FZT795AQ

140V PNP HIGH VOLTAGE TRANSISTOR IN SOT223

Features

- BV_{CEO} > -140V
- BV_{CBO} > -140V
- I_C Max. -500m Continuous Current
- hFE > 250 for High Gain @ -0.2A
- Very Low $V_{CE(sat)}$
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The FZT795AQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

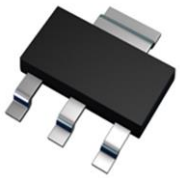
Mechanical Data

- Package: SOT223 (Type DN)
- Package 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 e3
- Weight: 0.112 grams (Approximate)

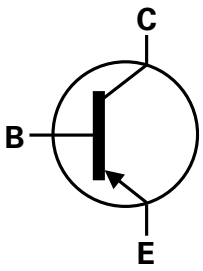
Applications

- Battery-powered circuits

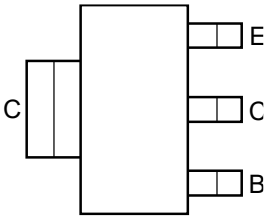
SOT223 (Type DN)



Top View



Device Symbol



Top View
Pin-Out

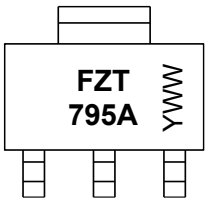
Ordering Information (Note 4)

Orderable Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
FZT795AQTA	SOT223 (Type DN)	FZT795A	7	12	1,000	Reel

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

SOT223 (Type DN)



FZT 795A = Product Type Marking Code
YWW = Date Code Marking
Y or $\overline{Y}$ = Last Digit of Year (ex: 4= 2024)
WW or $\overline{WW}$ = Week Code (01~53)

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-140	V
Collector-Emitter Voltage	V_{CEO}	-140	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-500	mA
Peak Pulse Current	I_{CM}	-1	A

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

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	2	W
	(Note 6)		3	W
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	62.5	°C/W
	(Note 6)		41.7	°C/W
Thermal Resistance, Junction to Leads	(Note 7)	$R_{\theta JL}$	12.9	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-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:
5. 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.
6. Same as Note 5, except the device is mounted on 50mm x 50mm 2oz copper.
7. Thermal resistance from junction to solder-point (at the end of the collector lead).
8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

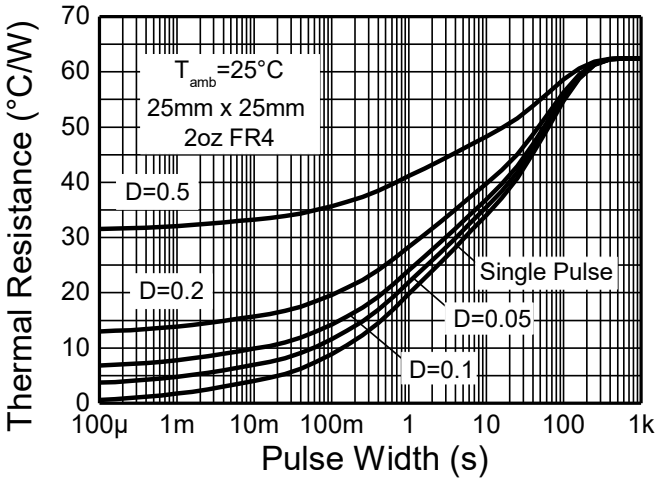


Fig.1 Transient Thermal Impedance

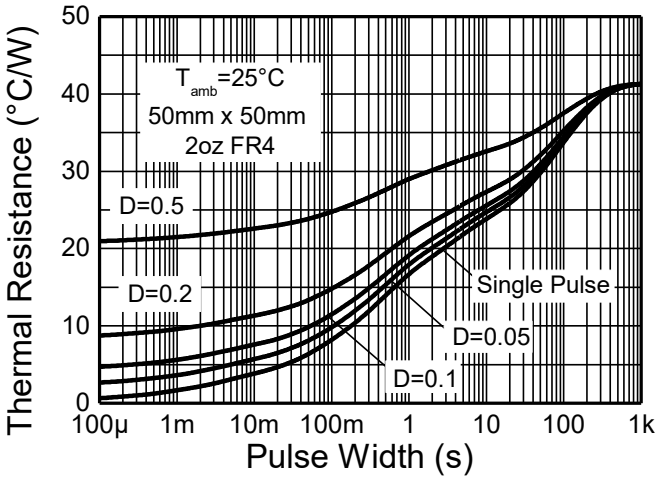


Fig.2 Transient Thermal Impedance

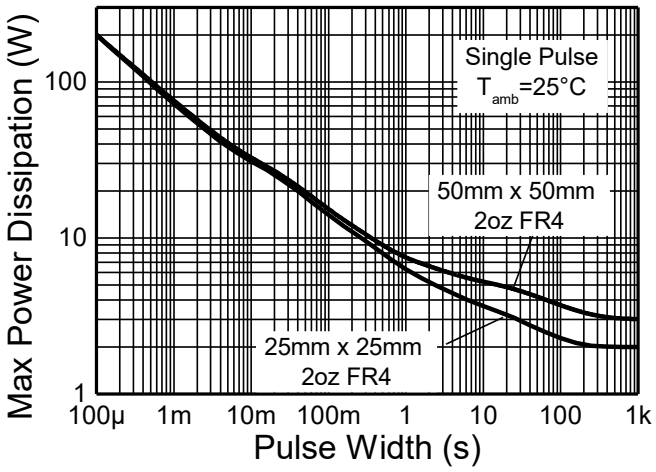


Fig.3 Pulse Power Dissipation

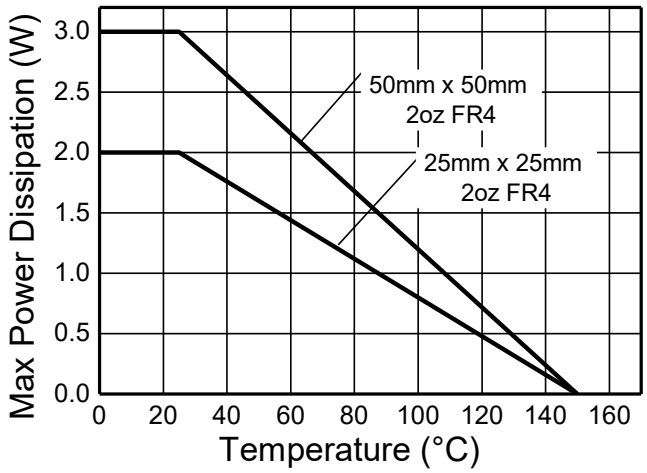


Fig.4 Derating Curve

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-140	—	—	V	I_C = -100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	-140	—	—	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	—	—	V	I_E = -100μA
Collector-Base Cut-Off Current	I_{CBO}	—	—	-100	nA	V_{CB} = -100V
Collector-Emitter Cut-Off Current	I_{CES}	—	—	-100	nA	V_{CE} = -100V
Emitter Cut-Off Current	I_{EBO}	—	—	-100	nA	V_{EB} = -6V
DC Current Gain (Note 9)	h_{FE}	300 250 100	— — —	800 — —	—	I_C = -10mA, V_{CE} = -2V I_C = -200mA, V_{CE} = -2V I_C = -300mA, V_{CE} = -2V
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(sat)}$	— — —	— — —	-300 -300 -250	mV	I_C = -100mA, I_B = -1mA I_C = -200mA, I_B = -5mA I_C = -500mA, I_B = -50mA
Base-Emitter Saturation Voltage (Note 9)	$V_{BE(sat)}$	—	—	-0.95	V	I_C = -500mA, I_B = -50mA
Base-Emitter Turn-On Voltage (Note 9)	$V_{BE(on)}$	—	-0.75	—	V	I_C = -500mA, V_{CE} = -2V
Input Capacitance	C_{ibo}	—	225	—	pF	V_{EB} = -0.5V, f = 1MHz
Output Capacitance	C_{obo}	—	15	—	pF	V_{CB} = -10V, f = 1MHz
Current Gain-Bandwidth Product	f_T	100	—	—	MHz	V_{CE} = -5V, I_C = -50mA, f=50MHz
Turn-On Time	t_{on}	—	100	—	ns	V_{CC} = -50V, I_C = -100mA
Turn-Off Time	t_{off}	—	1900	—	ns	I_{B1} = -I_{B2} = -10mA

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

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

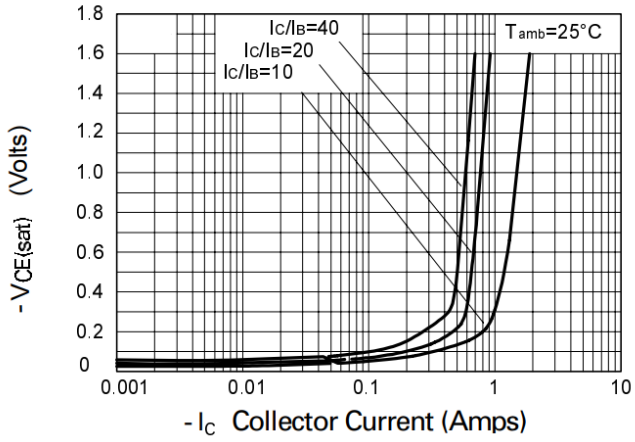


Fig.5 $V_{CE(sat)}$ v I_C

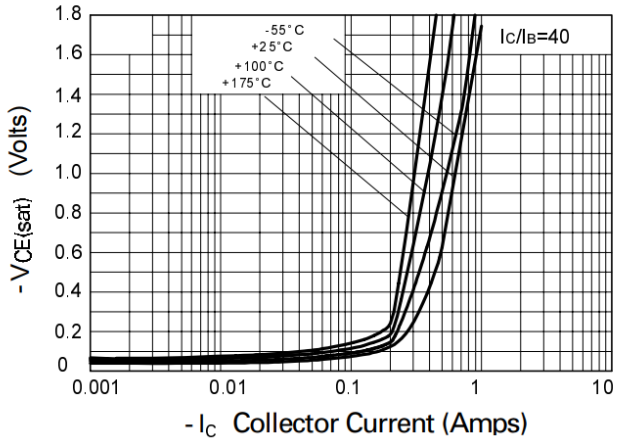


Fig.6 $V_{CE(sat)}$ v I_C

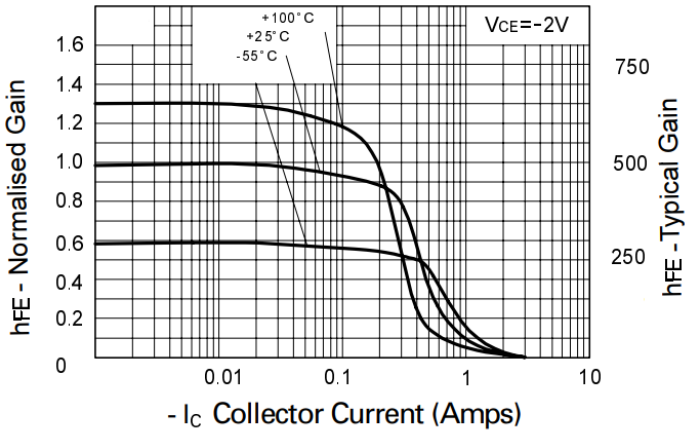


Fig.7 h_{FE} v I_C

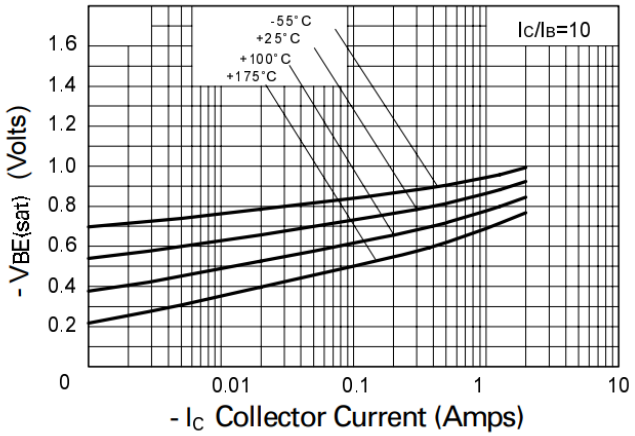


Fig.8 $V_{BE(sat)}$ v I_C

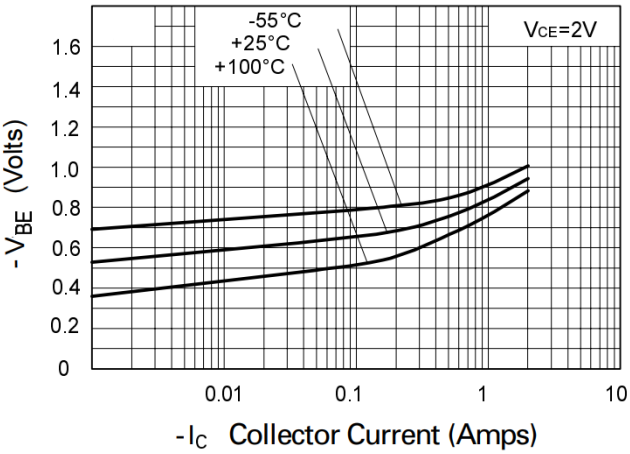


Fig.9 $V_{BE(on)}$ v I_C

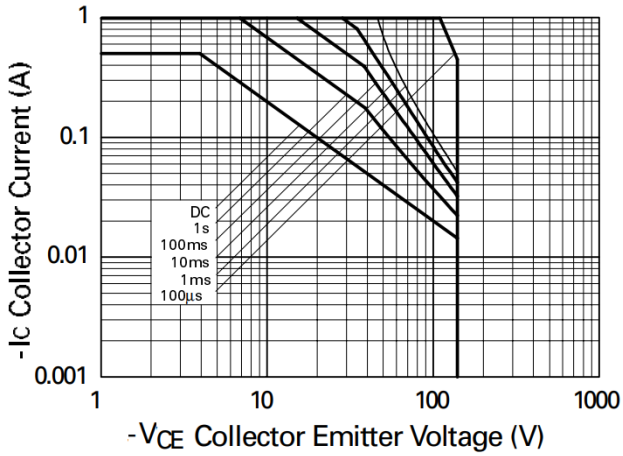
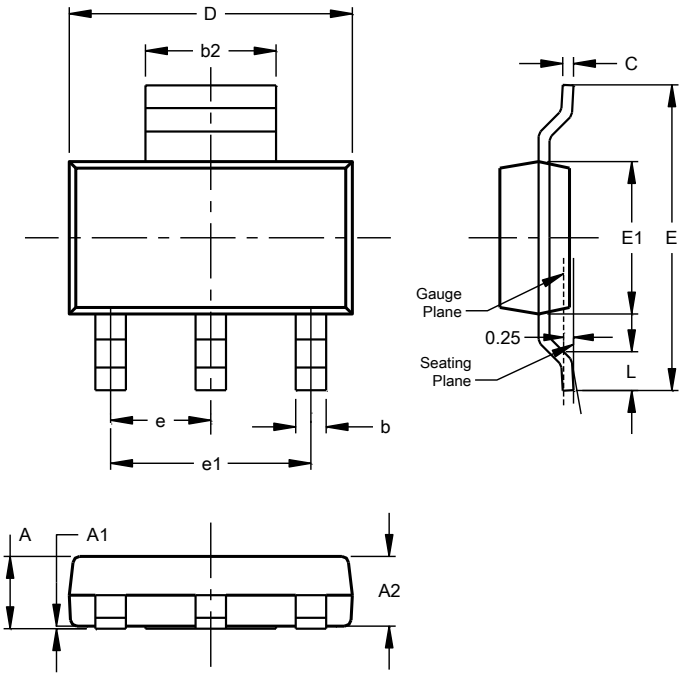


Fig.10 Safe Operating Area

Package Outline Dimensions

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

SOT223 (Type DN)

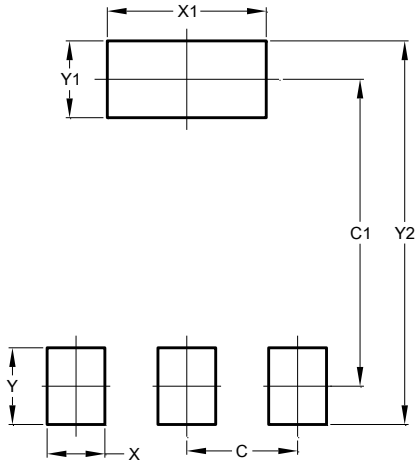


SOT223 (Type DN)			
Dim	**Min**	**Max**	**Typ**
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT223 (Type DN)



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 voltage spacing between terminals.

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