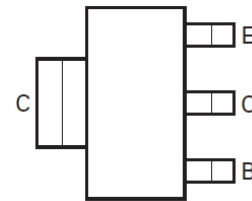
SOT223 (Type DN)



Top View



Device Symbol



Top View
Pinout

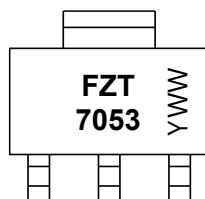
Ordering Information (Note 4)

Orderable Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
FZT7053TA	SOT223 (Type DN)	FZT7053	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

SOT223 (Type DN)



FZT7053 = Product Type Marking Code
YWW = Date Code Marking
Y or $\bar{Y}$ = Last Digit of Year (ex: 6 = 2026)
WW or $\bar{W}W$ = Week Code (01 to 53)

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

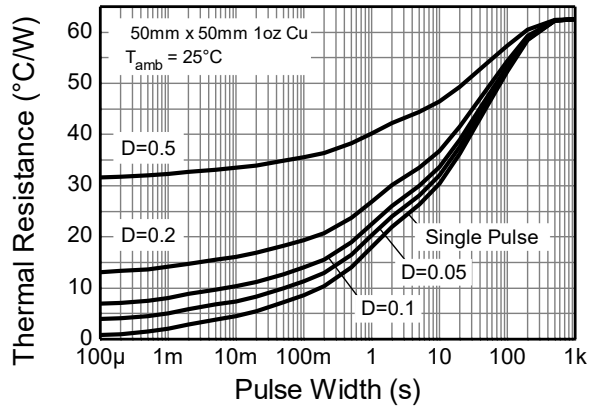
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	100	V
Collector-Emitter Voltage	V _{CEO}	100	V
Emitter-Base Voltage	V _{EB0}	12	V
Continuous Collector Current	I _C	1.5	A
Peak Pulse Current	I _{CM}	2	A

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

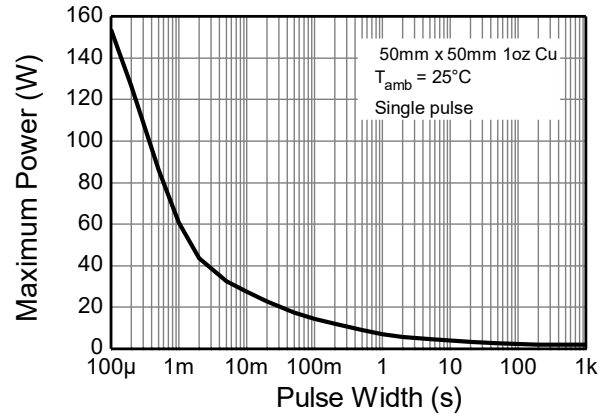
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	1	W
Power Dissipation (Note 6)	P _D	1.25	W
Power Dissipation (Note 7)	P _D	2	W
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	125	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	100	°C/W
Thermal Resistance, Junction to Ambient (Note 7)	R _{θJA}	62	°C/W
Thermal Resistance, Junction to Lead (Note 8)	R _{θJL}	19.4	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
5. For a device surface mounted on 15mm x 14mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 6. Same as Note 5, except the device is surface mounted on 25mm x 25mm with 1oz copper.
 7. Same as Note 5, except the device is surface mounted on 50mm x 50mm with 1oz copper.
 8. Thermal resistance from junction to solder-point (at the end of the collector lead).

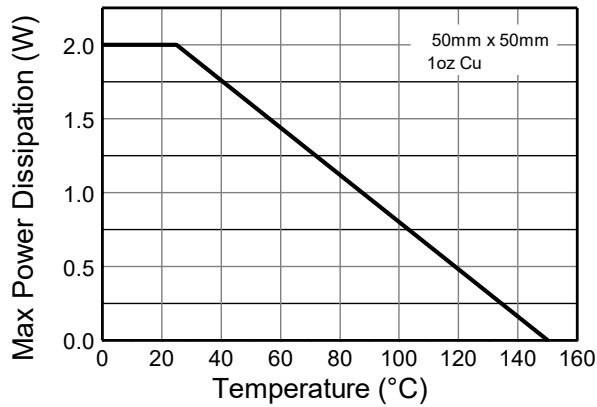
Thermal Characteristics and Derating Information



Transient Thermal Impedance



Pulse Power Dissipation



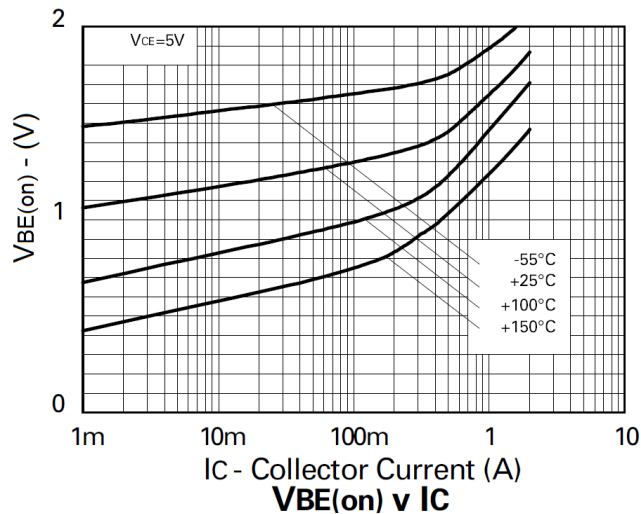
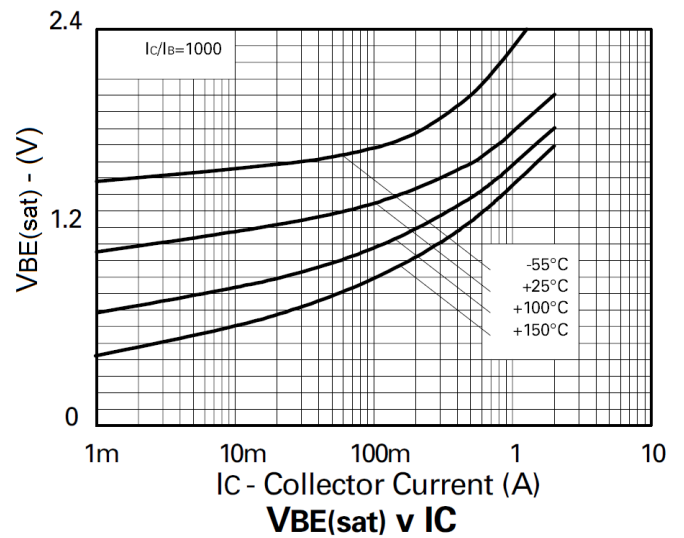
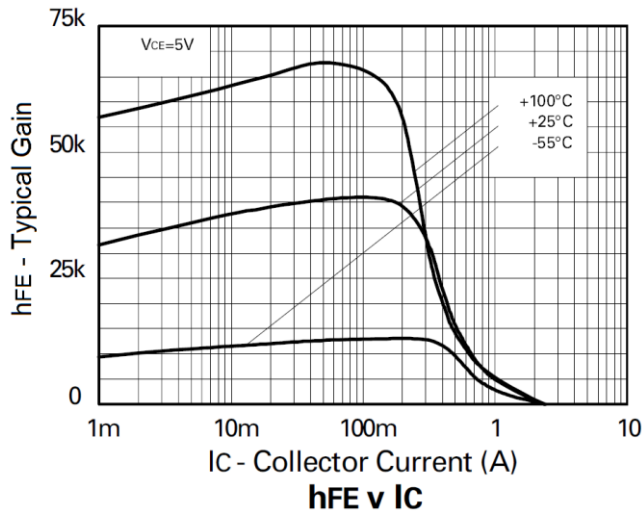
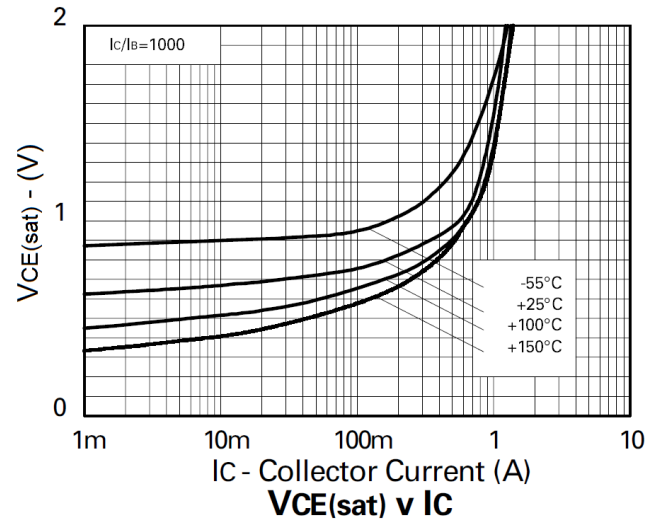
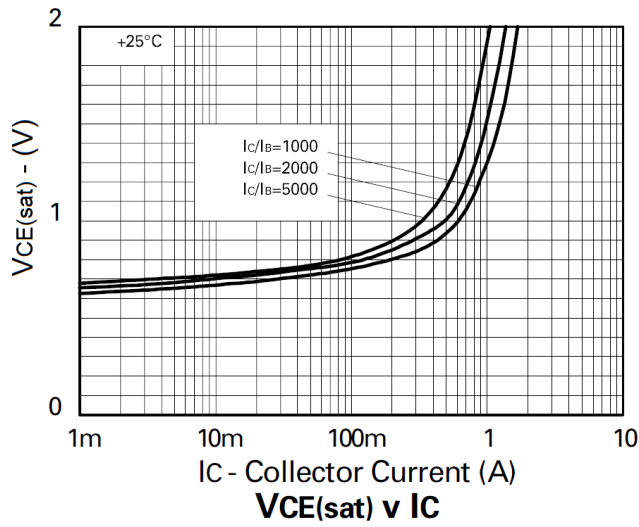
Derating Curve

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	100	300	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV _{CEO}	100	130	—	V	I _C = 1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	12	16	—	V	I _E = 100μA
Collector-Base Cut-Off Current	I _{CBO}	—	2	50	nA	V _{CB} = 80V
Collector-Emitter Cut-Off Current	I _{CES}	—	100	200	nA	V _{CE} = 80V
Emitter Cut-Off Current	I _{EBO}	—	1	50	nA	V _{EB} = 10V
DC Current Gain (Note 9)	h _{FE}	10,000 1,000	—	—	—	I _C = 100mA, V _{CE} = 5V I _C = 1A, V _{CE} = 5V
Collector-Emitter Saturation Voltage (Note 9)	V _{CE(sat)}	—	—	1.5	V	I _C = 100mA, I _B = 0.1mA
Base-Emitter Turn-On Voltage (Note 9)	V _{BE(on)}	—	—	2	V	I _C = 100mA, V _{CE} = 5V
Output Capacitance (Note 9)	C _{obo}	—	6	8	pF	V _{CB} = 10V, f = 1MHz
Current Gain-Bandwidth Product (Note 9)	f _T	200	—	—	MHz	V _{CE} = 5V, I _C = 100mA
Turn-On Time	t _{on}	—	0.7	—	μs	V _{CC} = 10V, I _C = 100μA, I _{B1} = -I _{B2} = 0.1mA
Turn-Off Time	t _{off}	—	2.5	—	μs	

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

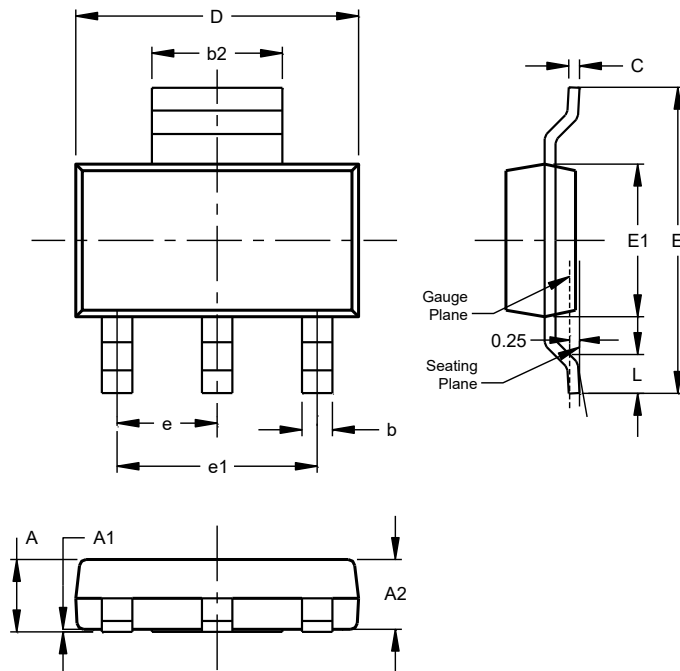
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

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

SOT223 (Type DN)

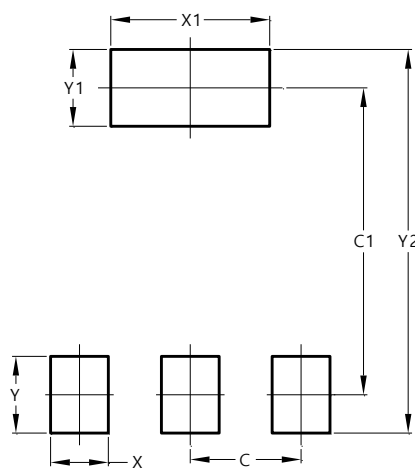


SOT223 (Type DN)			
Dim	Min	Max	Typ
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

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

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to voltage spacing between terminals.

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