FZT1053A

75V NPN SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT-223

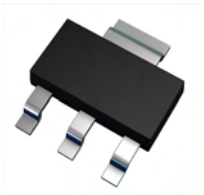
Features and Benefits

- BV_{CEO} > 75V
- Maximum continuous current I_C= 4.5A
- 10A pulse current
- High gain holds up h_{FE} > 300 @ I_C=1A
- Very low equivalent on-resistance; $R_{CE(sat)}$ = 78mΩ at 4.5A
- **"Green" component, Lead Free Finish / RoHS compliant (Note 1)**
- **Qualified to AEC-Q101 Standards for High Reliability**

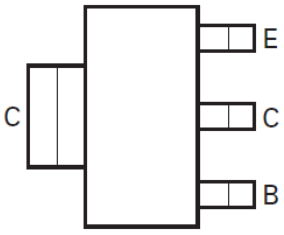
Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.112 grams (approximate)

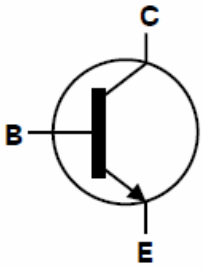
SOT223



Top View



Top View
Pin Out



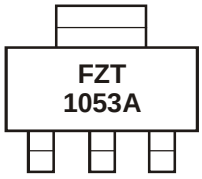
Equivalent Circuit

Ordering Information (Note 1)

Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT1053ATA	FZT1053A	7	12	1,000

Notes: 1. Diodes, Inc. defines "Green" products as those which are RoHS compliant and contain no halogens or antimony compounds. All applicable RoHS exemptions applied. Further information about Diodes Inc.'s "Green" Policy can be found on our website at http://www.diodes.com

Marking Information



FZT1053A = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	75	V
Emitter-Base Voltage	V_{EBO}	7.5	V
Continuous Collector Current	I_C	4.5	A
Base Current	I_B	500	mA
Peak Pulse Current (Note 2)	I_{CM}	10	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

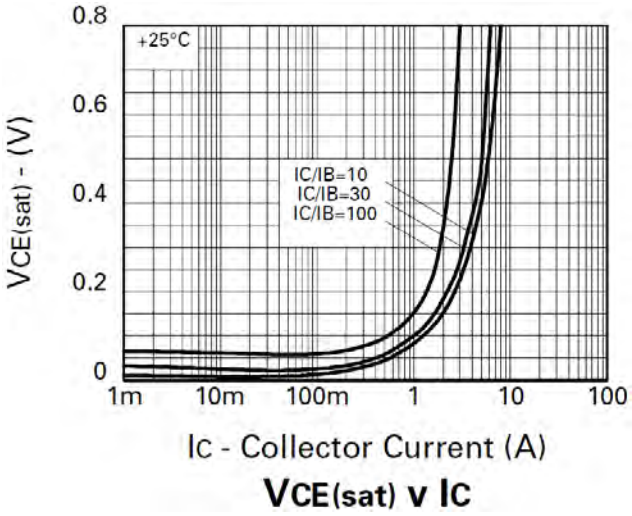
Characteristic	Symbol	Value	Unit
Collector Power Dissipation (Note 2)	P_D	2.5	W
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$	50	°C/W
Thermal Resistance, Junction to Leads (Note 3)	$R_{\theta JL}$	10.88	°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

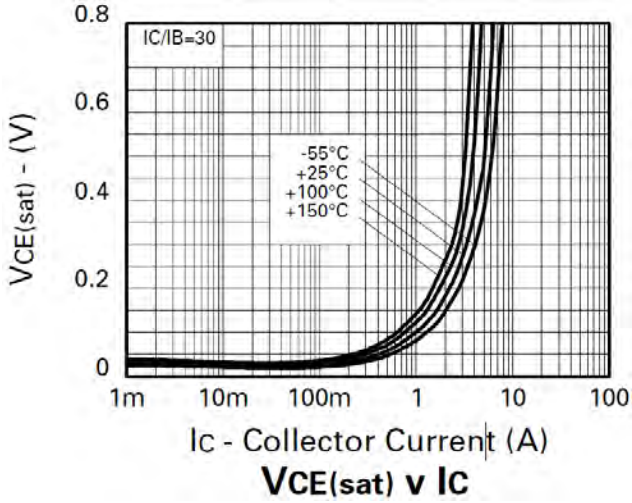
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	150	250	-	V	I_C = 100µA
Collector-Emitter Breakdown Voltage	BV_{CES}	150	250	-	V	I_C = 100µA
Collector-Emitter Breakdown Voltage (Note 4)	BV_{CEO}	75	100	-	V	I_C = 10mA
Collector-Emitter Breakdown Voltage	BV_{CEV}	150	250	-	V	I_C = 100µA, V_{EB} = 1V
Emitter-Base Breakdown Voltage	BV_{EBO}	7.5	8.8	-	V	I_E = 100µA
Collector Cutoff Current	I_{CBO}	-	0.9	10	nA	V_{CB} = 120V
Collector Cutoff Current	I_{CES}	-	1.5	10	nA	V_{CES} = 120V
Emitter Cutoff Current	I_{EBO}	-	0.3	10	nA	V_{EB} = 4V
DC current transfer Static ratio (Note 4)	h_{FE}	270	440	-	-	I_C = 10mA, V_{CE} = 2V
		300	450	1200		I_C = 0.5A, V_{CE} = 2V
		300	450	-		I_C = 1A, V_{CE} = 2V
		40	60	-		I_C = 4.5A, V_{CE} = 2V
		-	20	-		I_C = 10A, V_{CE} = 2V
Collector-Emitter Saturation Voltage (Note 4)	$V_{CE(sat)}$	-	21	30	mV	I_C = 0.2A, I_B = 20mA
		-	55	75		I_C = 0.5A, I_B = 20mA
		-	150	200		I_C = 1A, I_B = 10mA
		-	160	210		I_C = 2A, I_B = 100mA
		-	350	440		I_C = 4.5A, I_B = 200mA
Base-Emitter Saturation Voltage (Note 4)	$V_{BE(sat)}$	-	900	1000	mV	I_C = 3A, I_B = 100mA
Base-Emitter Turn-on Voltage (Note 4)	$V_{BE(on)}$	-	825	950	mV	I_C = 3A, V_{CE} = 2V
Transitional Frequency (Note 4)	f_T	-	140	-	MHz	I_C = 50mA, V_{CE} = 10V, f = 100MHz
Output capacitance	C_{obo}	-	21	30	pF	V_{CB} = 10V, f = 1MHz,
Switching Time	t_{on}	-	162	-	ns	V_{CC} = 50V, I_C = 2A, I_{B1} = I_{B2} = ±20mA
	t_{off}	-	900	-	ns	

Notes: 2. For the device mounted on 50mm x 50mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
3. Thermal resistance from junction to solder-point (at the end of the drain lead)
4. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤2%.

Electrical Characteristics



VCE(sat) v IC



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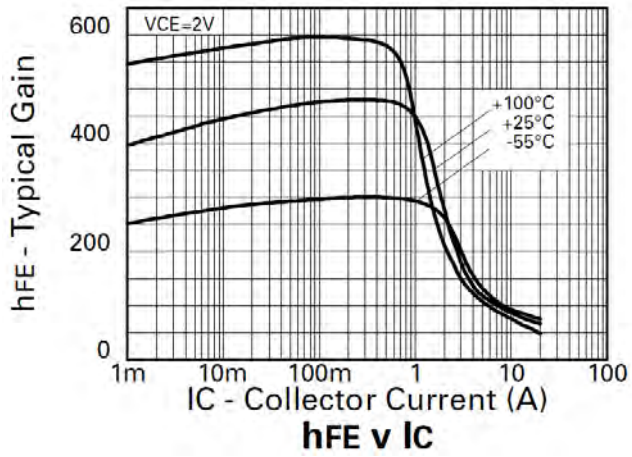
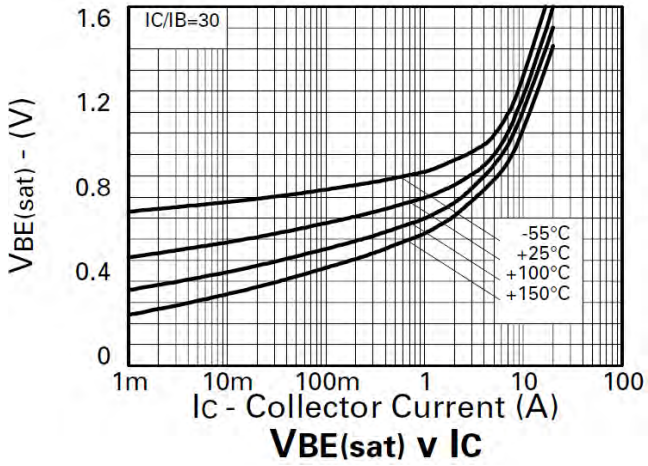
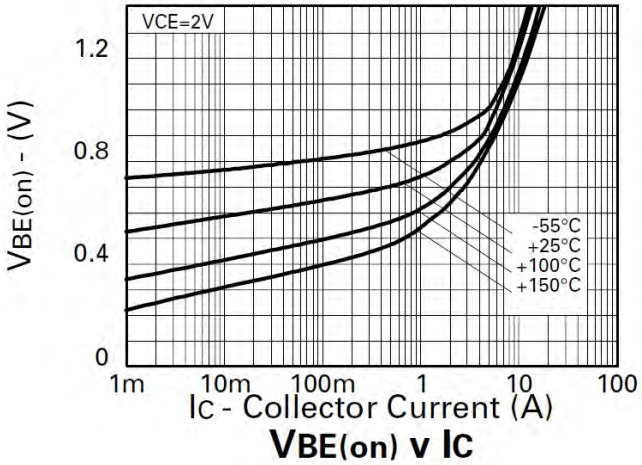


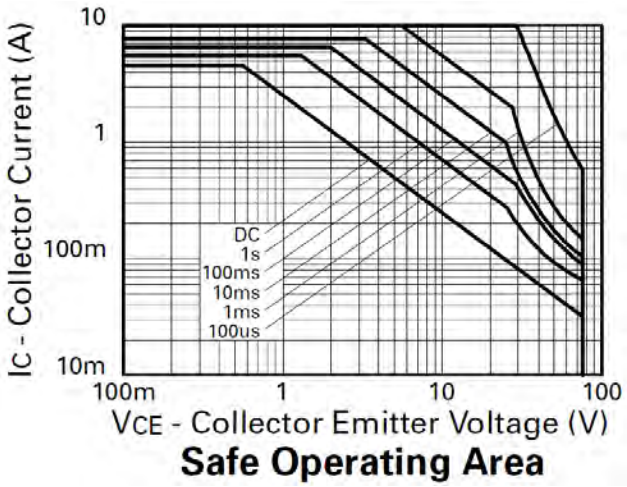
hFE v IC



VBE(sat) v IC

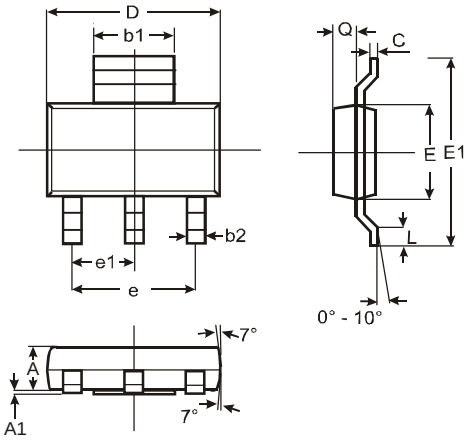


VBE(on) v IC



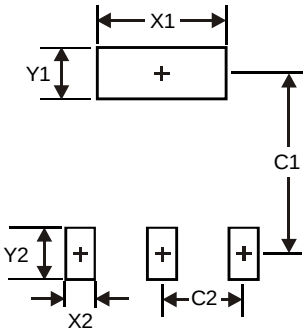
Safe Operating Area

Package Outline Dimensions



SOT223			
Dim	**Min**	**Max**	**Typ**
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b1	2.90	3.10	3.00
b2	0.60	0.80	0.70
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



Dimensions	Value (in mm)
X1	3.3
X2	1.2
Y1	1.6
Y2	1.6
C1	6.4
C2	2.3

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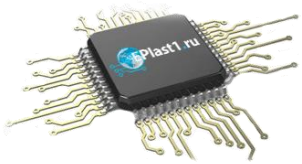
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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