

Features

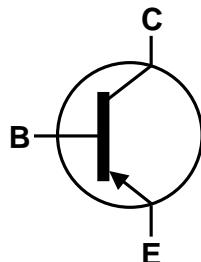
- $BV_{CEO} > -200V$
- $I_C = -2A$ High Continuous Collector Current
- $I_C = -5A$ Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)} < -165mV$ @ $-1A$
- h_{FE} Specified up to $-5A$ for a High Gain Hold-Up
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP Capable (Note 4)

Mechanical Data

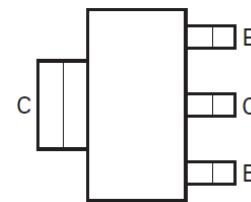
- Case: SOT223
- Case Material: Molded Plastic. "Green" Molding Compound;
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads; Solderable per MIL-STD-202, Method 208^③
- Weight: 0.112 grams (Approximate)



Top View



Device Symbol


Top View
Pin-Out

Ordering Information (Notes 4 & 5)

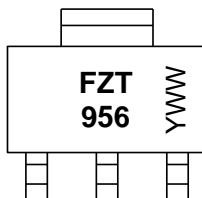
Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT956TA	AEC-Q101	FZT956	7	12	1,000
FZT956QTA	Automotive	FZT956	7	12	1,000

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/quality/lead_free.html 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/products/packages.html>.

Marking Information

SOT223



FZT 956 = Product Type Marking Code
YWW = Date Code Marking
Y or \bar{Y} = Last Digit of Year (ex: 5= 2015)
WW or \bar{WW} = Week Code (01~53)

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-220	V
Collector-Emitter Voltage	V_{CEO}	-200	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-2	A
Peak Pulse Current	I_{CM}	-5	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation Linear Derating Factor	(Note 6)	3.0	W mW /°C
		24	
Thermal Resistance, Junction to Ambient	(Note 6)	1.6	°C/W
		12.8	
Thermal Resistance Junction to Lead	(Note 8)	42	°C/W
Operating and Storage Temperature Range	$R_{\theta JA}$	78	
	$R_{\theta JL}$	8.8	
	T_J, T_{STG}	-55 to +150	°C

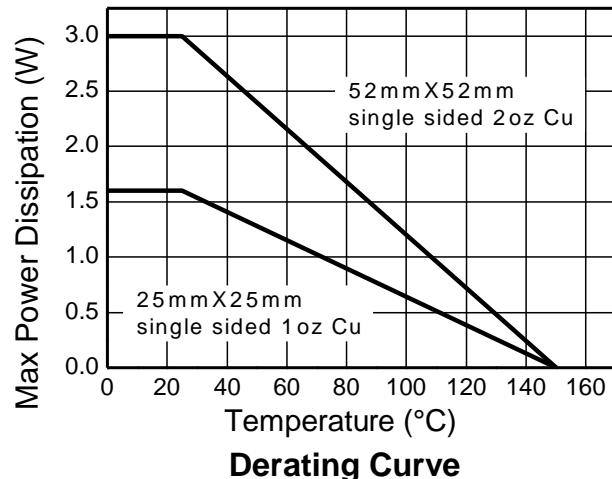
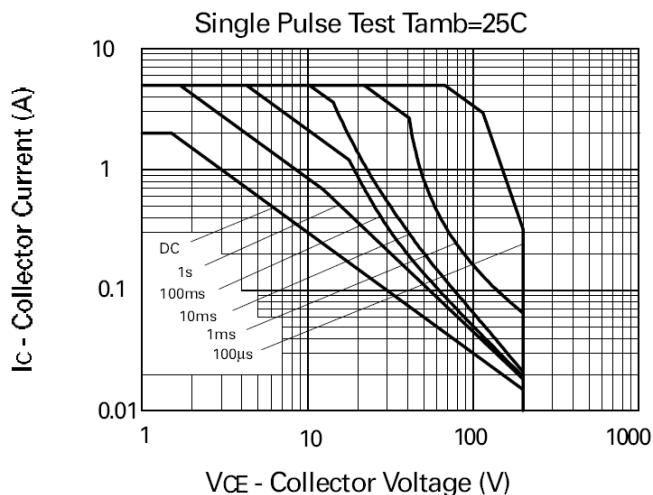
ESD Ratings (Note 9)

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

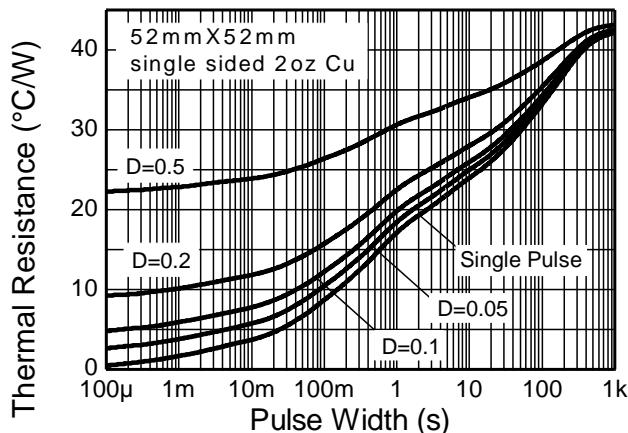
Notes:

6. For a device mounted with the collector lead on 52mm x 52mm 2oz copper that is on a single sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
7. Same as Note 6, except mounted on 25mm x 25mm 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.

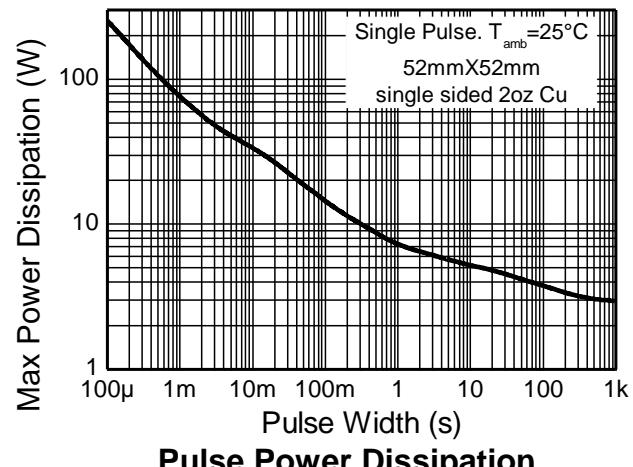
Thermal Characteristics and Derating Information



Safe Operating Area



Transient Thermal Impedance



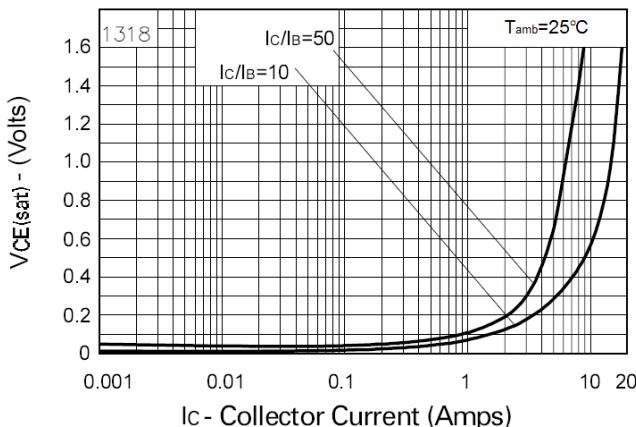
Pulse Power Dissipation

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

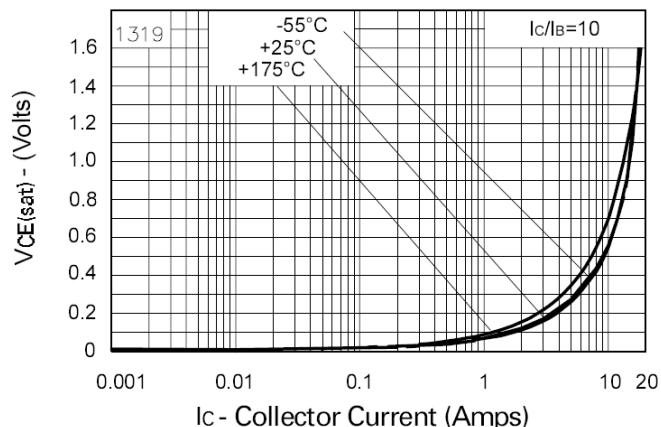
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-220	-300	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CER}	-220	-300	-	V	$I_C = -1\mu\text{A}, R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CEO}	-200	-240	-	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.3	-	V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}	-	-	-50	nA	$V_{\text{CB}} = -200\text{V}$
		-	-	-1	μA	$V_{\text{CB}} = -200\text{V}, T_A = +100^\circ\text{C}$
Collector Cut-Off Current	I_{CER} $R \leq 1\text{k}\Omega$	-	-	-50	nA	$V_{\text{CB}} = -200\text{V}$
		-	-	-1	μA	$V_{\text{CB}} = -200\text{V}, T_A = +100^\circ\text{C}$
Emitter Cut-Off Current	I_{EBO}	-	-	-10	nA	$V_{\text{EB}} = -6\text{V}$
DC Current Transfer Static Ratio (Note 10)	h_{FE}	100	200	-	-	$I_C = -10\text{mA}, V_{\text{CE}} = -5\text{V}$
		100	200	300		$I_C = -1\text{A}, V_{\text{CE}} = -5\text{V}$
		50	150	-		$I_C = -2\text{A}, V_{\text{CE}} = -5\text{V}$
		-	10	-		$I_C = -5\text{A}, V_{\text{CE}} = -5\text{V}$
Collector-Emitter Saturation Voltage (Note 10)	$V_{\text{CE}(\text{sat})}$	-	-30	-50	mV	$I_C = -100\text{mA}, I_B = -10\text{mA}$
		-	-120	-165		$I_C = -1\text{A}, I_B = -100\text{mA}$
		-	-168	-275		$I_C = -2\text{A}, I_B = -400\text{mA}$
Base-Emitter Saturation Voltage (Note 10)	$V_{\text{BE}(\text{sat})}$	-	-970	-1,110	mV	$I_C = -2\text{A}, I_B = -400\text{mA}$
Base-Emitter Turn-On Voltage (Note 10)	$V_{\text{BE}(\text{on})}$	-	-810	-950	mV	$I_C = -2\text{A}, V_{\text{CE}} = -5\text{V}$
Transitional Frequency (Note 10)	f_T	-	110	-	MHz	$I_C = -100\text{mA}, V_{\text{CE}} = -10\text{V}, f = 50\text{MHz}$
Output Capacitance	C_{obo}	-	32	-	pF	$V_{\text{CB}} = -20\text{V}, f = 1\text{MHz}$
Switching Time	t_{ON}	-	67	-	ns	$V_{\text{CC}} = -50\text{V}, I_C = -1\text{A}, I_{B1} = -I_{B2} = -100\text{mA}$
	t_{OFF}	-	1,140	-		

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

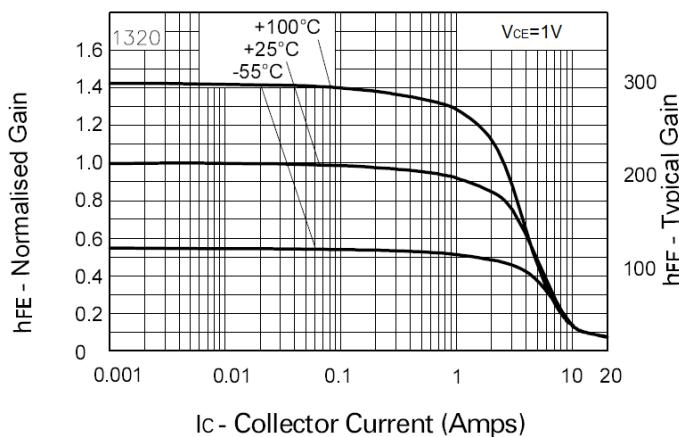
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



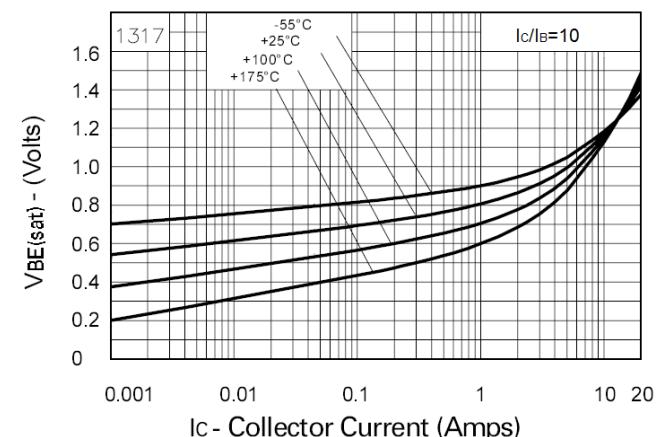
V_{CE(sat)} v IC



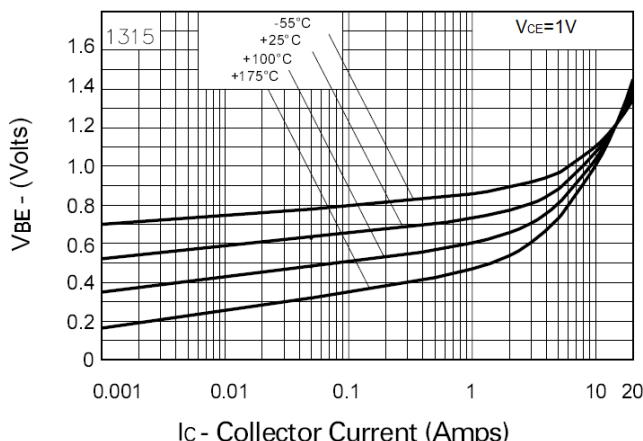
V_{CE(sat)} v IC



h_{FE} v IC



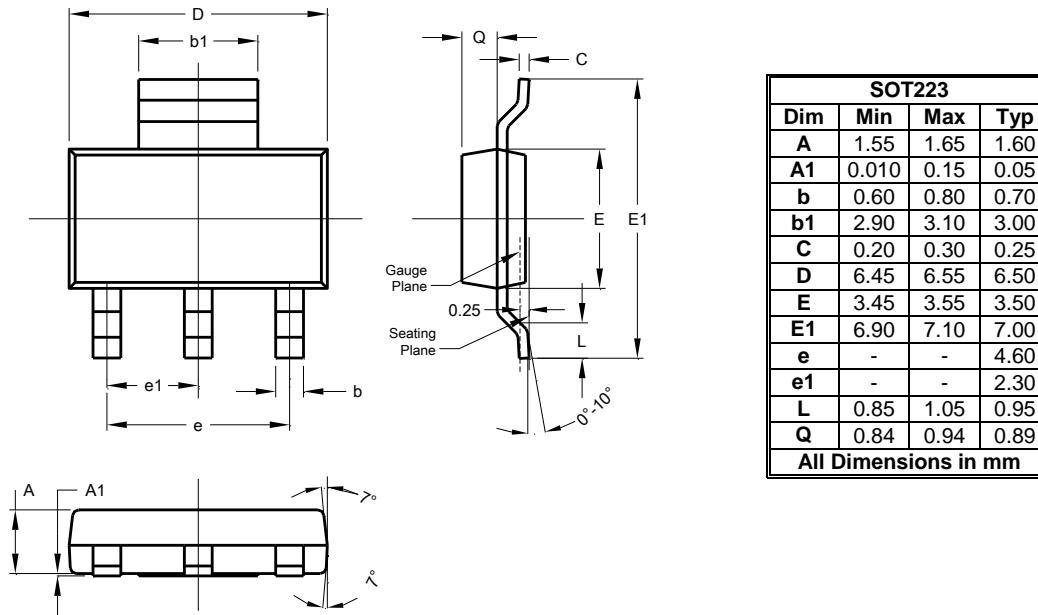
V_{BE(sat)} v IC



V_{BE(on)} v IC

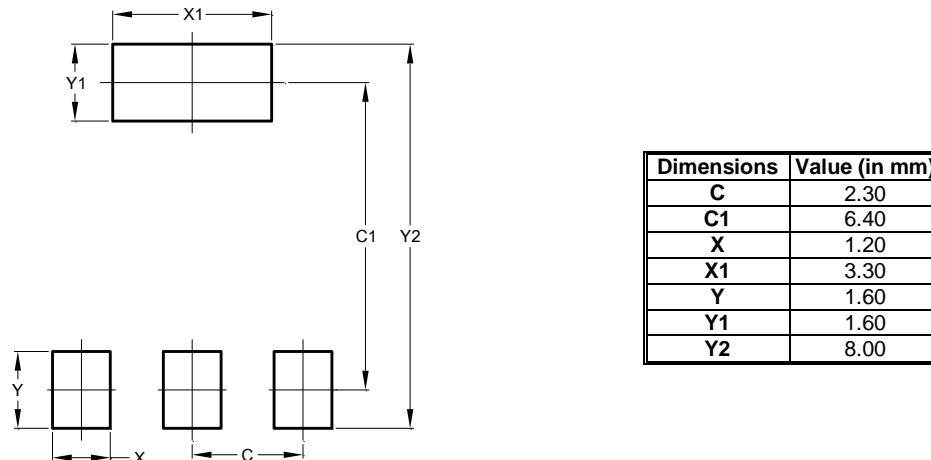
Package Outline Dimensions

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



Suggested Pad Layout

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



Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device terminals and PCB tracking.

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