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# FZT717

## SOT223 PNP medium power transistor

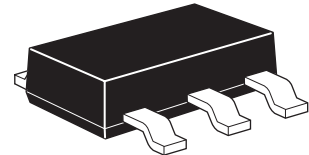
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### Summary

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

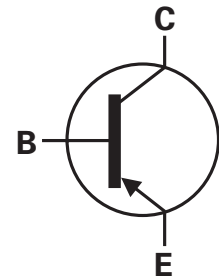
### Description

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

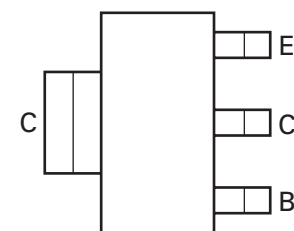


### Applications

- 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



Pinout - top view

### Device marking

FZT717

**Absolute maximum ratings**

<b>Parameter</b>	<b>Symbol</b>	<b>Limit</b>	<b>Unit</b>
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	°C

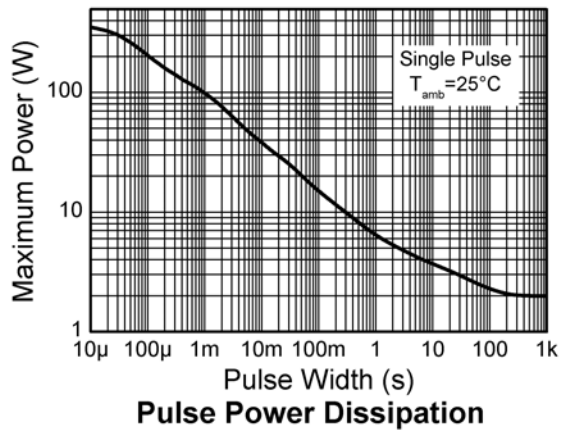
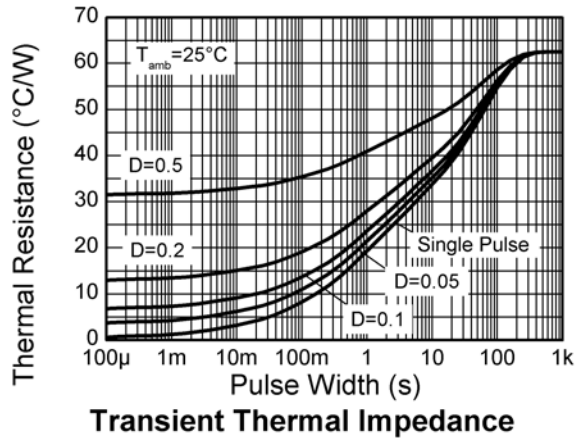
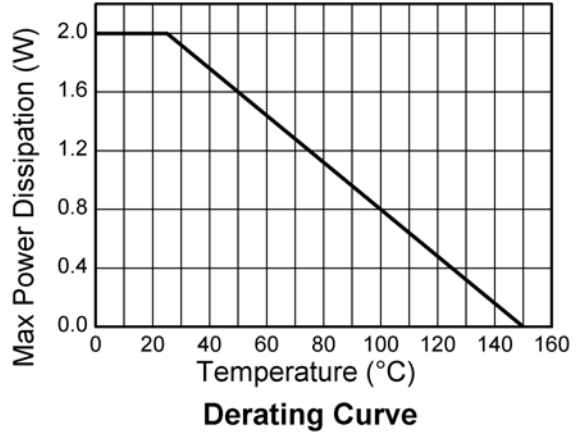
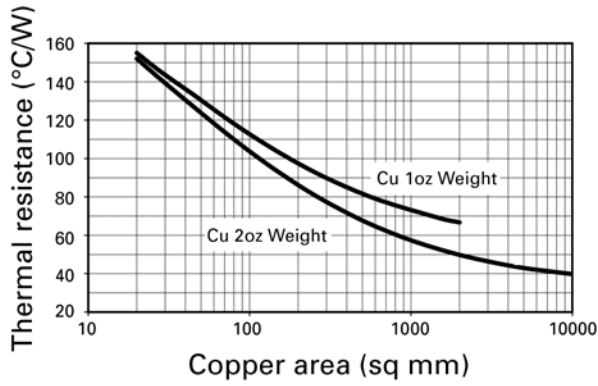
**Thermal resistance**

<b>Parameter</b>	<b>Symbol</b>	<b>Limit</b>	<b>Unit</b>
Junction to ambient	$R_{\theta JA}$	62.5	°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



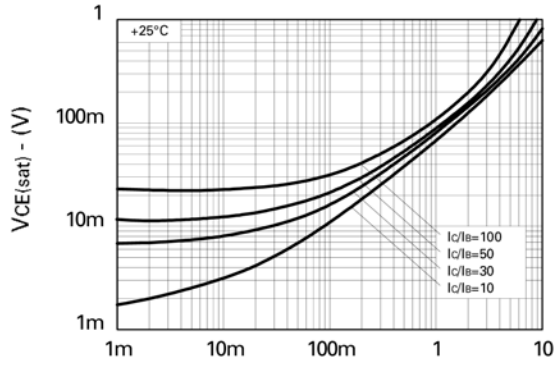
## Electrical characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

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	$V_{CC} = -6\text{V}, I_C = -2\text{A}$ $I_{B1} = I_{B2} = 50\text{mA}$

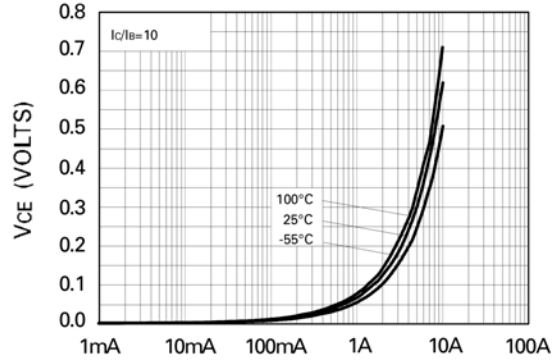
### NOTES:

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

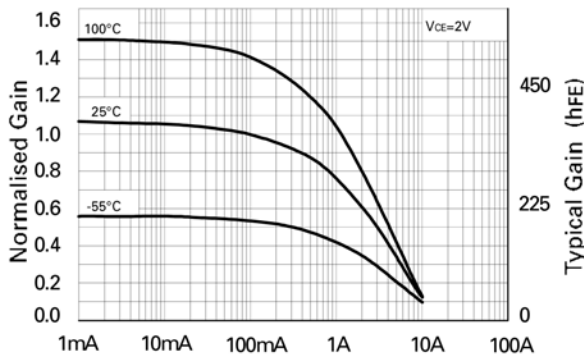
Typical characteristics



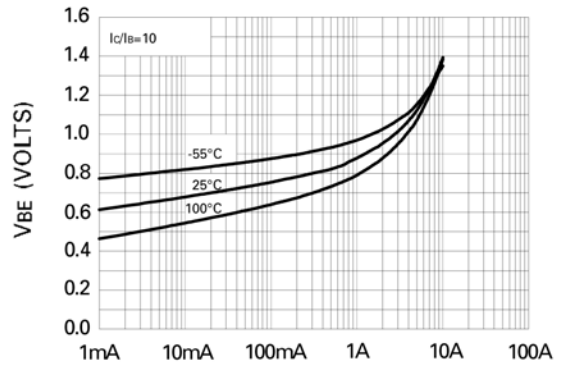
Collector Current (A)  
**VCE(SAT) vs IC**



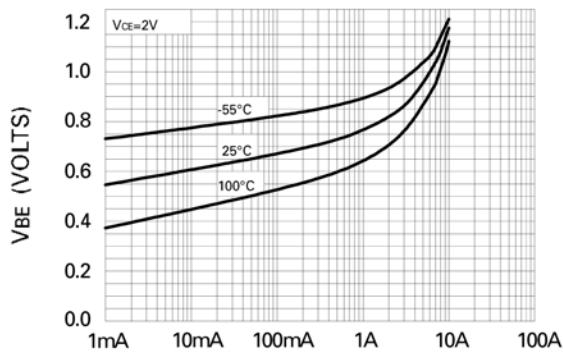
Collector Current  
**VCE(SAT) vs IC**



Collector Current  
**hFE vs IC**

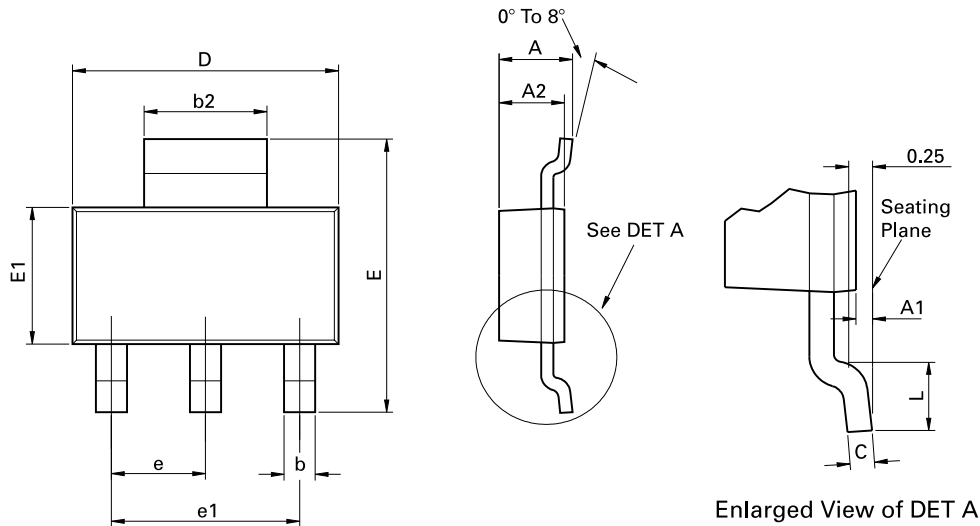


Collector Current  
**VBE(SAT) vs IC**



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

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