

FZT7053

100V NPN Darlington transistor in SOT223

Features

- $BV_{CEO} > 100V$
- $BV_{CBO} > 100V$
- Continuous current $I_{C(cont)} = 1.5A$
- Ultra High Grain

Applications

- Lamp
- Relay
- Solenoid driving

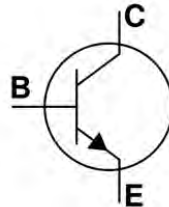
Mechanical Data

- Case: SOT-223
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Matte Tin Finish
- Weight: 0.112 grams (approximate)

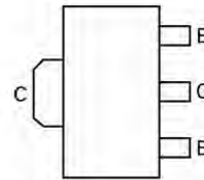
SOT-223



Top View



Device symbol

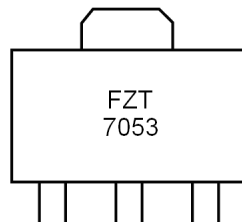


Pin Configuration

Ordering Information

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT7053TA	FZT7053	7	12	1000

Marking Information



FZT7053 = Product type Marking Code

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Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	100	V
Collector-Emitter Voltage	V _{CEO}	100	V
Emitter-Base Voltage	V _{EBO}	12	V
Continuous Collector Current	I _C	1.5	A
Peak Pulse Current	I _{CM}	1.8	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation at T _A = 25°C (Note 1)	P _D	1.0	W
Linear derating factor		8.0	mW/°C
Power Dissipation at T _A = 25°C (Note 2)	P _D	1.25	W
Linear derating factor		10	mW/°C
Power Dissipation at T _A = 25°C (Note 3)	P _D	6.25	W
Linear derating factor		50	mW/°C
Thermal Resistance, Junction to Ambient (Note 1)	R _{θJA}	125	°C/W
Thermal Resistance, Junction to Ambient (Note 2)	R _{θJA}	100	°C/W
Thermal Resistance, Junction to Lead (Note 3)	R _{θJL}	20	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
1. For a device surface mounted on 15mm X 15mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
 2. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions.
 3. Junction to lead (collector Tab). Typical.

Electrical Characteristics @T_A = 25°C unless otherwise specified

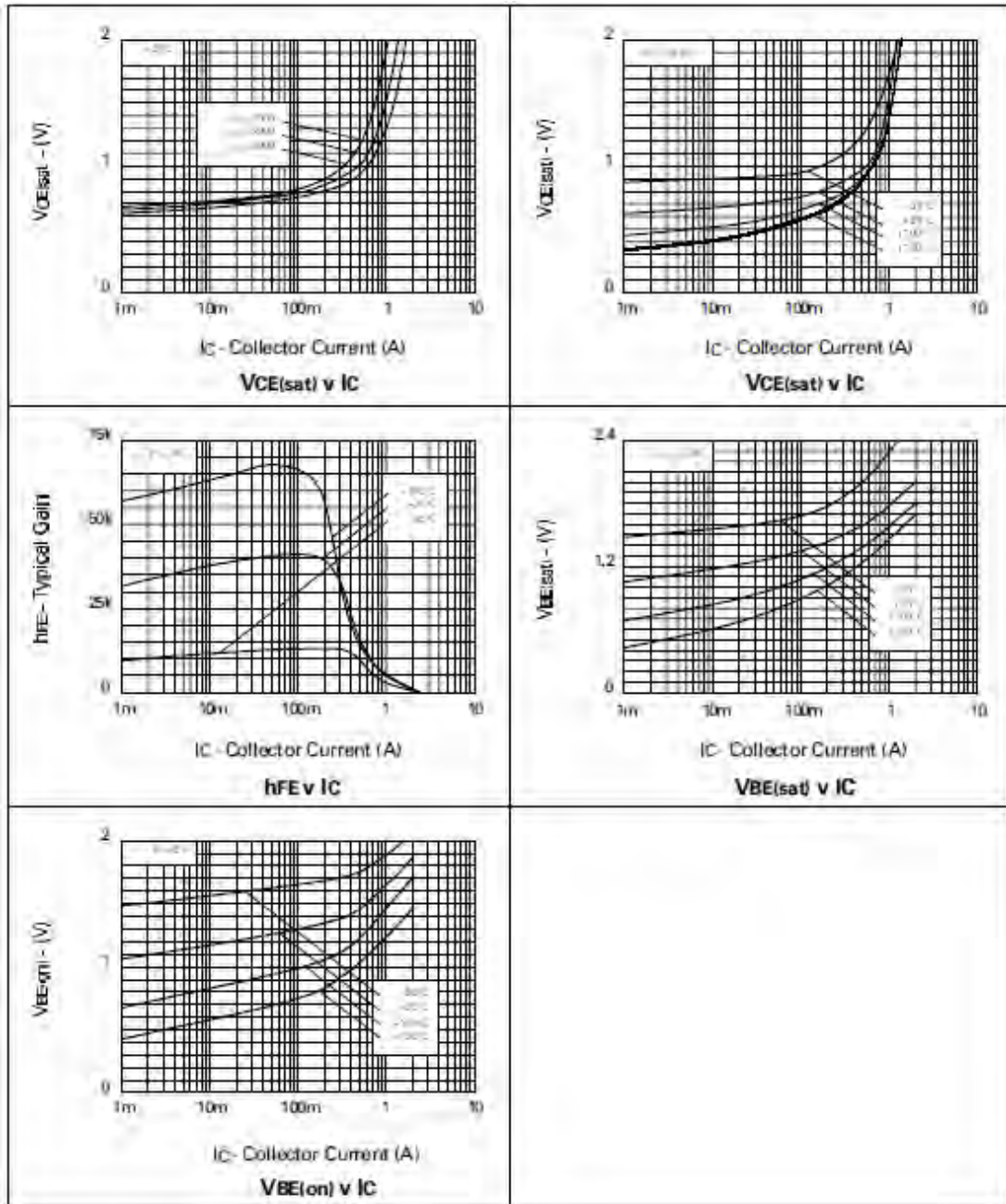
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	V _{(BR)CB0}	100			V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 4)	V _{(BR)CEO}	100			V	I _C = 100mA
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	12			V	I _E = 100μA
Collector-Base Cutoff Current	I _{CB0}		<1	100 0.5	nA μA	V _{CB} = 80V V _{CB} = 80V, T _{amb} = 100°C
Collector-Emitter Cutoff Current	I _{CES}		<1	200 0.5	nA μA	V _{CB} = 80V V _{CB} = 80V, T _{amb} = 100°C
Emitter Cutoff Current	I _{EBO}		<1	100	nA	V _{EB} = 7V
DC Current Gain (Note 4)	h _{FE}	10000 1000				I _C = 100mA, V _{CE} = 5V I _C = 1A, V _{CE} = 5V
Collector-Emitter Saturation Voltage (Note 4)	V _{CE(SAT)}			1.5	V	I _C = 100mA, I _B = 0.1mA
Base-Emitter Turn-On Voltage (Note 4)	V _{BE(ON)}			2.0	mV	I _C = 100mA, V _{CE} = 5V
Output Capacitance (Note 4)	C _{obo}		6.0	8.0	pF	V _{CB} = 10V, f = 1MHz
Current Gain-Bandwidth Product (Note 4)	f _T	200			MHz	V _{CE} = 5V, I _C = 100mA
Turn-On Time	t _{on}		0.7		μs	V _{CC} = 10V, I _C = 100μA
Turn-Off Time	t _{off}		2.5		μs	I _{B1} = -I _{B2} = 0.1mA

- Notes:
1. For a device surface mounted on 15mm X 15mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
 2. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions.
 3. Junction to lead (collector Tab). Typical.
 4. Measured under pulsed conditions. Pulse width = 300 μs. Duty cycle ≤ 2%

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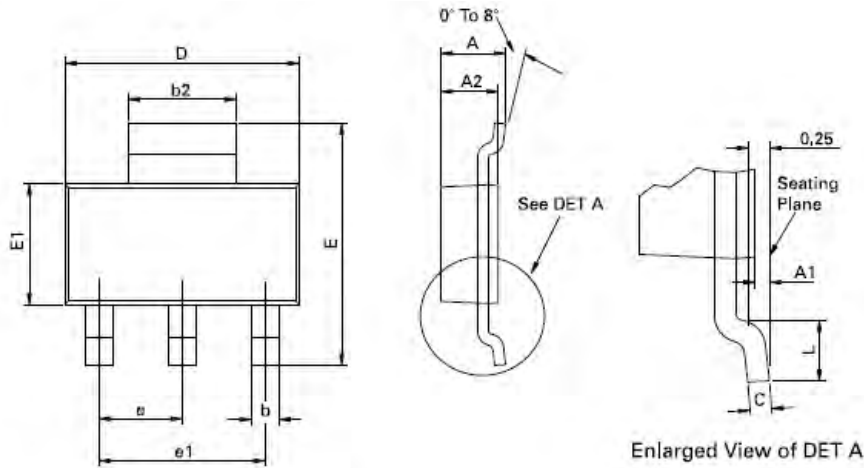
Typical Characteristics



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Package Outline Dimensions

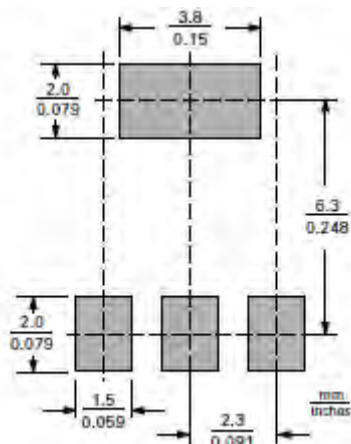


Conforms to JEDEC TO-261 AA Issue B

Dim.	Millimeters		Inches		Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	-	1.80	-	0.071	D	6.30	6.70	0.248	0.264
A1	0.02	0.10	0.0008	0.004	e	2.30 BSC		0.0905 BSC	
A2	1.55	1.65	0.0610	0.0649	e1	4.60 BSC		0.181 BSC	
b	0.66	0.84	0.026	0.033	E	6.70	7.30	0.264	0.287
b2	2.90	3.10	0.114	0.122	E1	3.30	3.70	0.130	0.146
C	0.23	0.33	0.009	0.013	L	0.90	-	0.035	-

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

Suggested Pad Layout



FZT7053**100V NPN Darlington transistor in SOT223****IMPORTANT NOTICE**

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