



**THE DATASHEET OF
FZT1149ATA**

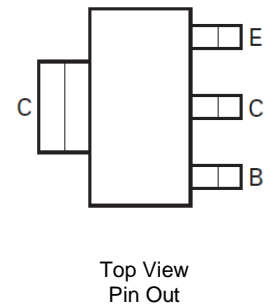
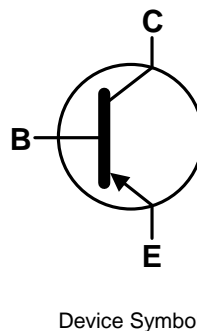


Features and Benefits

- $BV_{CEO} > -25V$
- Maximum Continuous Current $I_C = -4A$
- Peak Pulse Current $I_C = -10A$
- High Gain Holds Up $h_{FE} > 195 @ I_C = -2A$
- Very Low Equivalent On-Resistance; $R_{CE(sat)} = 130m\Omega @ -2A$
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **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: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.112 grams (Approximate)

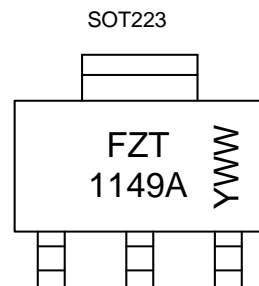


Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT1149ATA	AEC-Q101	FZT1149A	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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



FZT 1149A = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Last Digit of Year (ex: 5= 2015)
 WW or $\bar{W}W$ = Week Code (01~53)

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	-30	V
Collector-Emitter Voltage	V _{CEO}	-25	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current	I _C	-4	A
Base Current	I _B	-500	mA
Peak Pulse Current	I _{CM}	-10	A

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

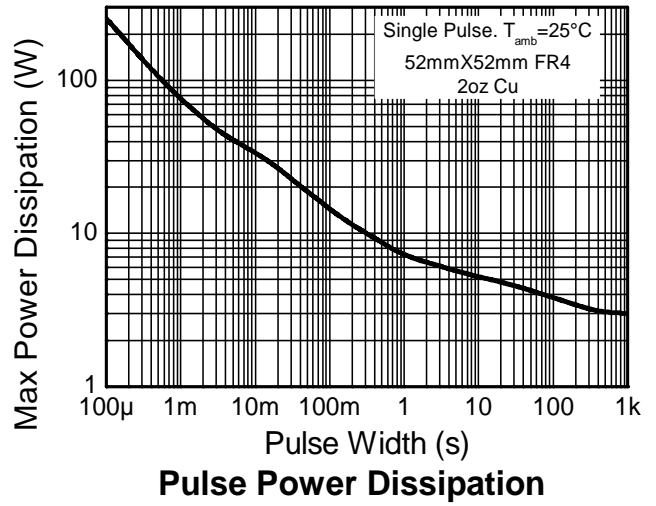
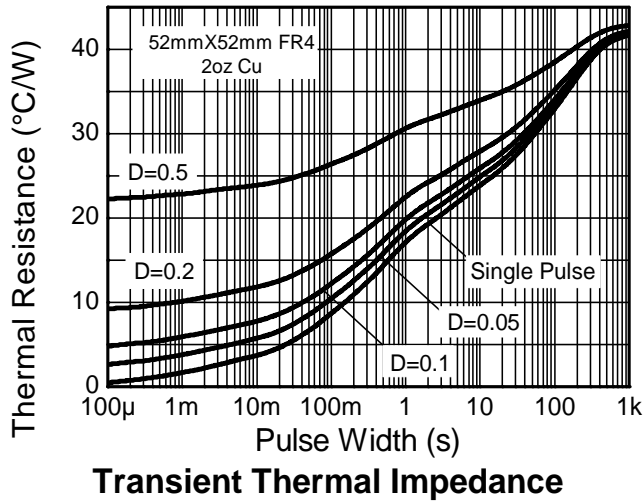
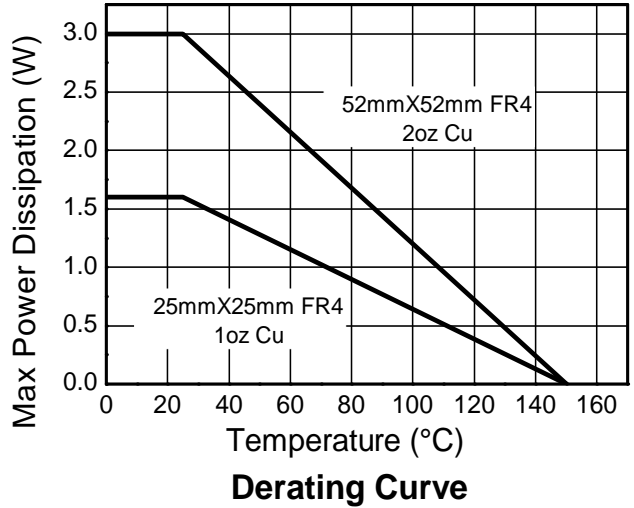
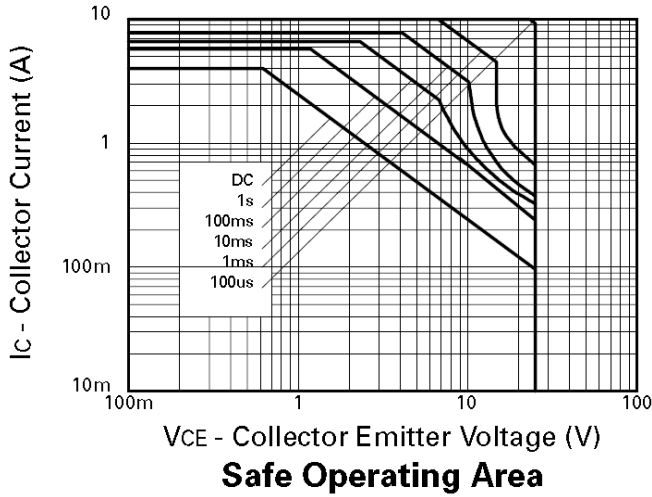
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	(Note 5)	3.0
		(Note 6)	2.0
		(Note 7)	1.6
		(Note 8)	1.2
Thermal Resistance, Junction to Ambient	R _{θJA}	(Note 5)	41.7
		(Note 6)	62.5
		(Note 7)	78.1
		(Note 8)	104
Thermal Resistance Junction to Lead	R _{θJL}	10.9	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 10)

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:
5. 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.
 6. Same as note (5), except the device is mounted on 25mm x 25mm 2oz copper.
 7. Same as note (5), except the device is mounted on 25mm x 25mm 1oz copper.
 8. Same as note (5), except the device is mounted on minimum recommended pad layout.
 9. Thermal resistance from junction to solder-point (at the end of the collector lead).
 10. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

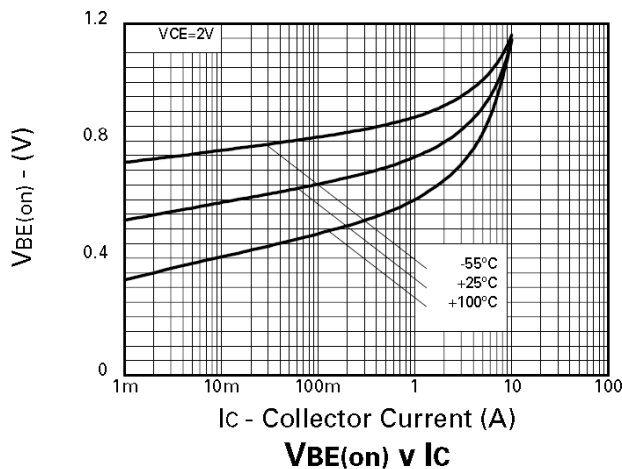
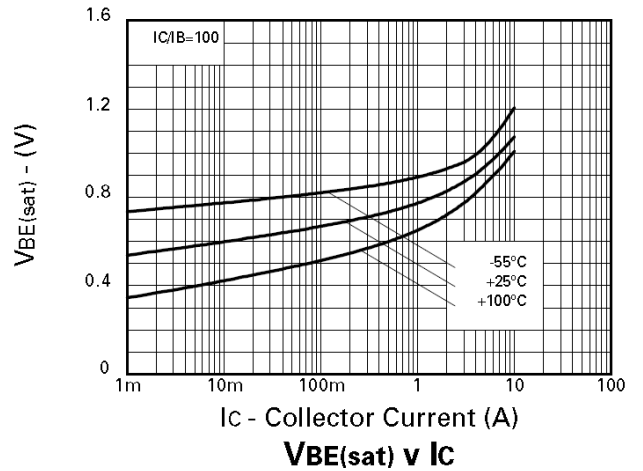
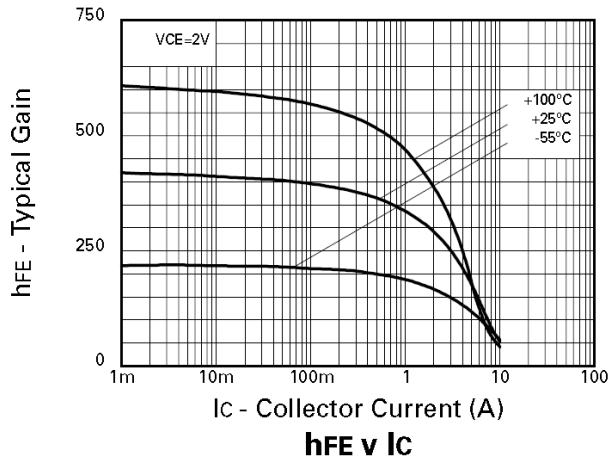
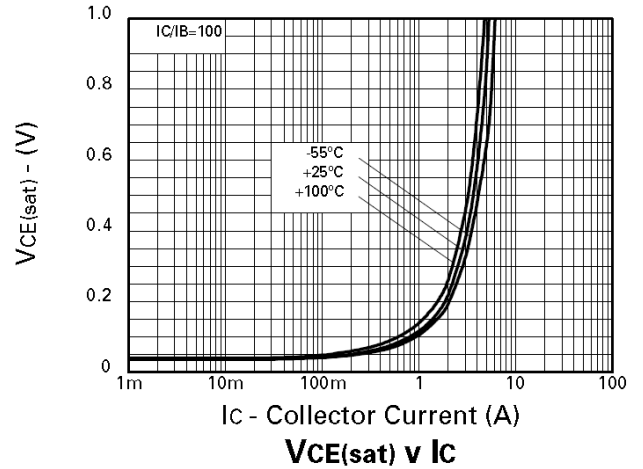
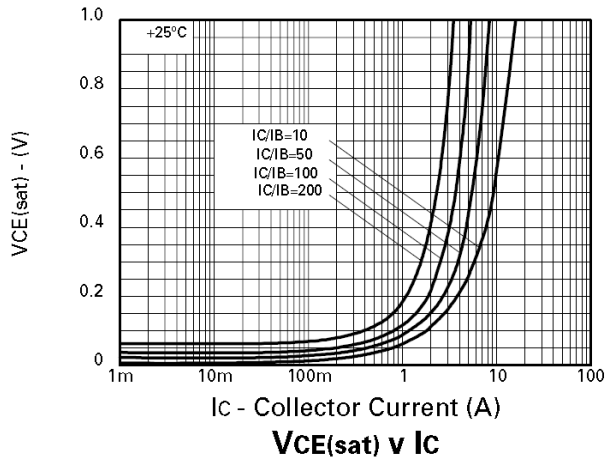


Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-30	-70	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CES}	-25	-60	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 11)	BV_{CEO}	-25	-60	-	V	$I_C = -10\text{mA}$
Collector-Emitter Breakdown Voltage	BV_{CEV}	-25	-60	-	V	$I_C = -100\mu\text{A}, V_{EB} = -1\text{V}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-8.5	-	V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}	-	-0.3	-20	nA	$V_{CB} = -24\text{V}$
Collector Cut-Off Current	I_{CES}	-	-0.3	-20	nA	$V_{CES} = -24\text{V}$
Emitter Cut-Off Current	I_{EBO}	-	-0.3	-20	nA	$V_{EB} = -6\text{V}$
DC Current Transfer Static Ratio (Note 11)	h_{FE}	270	450	-	-	$I_C = -10\text{mA}, V_{CE} = -2\text{V}$
		250	400	800		$I_C = -0.5\text{A}, V_{CE} = -2\text{V}$
		195	320	-		$I_C = -2\text{A}, V_{CE} = -2\text{V}$
		115	190	-		$I_C = -5\text{A}, V_{CE} = -2\text{V}$
			50	-		$I_C = -10\text{A}, V_{CE} = -2\text{V}$
Collector-Emitter Saturation Voltage (Note 11)	$V_{CE(sat)}$	-	-45	-80	mV	$I_C = -0.1\text{A}, I_B = -1\text{mA}$
		-	-100	-170		$I_C = -0.5\text{A}, I_B = -3\text{mA}$
		-	-140	-240		$I_C = -1\text{A}, I_B = -7\text{mA}$
		-	-170	-260		$I_C = -2\text{A}, I_B = -30\text{mA}$
		-	-230	-350		$I_C = -4\text{A}, I_B = -140\text{mA}$
Base-Emitter Saturation Voltage (Note 11)	$V_{BE(sat)}$	-	-960	-1,050	mV	$I_C = -4\text{A}, I_B = -140\text{mA}$
Base-Emitter Turn-On Voltage (Note 11)	$V_{BE(on)}$	-	-860	-1,000	mV	$I_C = -4\text{A}, V_{CE} = -2\text{V}$
Transitional Frequency	f_T	-	135	-	MHz	$I_C = -50\text{mA}, V_{CE} = -10\text{V}, f = 50\text{MHz}$
Output Capacitance	C_{obo}	-	50	-	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$,
Switching Time	t_{on}	-	150	-	ns	$V_{CC} = -10\text{V}, I_C = -4\text{A},$
	t_{off}	-	270	-	ns	$I_{B1} = I_{B2} = \pm 40\text{mA}$

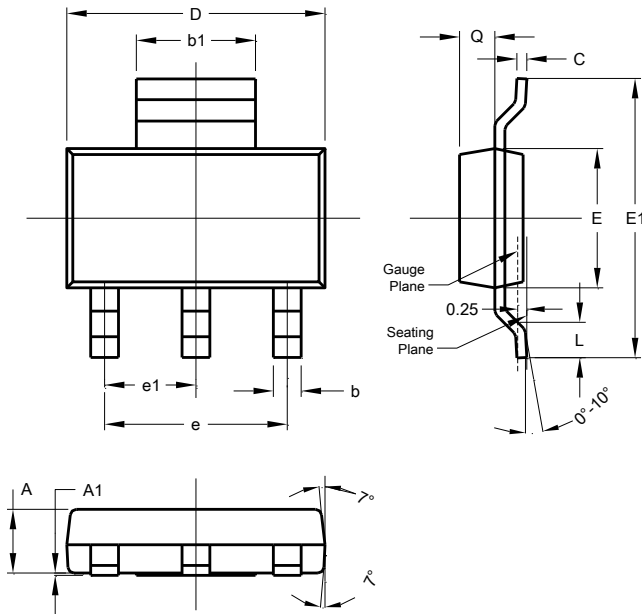
Note: 11. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

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



Package Outline Dimensions

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

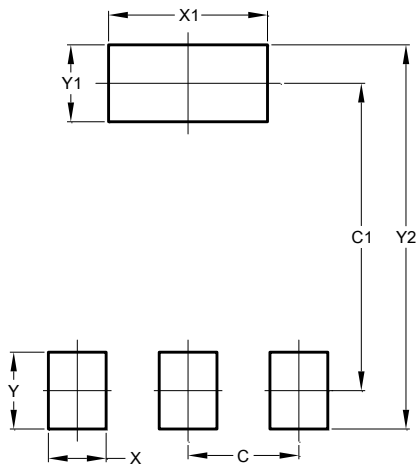


SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89

All Dimensions in mm

Suggested Pad Layout

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



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

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