





100V NPN MEDIUM POWER TRANSISTOR IN SOT223

Features

- BV_{CEO} > 100V
- I_C = 1A High Continuous Current
- I_{CM} = 2A Peak Pulse Current
- Low Saturation Voltage
- Complementary PNP Type: FZT593
- 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)

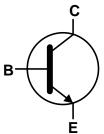
Mechanical Data

- 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)

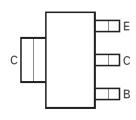




Top View



Device Symbol



Top View Pin-Out

Ordering Information (Notes 4 & 5)

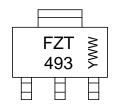
Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT493TA	AEC-Q101	FZT493	7	12	1,000

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 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.

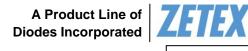
Marking Information

SOT223



FZT 493 = 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)





FZT493

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	120	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	Ic	1	Α
Base Current	I _B	200	mA
Peak Pulse Current	Ісм	2	Α

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

Characteristic	Symbol	Value	Unit		
	(Note 6)		3.0	W	
Power Dissipation	(Note 7)	D	2.0		
Power Dissipation	(Note 8)	P_D	1.6	VV	
	(Note 9)		1.2		
	(Note 6)		41.7		
Thermal Resistance, Junction to Ambient	(Note 7)	Б	62.5		
Thermal Resistance, Junction to Ambient	(Note 8)	$R_{\theta JA}$	78.1	°C/W	
	(Note 9)		104	1	
Thermal Resistance Junction to Lead (Note 10)		$R_{ heta JL}$	19.4		
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C		

ESD Ratings (Note 11)

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

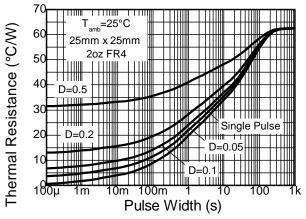
Notes:

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



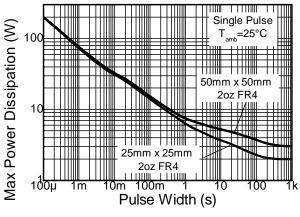


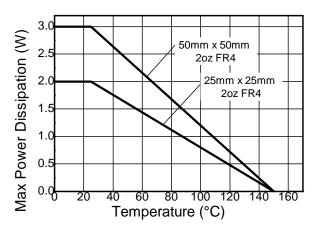
Thermal Characteristics and Derating Characteristics



Transient Thermal Impedance

Transient Thermal Impedance





Pulse Power Dissipation

Derating Curve





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

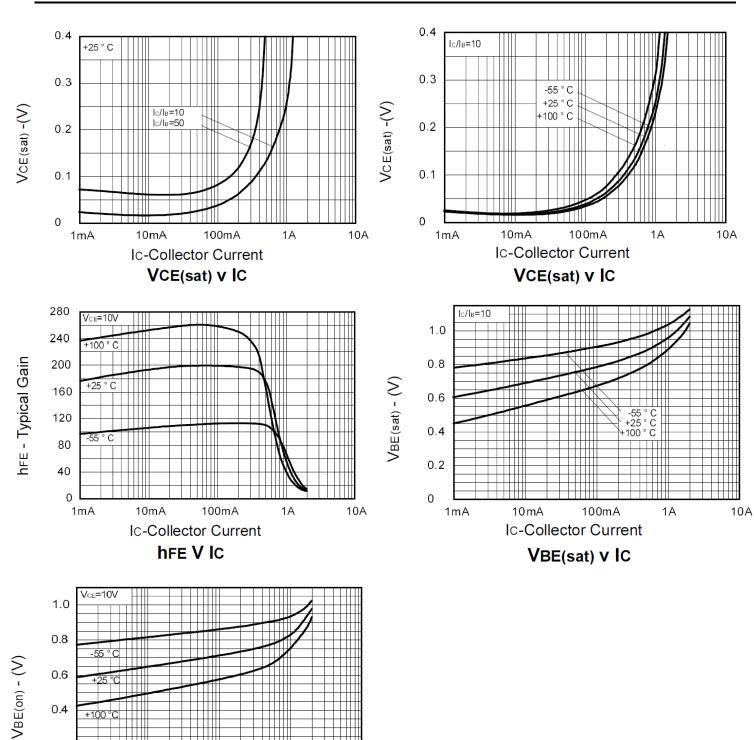
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	120	-	_	V	$I_{C} = 100 \mu A$
Collector-Emitter Breakdown Voltage (Note 12)	BV _{CEO}	100	-	_	V	$I_C = 10mA$
Emitter-Base Breakdown Voltage	BV _{EBO}	5	-	_	V	$I_E = 100 \mu A$
Collector Cut-Off Current	I _{CBO}	_	-	100	nA	V _{CB} = 100V
Collector Cut-Off Current	I _{CES}	_	_	100	nA	V _{CE} = 100V
Emitter Cut-Off Current	I _{EBO}	_	-	100	nA	V _{EB} = 4V
Collector-Emitter Saturation Voltage (Note 12)	V _{CE(sat)}	_ _	_ _	0.3 0.6	V	$I_C = 500$ mA, $I_B = 50$ mA $I_C = 1$ A, $I_B = 100$ mA
Base-Emitter Saturation Voltage (Note 12)	V _{BE(sat)}	_	-	1.15	V	I _C = 1A, I _B = 100mA
Base-Emitter Turn-On Voltage (Note 12)	V _{BE(on)}	_	-	1.0	V	I _C = 1A, V _{CE} = 10V
DC Current Gain (Note 12)	h _{FE}	100 100 80 30	- - -	300 - -	-	I _C = 1mA, V _{CE} = 10V I _C = 250mA, V _{CE} = 10V I _C = 500mA, V _{CE} = 10V I _C = 1A, V _{CE} = 10V
Current Gain-Bandwidth Product	fτ	150	-	-	MHz	$V_{CE} = 10V, I_{C} = 50mA$ f = 100MHz
Output Capacitance	C _{obo}	_	_	10	pF	V _{CB} = 10V, f = 1MHz

Note:

12. Measured under pulsed conditions. Pulse width \leq 300 μ s. Duty cycle \leq 2%.



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



Ic-Collector Current

100 mA

1A

10mA

0.4

0.2

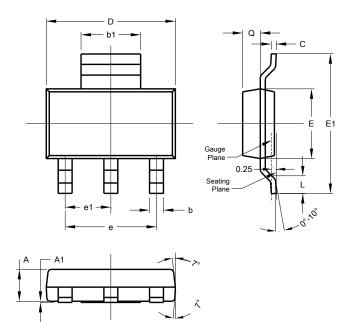
0

1mA

10A

Package Outline Dimensions

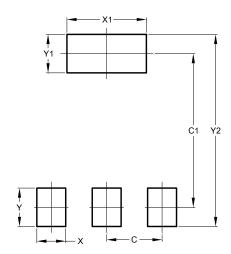
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



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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