

Features and Benefits

- $BV_{CEO} > -12V$
- Maximum Continuous Current $I_C = -5A$
- Peak Pulse Current $I_C = -20A$
- High Gain Holds Up $h_{FE} > 200$ @ $I_C = -2A$
- Very Low Equivalent On-Resistance; $R_{CE(sat)} = 85m\Omega$ at $-2A$
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

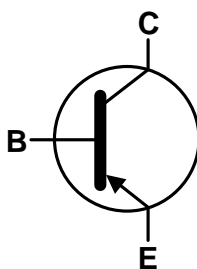
Mechanical Data

- 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 **③**
- Weight: 0.112 grams (Approximate)

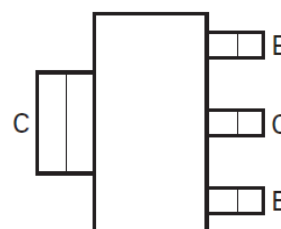
SOT223



Top View



Device Symbol



Top View
Pin Out

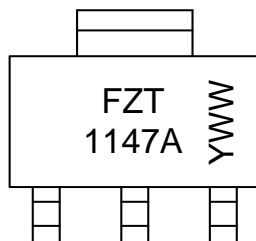
Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT1147ATA	AEC-Q101	FZT1147A	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

SOT223



FZT 1147A = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Last Digit of Year (ex: 6 = 2016)
 WW or $\bar{W}W$ = Week Code (01 to 53)

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-15	V
Collector-Emitter Voltage	V _{CEO}	-12	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current	I _C	-5	A
Base Current	I _B	-500	mA
Peak Pulse Current	I _{CM}	-20	A

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

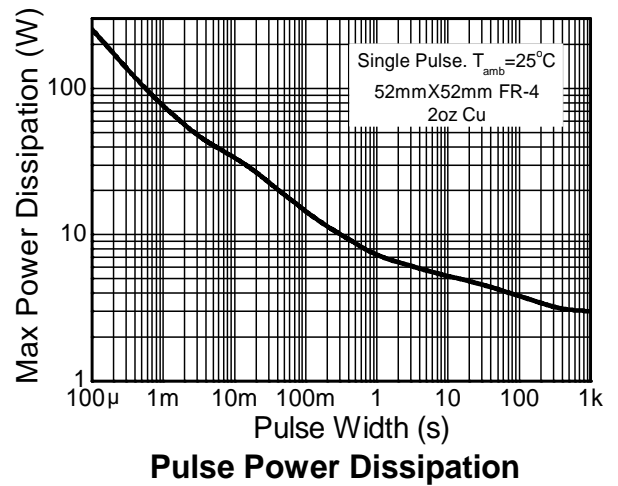
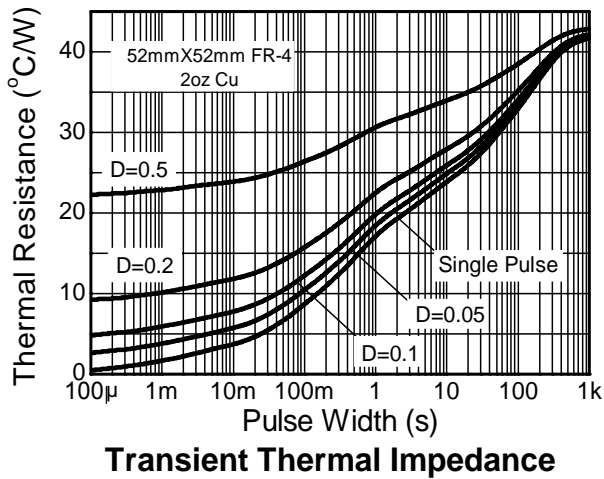
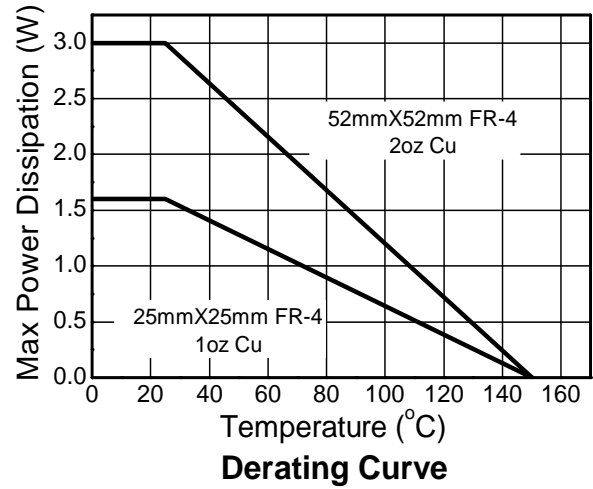
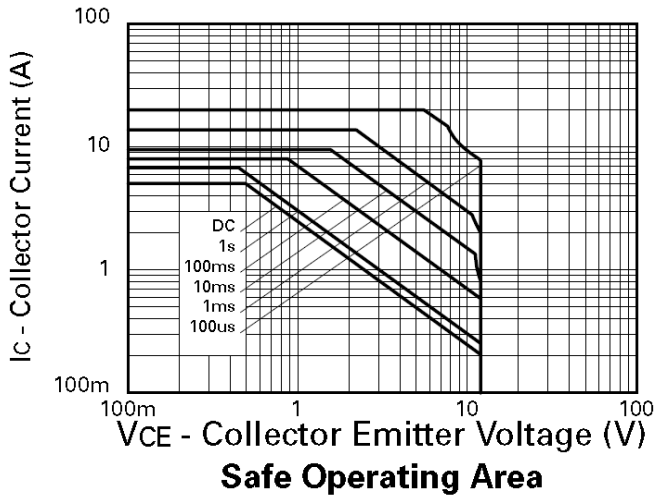
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	3.0	W
		2.0	
		1.6	
		1.2	
Thermal Resistance, Junction to Ambient	R _{θJA}	41.7	°C/W
		62.5	
		78.1	
		104	
Thermal Resistance Junction to Lead	R _{θJL}	10.9	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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:
- For a device mounted with the collector lead on 52mm x 52mm 2oz copper that is on a single-sided 1.6mm FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 - Same as note (5), except the device is mounted on 25mm x 25mm 2oz copper.
 - Same as note (5), except the device is mounted on 25mm x 25mm 1oz copper.
 - Same as note (5), except the device is mounted on minimum recommended pad layout.
 - Thermal resistance from junction to solder-point (at the end of the collector lead).
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

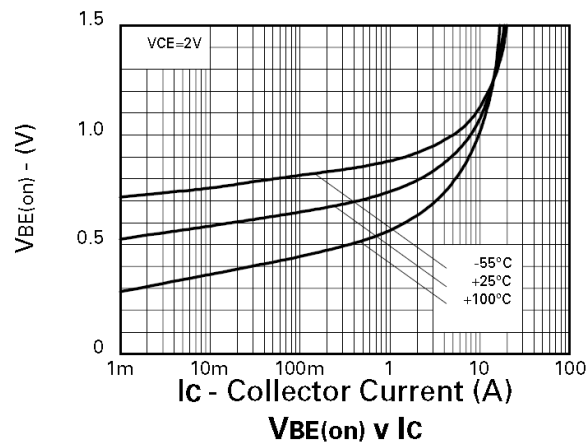
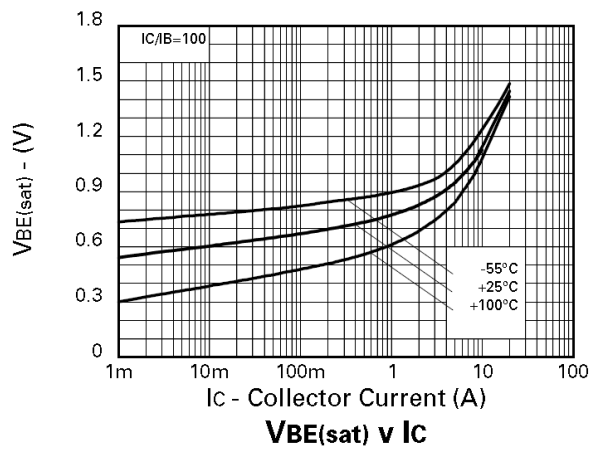
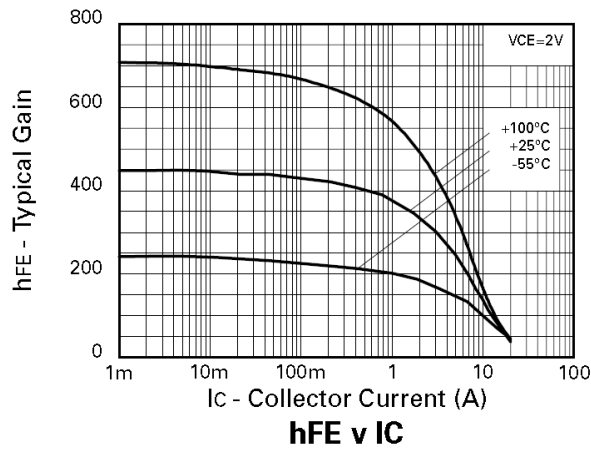
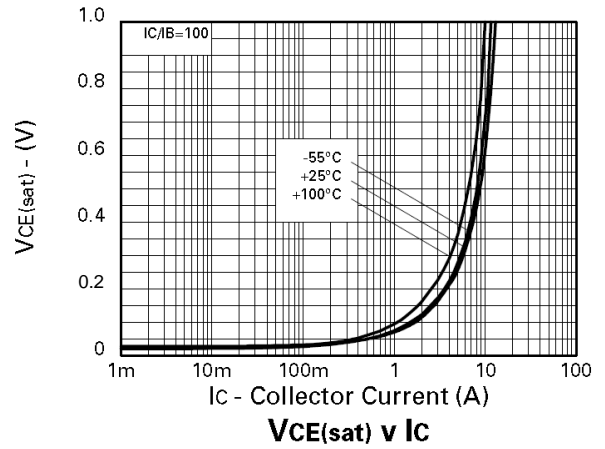
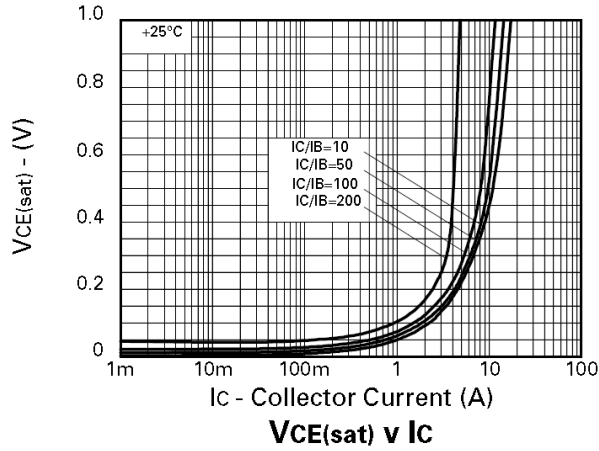


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-15	-35	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage	BV _{CES}	-12	-25	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CEO}	-12	-25	-	V	I _C = -10mA
Collector-Emitter Breakdown Voltage	BV _{CEV}	-12	-25	-	V	I _C = -100μA, V _{EB} = -1V
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.5	-	V	I _E = -100μA
Collector Cut Off Current	I _{CBO}	-	-0.3	-100	nA	V _{CB} = -12V
Collector Cut Off Current	I _{CES}	-	-0.3	-100	nA	V _{CES} = -10V
Emitter Cut Off Current	I _{EBO}	-	-0.3	-100	nA	V _{EB} = -6V
DC Current Transfer Static Ratio (Note 11)	h _{FE}	270	450	-	-	I _C = -10mA, V _{CE} = -2V
		250	400	850		I _C = -0.5A, V _{CE} = -2V
		200	340	-		I _C = -2A, V _{CE} = -2V
		150	245	-		I _C = -5A, V _{CE} = -2V
		90	145	-		I _C = -10A, V _{CE} = -2V
		-	50	-		I _C = -20A, V _{CE} = -2V
Collector-Emitter Saturation Voltage (Note 11)	V _{CE(sat)}	-	-25	-50	mV	I _C = -0.1A, I _B = -1mA
		-	-70	-110		I _C = -0.5A, I _B = -2.5mA
		-	-90	-130		I _C = -1A, I _B = -6mA
		-	-115	-170		I _C = -2A, I _B = -20mA
		-	-250	-400		I _C = -5A, I _B = -50mA
Base-Emitter Saturation Voltage (Note 11)	V _{BE(sat)}	-	-950	-1,050	mV	I _C = -5A, I _B = -50mA
Base-Emitter Turn-on Voltage (Note 11)	V _{BE(on)}	-	-905	-1,000	mV	I _C = -5A, V _{CE} = -2V
Transitional Frequency	f _T	-	115	-	MHz	I _C = -50mA, V _{CE} = -10V, f = 50MHz
Output Capacitance	C _{obo}	-	80	-	pF	V _{CB} = -10V, f = 1MHz
Switching Time	t _{ON}	-	150	-	ns	V _{CC} = -10V, I _C = -4A, -I _{B1} = I _{B2} = 40mA
	t _{OFF}	-	220	-	ns	

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

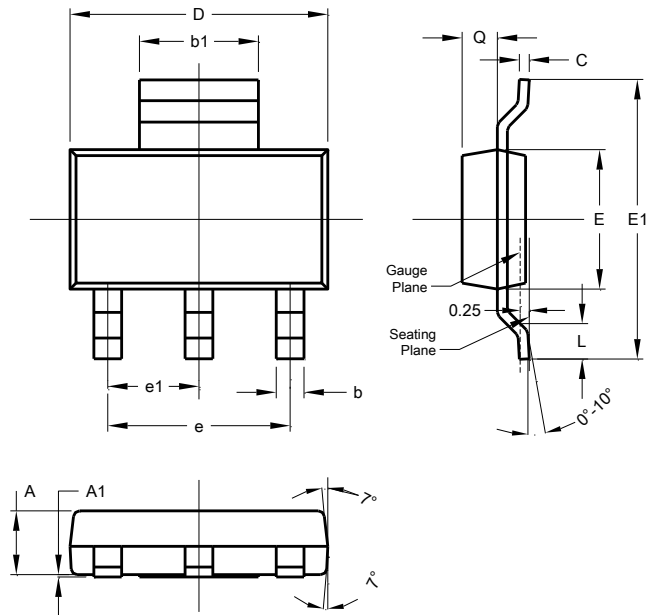
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT223

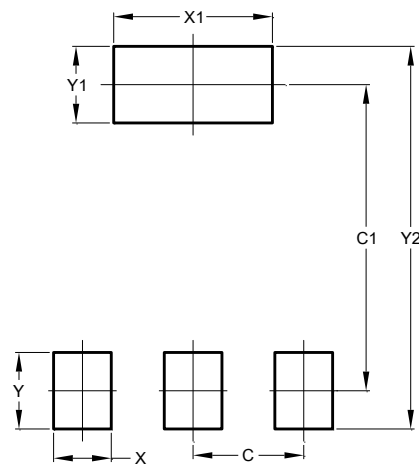


SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT223



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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