



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## Features

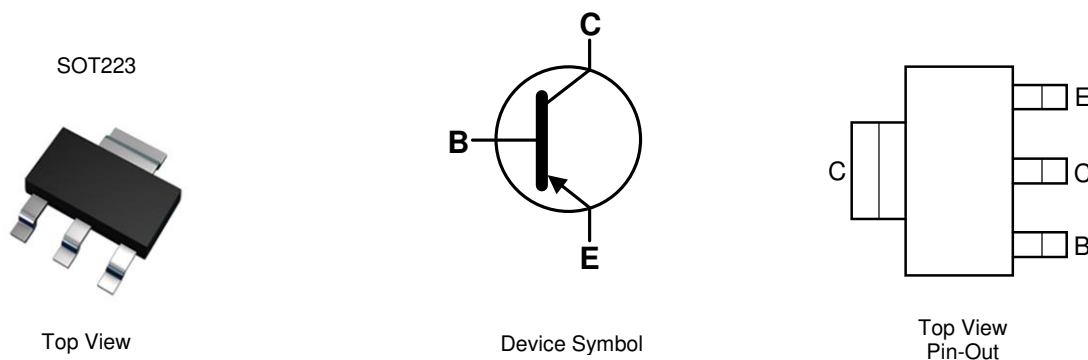
- $BV_{CEO} > -200V$
- $BV_{CBO} > -200V$
- $I_C = -500m$  Continuous Current
- $hFE > 250$  for High Gain @  $-0.3A$
- Very Low  $V_{CE(sat)}$
- Complementary NPN Type: FZT696B
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability 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)

## Applications

- Battery Powered Circuits

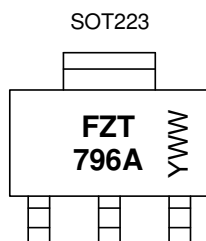


## Ordering Information (Notes 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT796ATA	AEC-Q101	FZT796A	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](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 796A = 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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-200	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-200	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Continuous Collector Current	I <sub>C</sub>	-500	mA
Peak Pulse Current	I <sub>CM</sub>	-1	A

**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	2	W
		3	W
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	62.5	°C/W
		41.7	°C/W
Thermal Resistance, Junction to Leads	R <sub>θJL</sub>	12.9	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

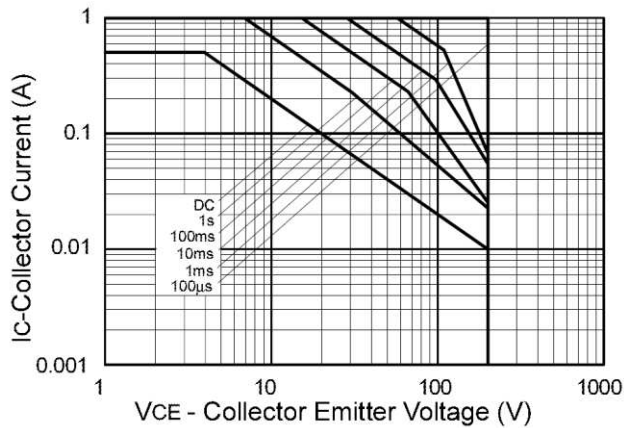
**ESD Ratings** (Note 8)

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

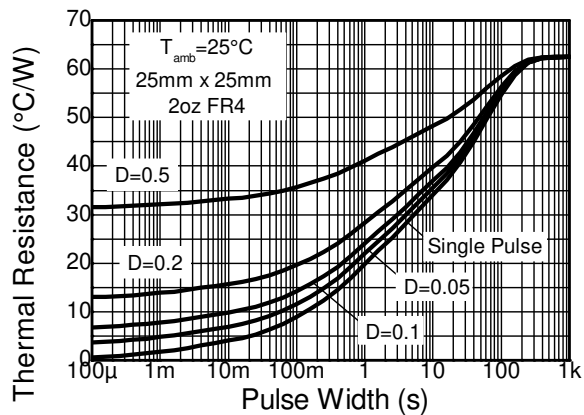
- Notes:
- For a device mounted with the collector lead on 25mm x 25mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in steady-state.
  - Same as Note 5, except the device is mounted on 50mm x 50mm 2oz copper.
  - Thermal resistance from junction to solder-point (at the end of the collector lead).
  - Refer to JEDEC specification JESD22-A114 and JESD22-A115.



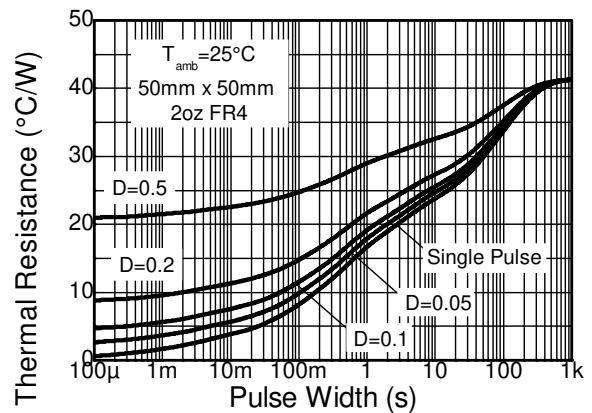
## Thermal Characteristics and Derating Information



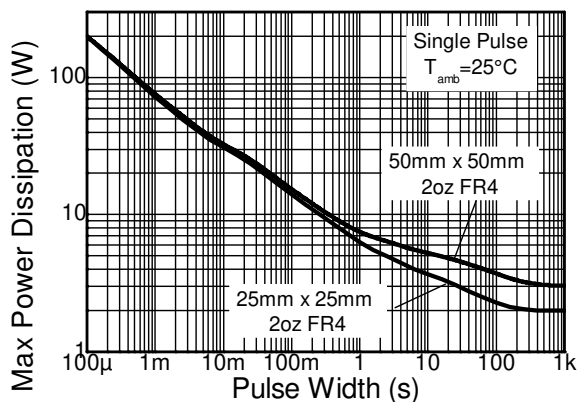
**Safe Operating Area**



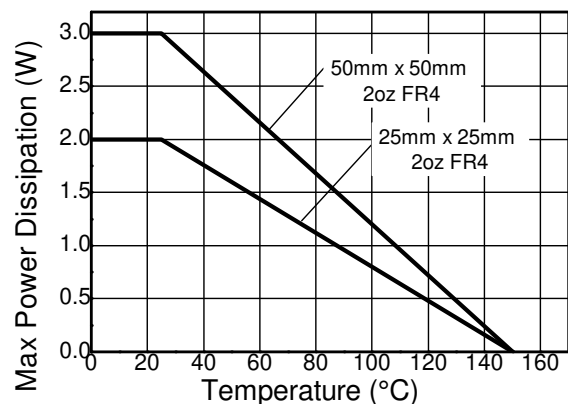
**Transient Thermal Impedance**



**Transient Thermal Impedance**



**Pulse Power Dissipation**



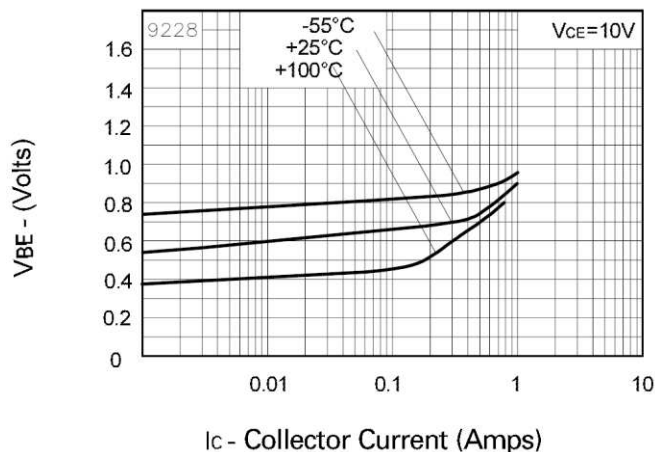
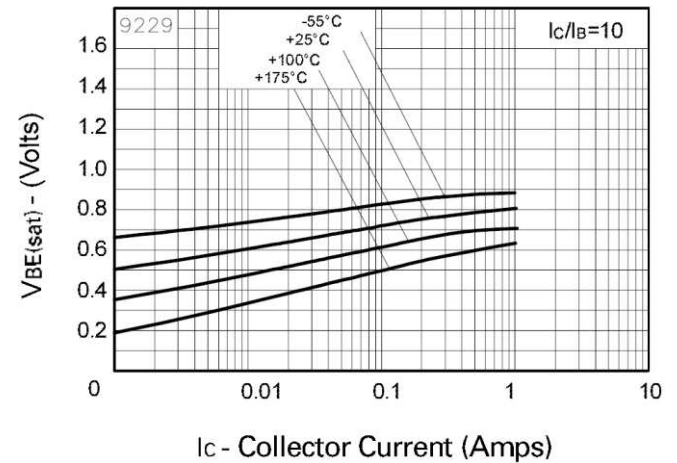
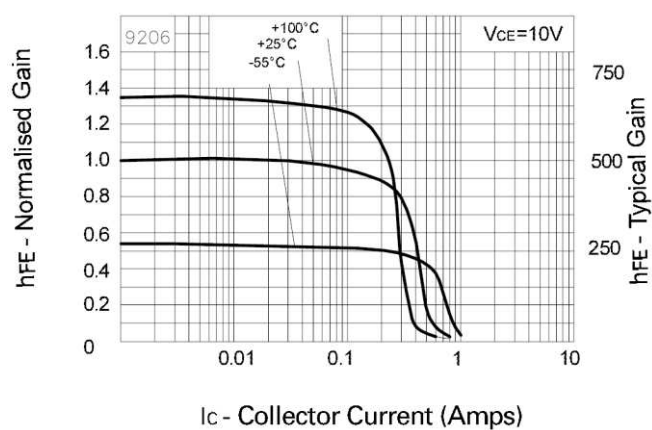
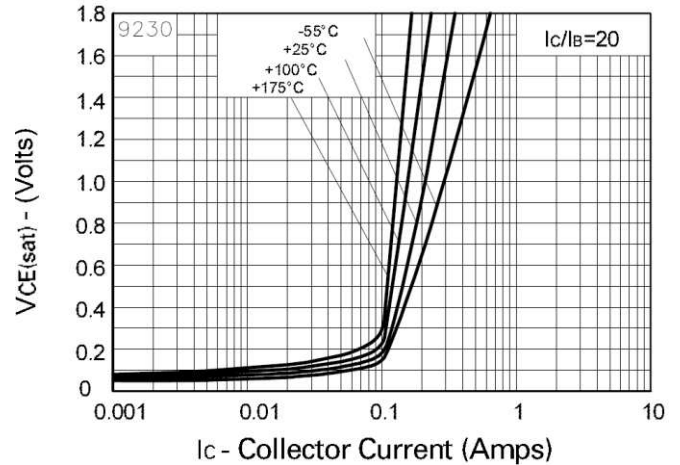
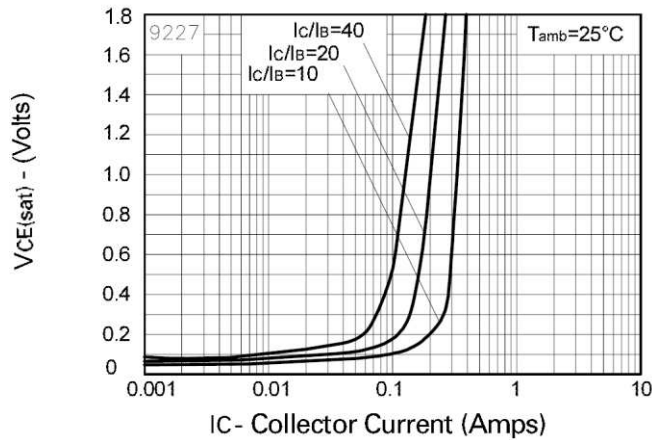
**Derating Curve**

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-200	—	—	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV <sub>CEO</sub>	-200	—	—	V	I <sub>C</sub> = -10mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	—	—	V	I <sub>E</sub> = -100μA
Collector-Base Cut-Off Current	I <sub>CBO</sub>	—	—	-100	nA	V <sub>CB</sub> = -150V
Collector-Emitter Cut-Off Current	I <sub>CES</sub>	—	—	-100	nA	V <sub>CE</sub> = -150V
Emitter Cut-Off Current	I <sub>EBO</sub>	—	—	-100	nA	V <sub>EB</sub> = -6V
DC Current Gain (Note 9)	h <sub>FE</sub>	300 300 250 100	— — — —	800 — — —	—	I <sub>C</sub> = -10mA, V <sub>CE</sub> = -10V I <sub>C</sub> = -100mA, V <sub>CE</sub> = -10V I <sub>C</sub> = -300mA, V <sub>CE</sub> = -10V I <sub>C</sub> = -400mA, V <sub>CE</sub> = -10V
Collector-Emitter Saturation Voltage (Note 9)	V <sub>CE(sat)</sub>	— — —	— — —	-200 -300 -300	mV	I <sub>C</sub> = -50mA, I <sub>B</sub> = -2mA I <sub>C</sub> = -100mA, I <sub>B</sub> = -5mA I <sub>C</sub> = -200mA, I <sub>B</sub> = -20mA
Base-Emitter Saturation Voltage (Note 9)	V <sub>BE(sat)</sub>	—	—	-0.95	V	I <sub>C</sub> = -200mA, I <sub>B</sub> = -20mA
Base-Emitter Turn-On Voltage (Note 9)	V <sub>BE(on)</sub>	—	-0.67	—	V	I <sub>C</sub> = -200mA, V <sub>CE</sub> = -10V
Input Capacitance	C <sub>ibo</sub>	—	225	—	pF	V <sub>EB</sub> = -0.5V, f = 1MHz
Output Capacitance	C <sub>obo</sub>	—	12	—	pF	V <sub>CB</sub> = -10V, f = 1MHz
Current Gain-Bandwidth Product	f <sub>T</sub>	100	—	—	MHz	V <sub>CE</sub> = -5V, I <sub>C</sub> = -50mA, f=50MHz
Turn-On Time	t <sub>on</sub>	—	100	—	ns	V <sub>CC</sub> = -50V, I <sub>C</sub> = -100mA
Turn-Off Time	t <sub>off</sub>	—	3,200	—	ns	I <sub>B1</sub> = -I <sub>B2</sub> = 10mA

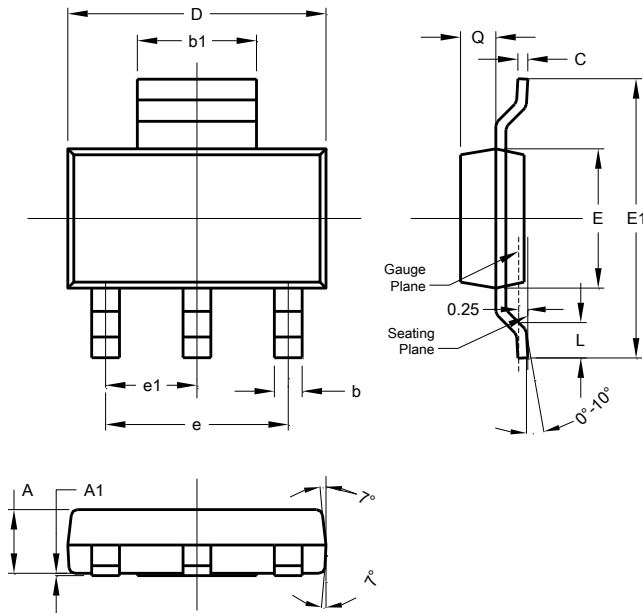
Note: 9. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%.

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



## Package Outline Dimensions

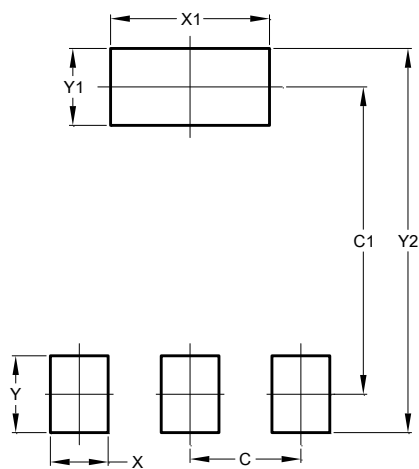
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



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/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

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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