

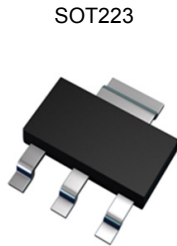
60V PNP MEDIUM POWER TRANSISTOR IN SOT223

Features

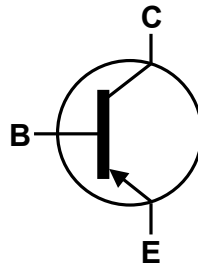
- $BV_{CEO} > -60V$
- $I_C = -5A$ high Continuous Collector Current
- $I_{CM} = -15A$ Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)} < -140mV @ -1A$
- $R_{CE(sat)} = 55m\Omega$ for a low equivalent On-Resistance
- h_{FE} specified up to $-10A$ for a high gain hold up
- Complementary NPN Type: FZT851
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP capable (Note 4)**

Mechanical Data

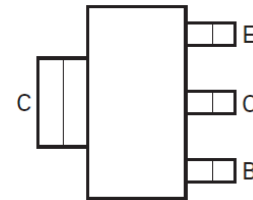
- Case: SOT223
- Case material: molded plastic. "Green" molding compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.112 grams (approximate)



Top View



Device Symbol



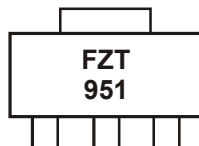
Top View
Pin-Out

Ordering Information (Notes 4 & 5)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT951TA	AEC-Q101	FZT951	7	12	1,000
FZT951TC	AEC-Q101	FZT951	13	12	4,000
FZT951QTA	Automotive	FZT951	7	12	1,000
FZT951QTC	Automotive	FZT951	13	12	4,000

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See <http://www.diodes.com> 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified.
 5. For packaging details, go to our website at <http://www.diodes.com>

Marking Information



FZT951 = Product Type Marking Code

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}	-60	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current	I _C	-5	A
Peak Pulse Current	I _{CM}	-15	A

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

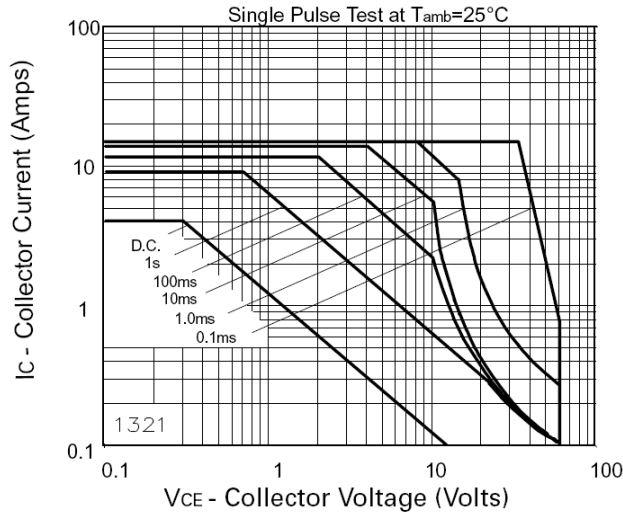
Characteristic	Symbol	Value	Unit
Power Dissipation Linear derating factor	P _D	3.0	W
		24	
		1.6	mW /°C
		12.8	
Thermal Resistance, Junction to Ambient	R _{θJA}	42	°C/W
	R _{θJA}	78	
Thermal Resistance Junction to Lead	R _{θJL}	8.84	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 9)

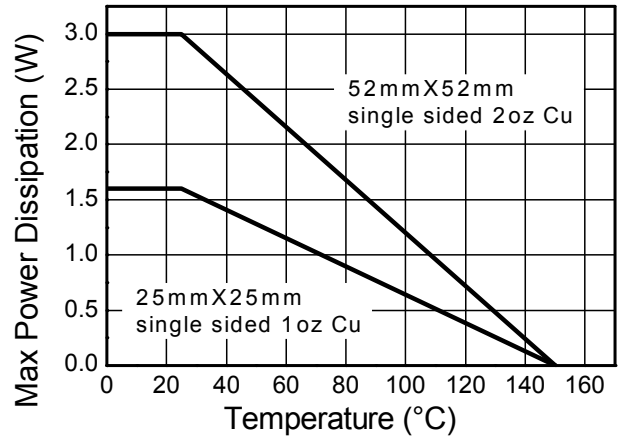
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

- Notes:
6. For a device surface mounted on 52mm x 52mm x 1.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 7. Same as note (6), except the device is surface mounted on 25mm x 25mm with 1oz copper.
 8. Thermal resistance from junction to solder-point (at the end of the collector lead).
 9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

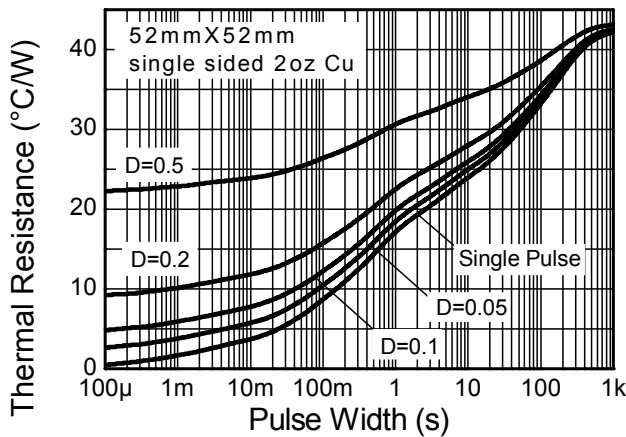
Thermal Characteristics and Derating Information



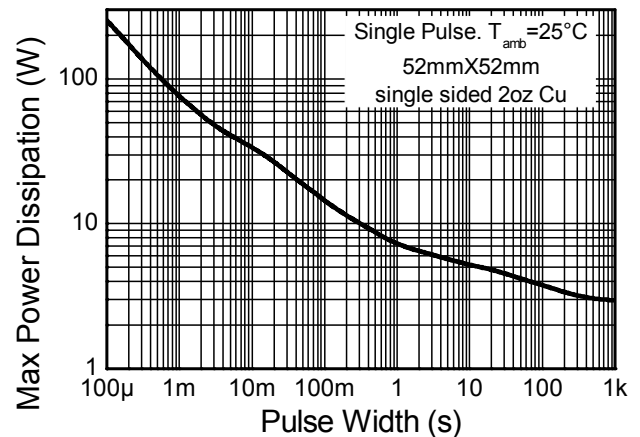
Safe Operating Area



Derating Curve



Transient Thermal Impedance



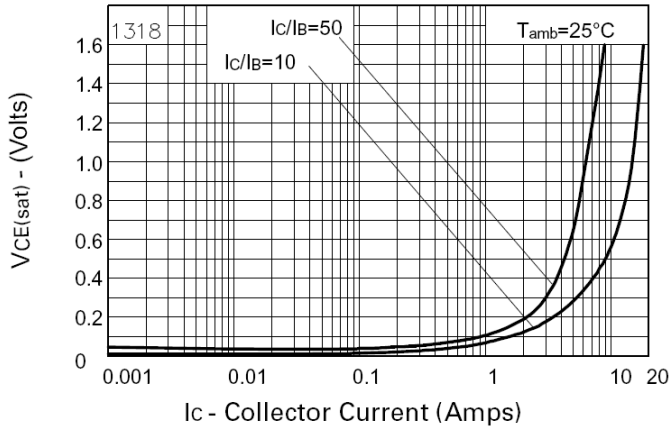
Pulse Power Dissipation

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

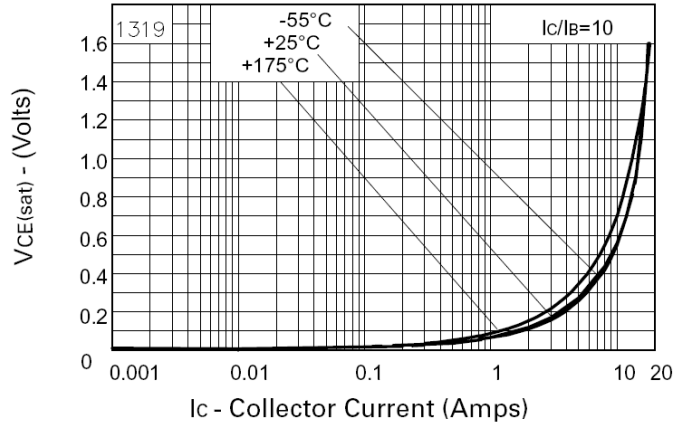
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-100	-140	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CER}	-100	-140	-	V	$I_C = -1\mu\text{A}$, $R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CEO}	-60	-90	-	V	$I_C = -10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8	-	V	$I_E = -100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	-	<1	-50	nA	$V_{CB} = -80\text{V}$
		-	-	-1	μA	$V_{CB} = -80\text{V}$, $T_A = +100^\circ\text{C}$
Collector Cutoff Current	I_{CER}	-	<1	-50	nA	$V_{CB} = -80\text{V}$
	$R \leq 1\text{k}\Omega$	-	-	-1	μA	$V_{CB} = -80\text{V}$, $T_A = +100^\circ\text{C}$
Emitter Cutoff Current	I_{EBO}	-	<1	-10	nA	$V_{EB} = -6\text{V}$
DC current transfer Static ratio (Note 10)	h_{FE}	100	200	-	-	$I_C = -10\text{mA}$, $V_{CE} = -1\text{V}$
		100	200	300		$I_C = -2\text{A}$, $V_{CE} = -1\text{V}$
		75	90	-		$I_C = -5\text{A}$, $V_{CE} = -1\text{V}$
		10	25	-		$I_C = -10\text{A}$, $V_{CE} = -1\text{V}$
Collector-Emitter Saturation Voltage (Note 10)	$V_{CE(sat)}$	-	-20	-50	mV	$I_C = -100\text{mA}$, $I_B = -10\text{mA}$
		-	-85	-140		$I_C = -1\text{A}$, $I_B = -100\text{mA}$
		-	-155	-210		$I_C = -2\text{A}$, $I_B = -200\text{mA}$
		-	-370	-460		$I_C = -5\text{A}$, $I_B = -500\text{mA}$
Base-Emitter Saturation Voltage (Note 10)	$V_{BE(sat)}$	-	-1080	-1240	mV	$I_C = -5\text{A}$, $I_B = -500\text{mA}$
Base-Emitter Turn-on Voltage (Note 10)	$V_{BE(on)}$	-	-935	-1070	mV	$I_C = -5\text{A}$, $V_{CE} = -1\text{V}$
Transitional Frequency (Note 10)	f_T	-	120	-	MHz	$I_C = -100\text{mA}$, $V_{CE} = -10\text{V}$, $f = 50\text{MHz}$
Output capacitance	C_{obo}	-	74	-	pF	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$
Switching Time	t_{ON}	-	82	-	ns	$V_{CC} = -10\text{V}$, $I_C = -2\text{A}$, $I_{B1} = -I_{B2} = -200\text{mA}$
	t_{OFF}	-	350	-		

Notes: 10. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

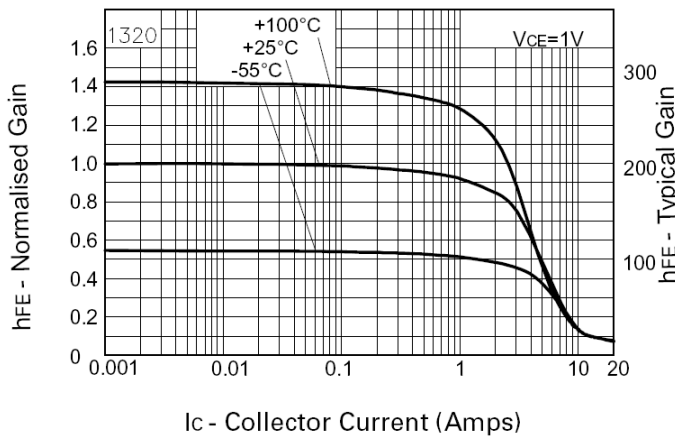
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



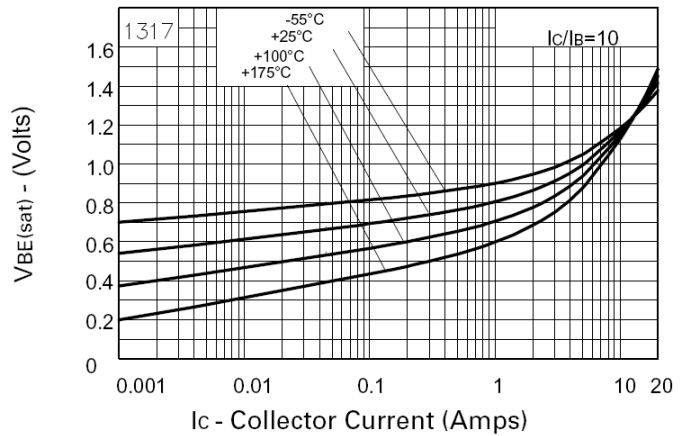
VCE(sat) v IC



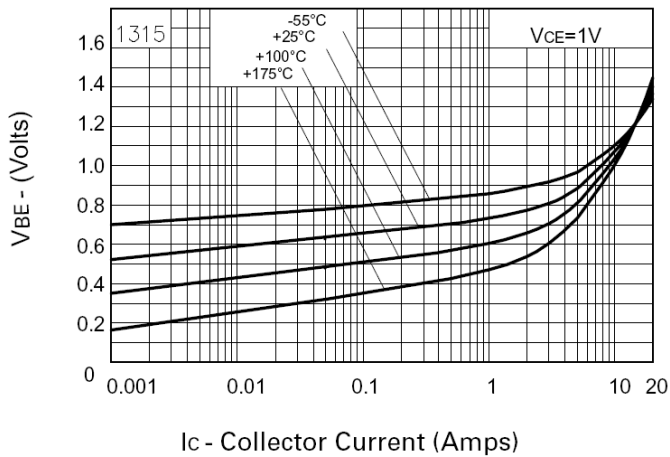
VCE(sat) v IC



hFE v IC



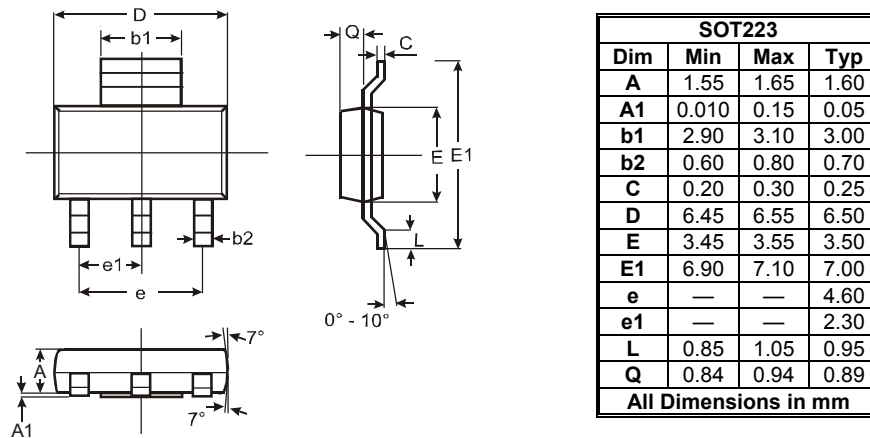
VBE(sat) v IC



VBE(on) v IC

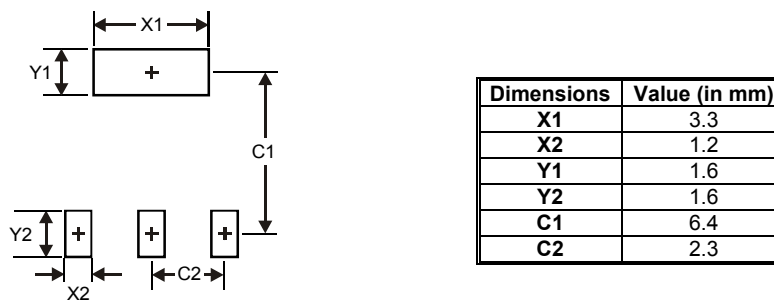
Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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