

---

# FZT717

## SOT223 PNP medium power transistor

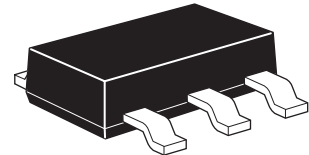
---

### Summary

$BV_{CEO} = -12V$ ;  $I_C = 3A$

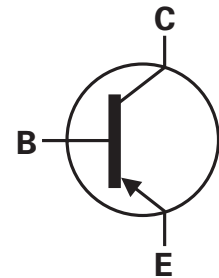
### Description

Packaged in the SOT223 outline this low saturation 12V PNP transistor offers extremely low on state losses making it ideal for use in DC-DC circuits and various driving and power management functions.



### Features

- 2W power dissipation
- 3A continuous current
- Excellent  $h_{FE}$  characteristics up to 10A (pulsed)
- Low saturation voltage

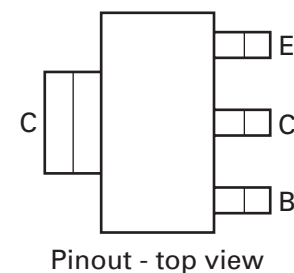


### Applications

- Battery charging
- MOSFET and IGBT gate driving
- Motor drive

### Ordering information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
FZT717TA	7	12	1,000



### Device marking

FZT717

**Absolute maximum ratings**

Parameter	Symbol	Limit	Unit
Collector-base voltage	$BV_{CBO}$	-12	V
Collector-emitter voltage	$BV_{CEO}$	-12	V
Emitter-base voltage	$BV_{EBO}$	-5	V
Peak pulse current	$I_{CM}$	-10	A
Continuous collector current <sup>(a)</sup>	$I_C$	-3	A
Base current	$I_B$	-500	mA
Power dissipation at $T_{amb} = 25^\circ\text{C}^{(a)}$ Linear derating factor	$P_D$	2	W
Operating and storage temperature range	$T_j, T_{stg}$	-55 to +150	$^\circ\text{C}$

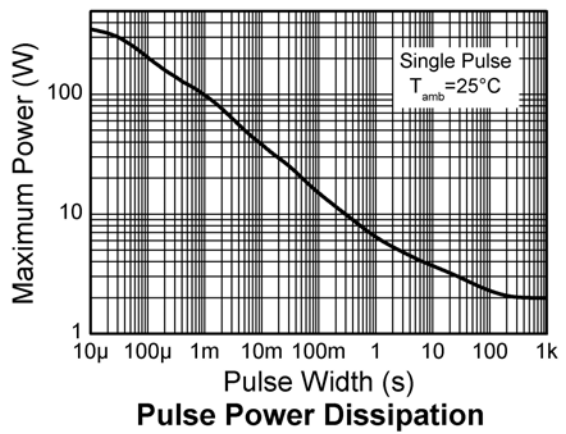
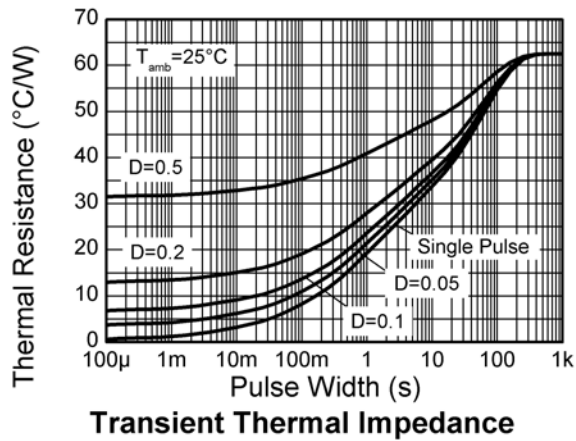
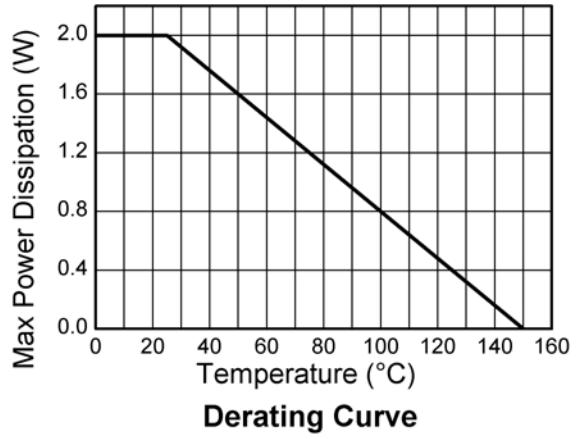
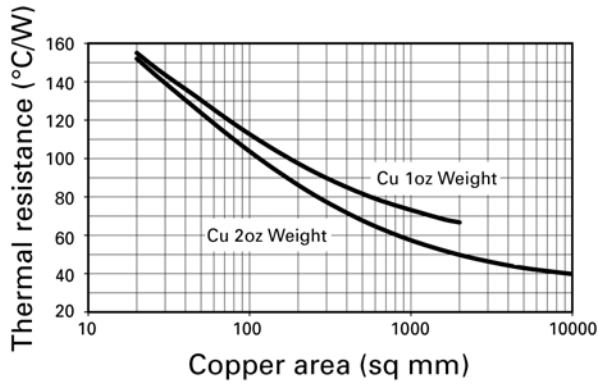
**Thermal resistance**

Parameter	Symbol	Limit	Unit
Junction to ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$

**NOTES:**

(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper in still air conditions.

Typical characteristics



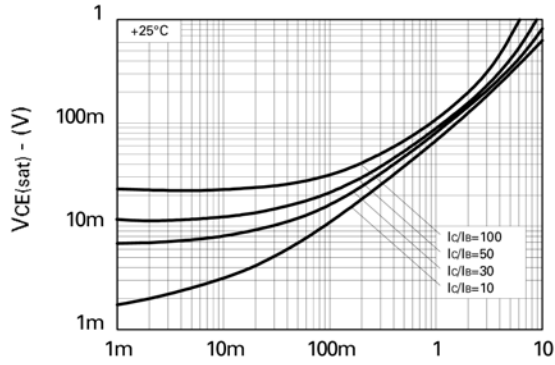
## Electrical characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	-12			V	$I_C = 100\mu\text{A}$
Collector-emitter breakdown voltage	$BV_{CEO}$	-12			V	$I_C = 10\text{mA}$
Emitter-base breakdown voltage	$BV_{EBO}$	-5			V	$I_E = 100\mu\text{A}$
Collector cut-off current	$I_{CBO}$			-100	nA	$V_{CB} = -10\text{V}$
Emitter cut-off current	$I_{EBO}$			-100	nA	$V_{EB} = -4\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$			-20 -150 -320	mV	$I_C = -0.1\text{A}, I_B = -10\text{mA}^{(*)}$ $I_C = -1\text{A}, I_B = -10\text{mA}^{(*)}$ $I_C = -3\text{A}, I_B = -50\text{mA}^{(*)}$
Base-emitter saturation voltage	$V_{BE(sat)}$			-1050	mV	$I_C = -3\text{A}, I_B = -50\text{mA}^{(*)}$
Base-emitter turn-on voltage	$V_{BE(on)}$			-1000	mV	$I_C = -3\text{A}, V_{CE} = -2\text{V}^{(*)}$
Static forward current transfer ratio	$h_{FE}$	300 300 160 60 45				$I_C = -10\text{mA}, V_{CE} = -2\text{V}^{(*)}$ $I_C = -100\text{mA}, V_{CE} = -2\text{V}^{(*)}$ $I_C = -3\text{A}, V_{CE} = -2\text{V}^{(*)}$ $I_C = -8\text{A}, V_{CE} = -2\text{V}^{(*)}$ $I_C = -10\text{A}, V_{CE} = -2\text{V}^{(*)}$
Transition frequency	$f_T$	80	110		MHz	$I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 100\text{MHz}$
Output capacitance	$C_{OBO}$		21	30	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Switching times	$t_{on}$ $t_{off}$		70 130		ns ns	$V_{CC} = -6\text{V}, I_C = -2\text{A}$ $I_{B1} = I_{B2} = 50\text{mA}$

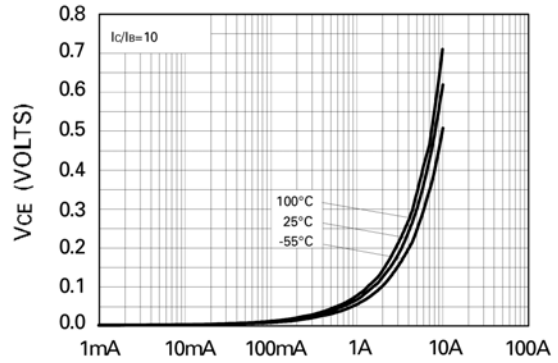
### NOTES:

(\*) Measured under pulsed conditions. Pulse width = 300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

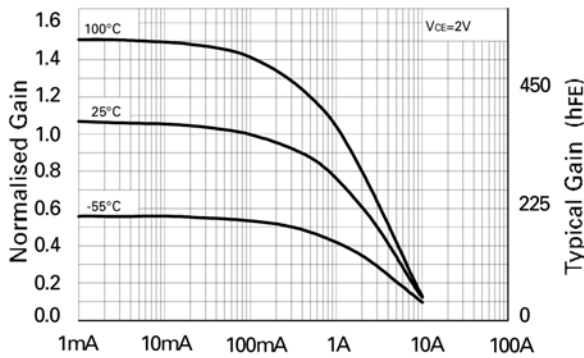
Typical characteristics



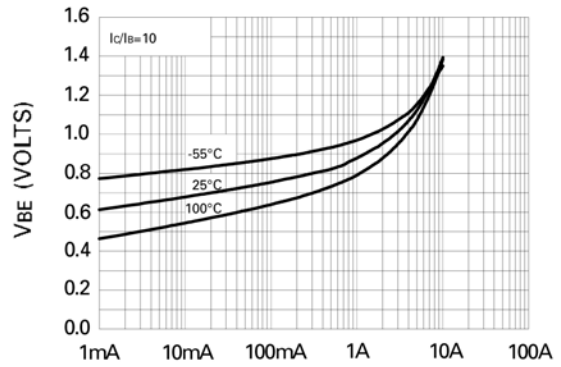
Collector Current (A)  
**VCE(SAT) vs IC**



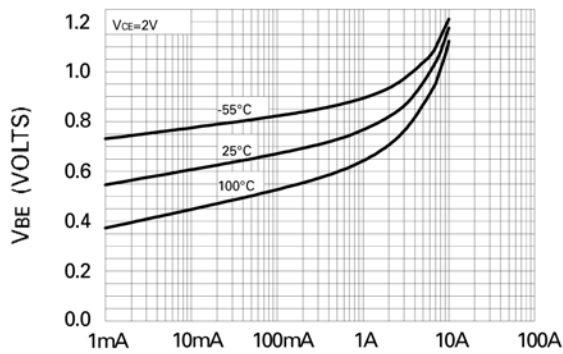
Collector Current  
**VCE(SAT) vs IC**



Collector Current  
**hFE vs IC**

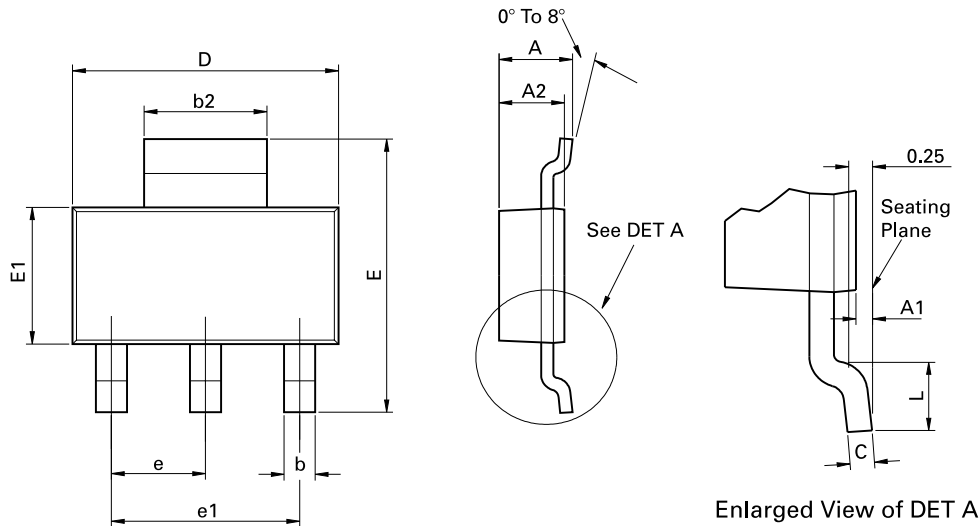


Collector Current  
**VBE(SAT) vs IC**



Collector Current  
**VBE(ON) vs IC**

## Package outline - SOT223



Conforms to JEDEC TO-261 AA Issue B

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	-	1.80	-	0.071	e	2.30 BSC		0.0905 BSC	
A1	0.02	0.10	0.0008	0.004	e1	4.60 BSC		0.181 BSC	
b	0.66	0.84	0.026	0.033	E	6.70	7.30	0.264	0.287
b2	2.90	3.10	0.114	0.122	E1	3.30	3.70	0.130	0.146
C	0.23	0.33	0.009	0.013	L	0.90	-	0.355	-
D	6.30	6.70	0.248	0.264	-	-	-	-	-

**Note:** Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Kustermann-park Balanstraße 59 D-81541 München Germany Telephone: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europe.sales@zetex.com	Zetex Inc 700 Veterans Memorial Highway Hauppauge, NY 11788 USA Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Zetex (Asia Ltd) 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Zetex Semiconductors plc Zetex Technology Park, Chadderton Oldham, OL9 9LL United Kingdom Telephone: (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

For international sales offices visit [www.zetex.com/offices](http://www.zetex.com/offices)

Zetex products are distributed worldwide. For details, see [www.zetex.com/salesnetwork](http://www.zetex.com/salesnetwork)

This publication is issued to provide outline information only which (unless agreed by the company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contact or be regarded as a representation relating to the products or services concerned. The company reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service.