





#### 70V PNP MEDIUM POWER TRANSISTOR IN SOT223

#### **Features**

- $BV_{CEO} > -70V$
- I<sub>C</sub> = -2A High Continuous Current
- Low Saturation Voltage V<sub>CE(sat)</sub> < -500mV @ -1A
- Complementary NPN Type: FZT692B
- 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)

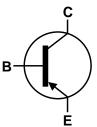
## **Applications**

**Battery Powered Circuits** 

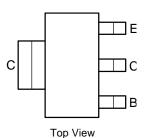
SOT223



Top View



Device Symbol



Pin-Out

### **Ordering Information** (Note 4)

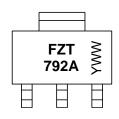
Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT792ATA	AEC-Q101	FZT792A	7	12	1,000

Notes:

- EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  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 792A = Product Type Marking Code YWW = Date Code Marking Y or  $\overline{Y}$  = Last Digit of Year (ex: 5= 2015) WW or  $\overline{W}W = Week Code (01~53)$ 



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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-75	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-70	V
Emitter-Base Voltage	$V_{EBO}$	-7	V
Continuous Collector Current	Ic	-2	Α
Peak Pulse Current	I <sub>CM</sub>	-5	Α

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

Characteristic	Symbol	Value	Unit		
	(Note 5)		3.0		
Dower Discinction	(Note 6)	P <sub>D</sub>	2.0	W	
Power Dissipation	(Note 7)		1.6		
	(Note 8)		1.2		
	(Note 5)		41.7		
Thermal Resistance, Junction to Ambient	(Note 6)	$R_{ hetaJA}$	62.5		
Thermal Resistance, Junction to Ambient	(Note 7)		78.1	°C/W	
	(Note 8)		104		
Thermal Resistance Junction to Lead	(Note 9)	$R_{ hetaJL}$	12.9		
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-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	С

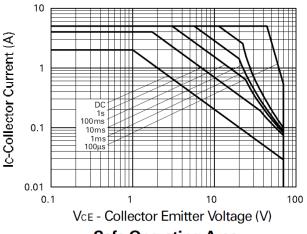
Notes:

- 5. For a device mounted with the collector lead on 50mm x 50mm 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.

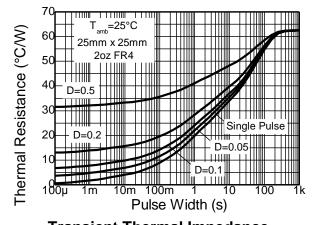




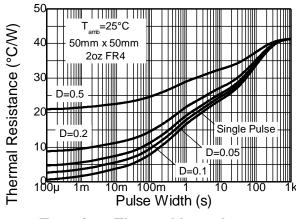
# **Thermal Characteristics and Derating Information**



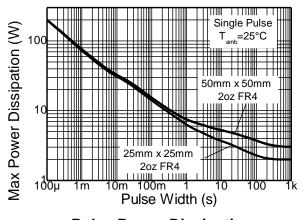
Safe Operating Area



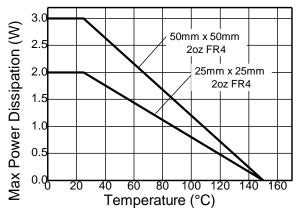
**Transient Thermal Impedance** 



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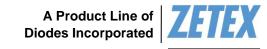


**Pulse Power Dissipation** 



**Derating Curve** 





FZT792A

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

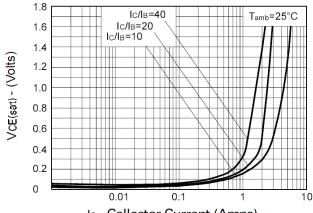
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-75	-100	-	V	$I_{C} = -100 \mu A$
Collector-Emitter Breakdown Voltage (Note 11)	BV <sub>CEO</sub>	-70	-90	_	V	$I_C = -10mA$
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	-8.5	_	V	I <sub>E</sub> = -100μA
Collector Cut-Off Current	I <sub>CBO</sub>	_	<1	-100	nA	V <sub>CB</sub> = -40V
Collector Cut-Oil Current		_	-	-10	μA	$V_{CB} = -40V, T_{amb} = +100^{\circ}C$
Emitter Cut-Off Current	I <sub>EBO</sub>	_	<1	-100	nA	$V_{EB} = -4V$
		_	-0.30	-0.45		$I_C = -500 \text{mA}, I_B = -5 \text{mA}$
Collector-Emitter Saturation Voltage (Note 11)	V <sub>CE(sat)</sub>		-0.30	-0.50	V	$I_C = -1A$ , $I_B = -25mA$
		_	-0.30	-0.50		$I_C = -2A$ , $I_B = -200mA$
Base-Emitter Saturation Voltage (Note 11)	$V_{BE(sat)}$	_	-0.80	-0.95	V	$I_C = -1A$ , $I_B = -25mA$
Base-Emitter Turn-On Voltage (Note 11)	V <sub>BE(on)</sub>	_	-0.75	-	V	I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
		300	-	800		$I_C = -10 \text{mA}, V_{CE} = -2 \text{V}$
DC Current Gain (Note 11)	h <sub>FE</sub>	250	-	_	_	$I_C = -500 \text{mA}, V_{CE} = -2 \text{V}$
		200	-	_		I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
Current Gain-Bandwidth Product	f⊤	100	160	-	MHz	$V_{CE} = -5V$ , $I_{C} = -50$ mA f = 50MHz
Turn-On Time	t <sub>on</sub>	_	35	_	ns	V <sub>CC</sub> = -10V, I <sub>C</sub> = -500mA
Turn-Off Time	t <sub>off</sub>	_	750	_	ns	$I_{B1} = I_{B2} = -50 \text{mA}$
Input Capacitance	C <sub>ibo</sub>	_	225	_	pF	V <sub>EB</sub> = -0.5V, f = 1MHz
Output Capacitance	$C_{obo}$	_	25	_	pF	V <sub>CB</sub> = -10V, f = 1MHz

Note:

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

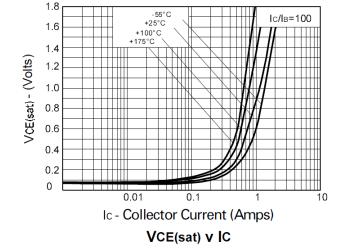


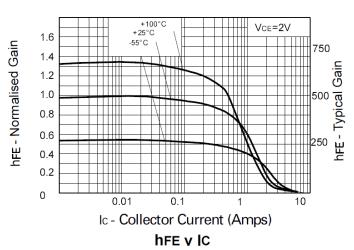
# Typical Electrical Characteristics (@TA = +25°C, unless otherwise specified.)

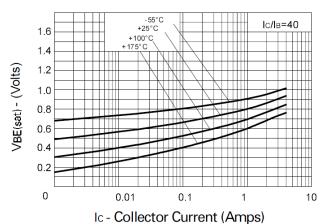


Ic - Collector Current (Amps)

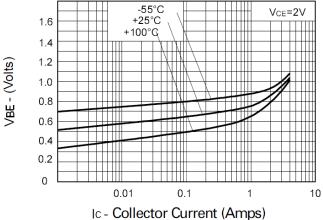
# VCE(sat) v IC







VBE(sat) v IC

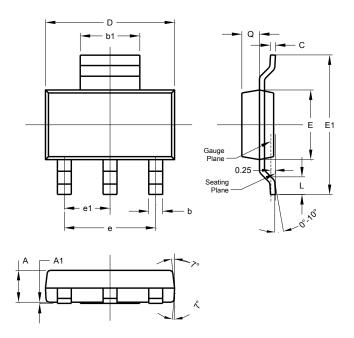


VBE(on) v IC



# **Package Outline Dimensions**

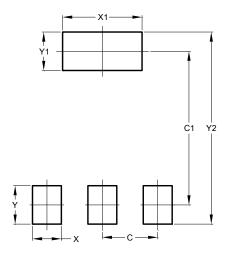
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOT223						
Dim	Min	Max	Тур			
Α	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			
С	0.20	0.30	0.25			
D	6.45	6.55	6.50			
Е	3.45	3.55	3.50			
E1	6.90	7.10	7.00			
е	-	-	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)
С	2.30
C1	6.40
Х	1.20
X1	3.30
Υ	1.60
Y1	1.60
Y2	8.00





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