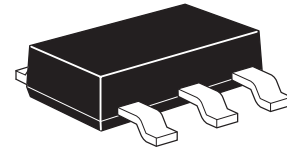


FZT717

SOT223 PNP medium power transistor

Summary

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

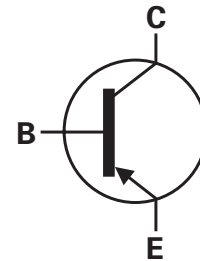


Description

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

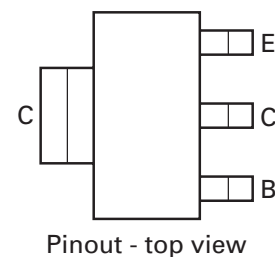


Applications

- 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 ^(a) | 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 |

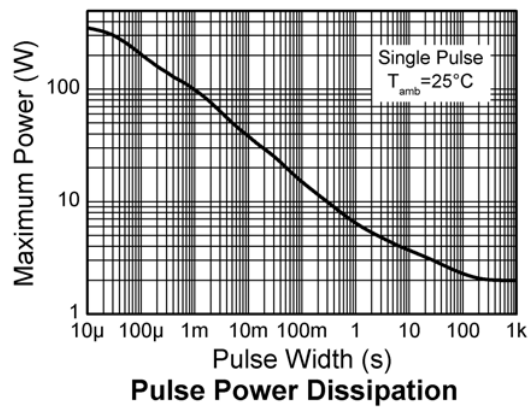
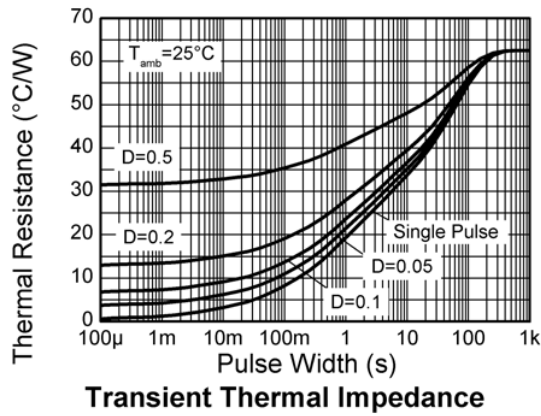
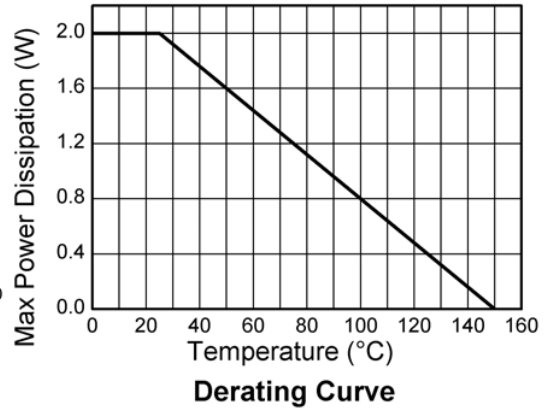
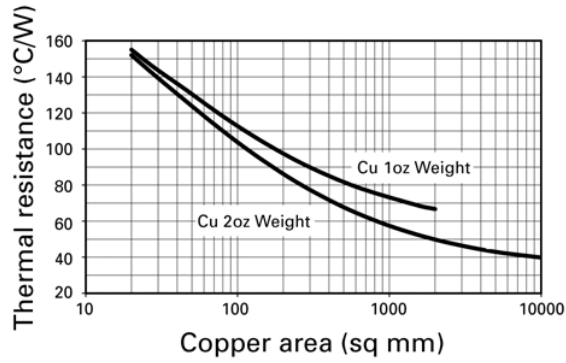
Thermal resistance

| Parameter | Symbol | Limit | Unit |
|---------------------|-----------------|-------|------|
| 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



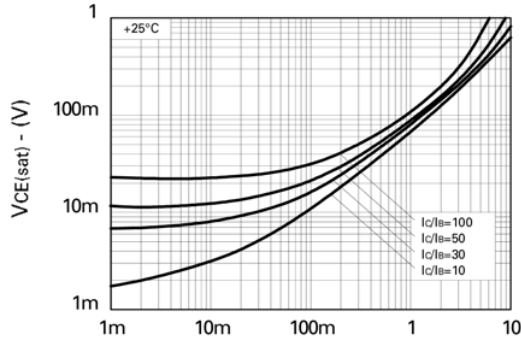
Electrical characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

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

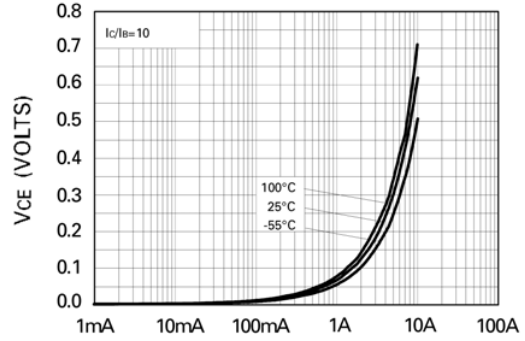
NOTES:

(*) Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$

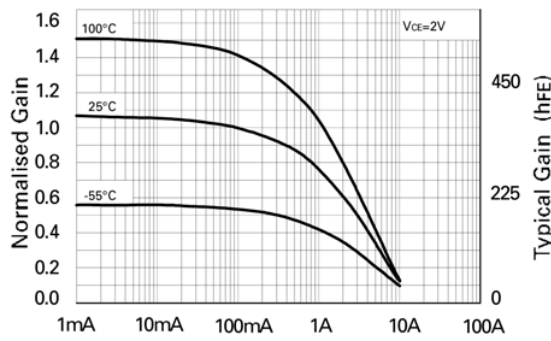
Typical characteristics



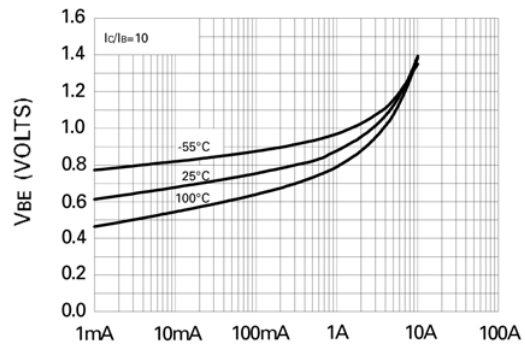
Collector Current (A)
VCE(SAT) vs IC



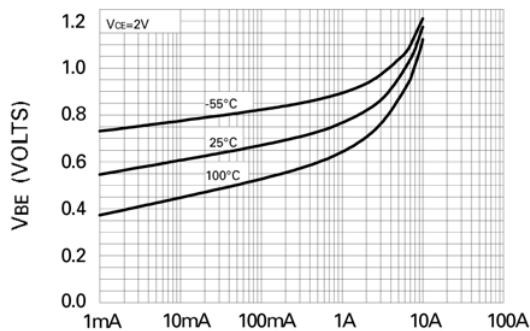
Collector Current
VCE(SAT) vs IC



Collector Current
hFE vs IC

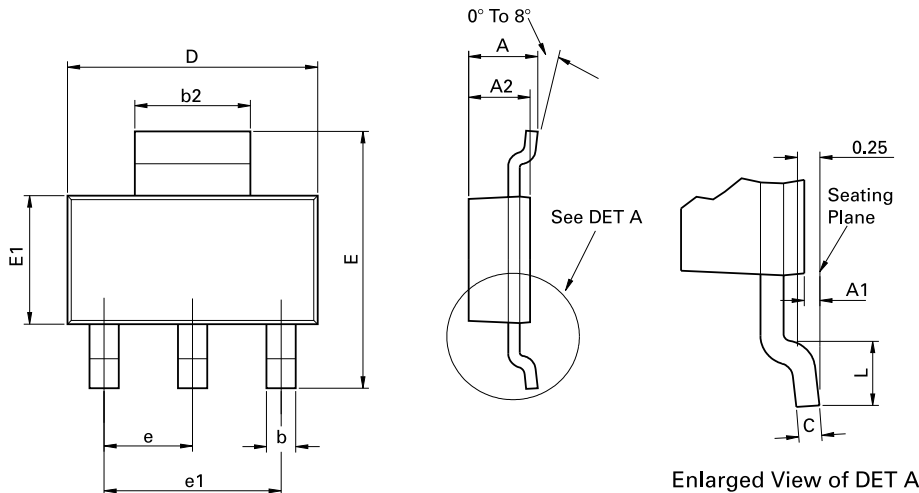


Collector Current
VBE(SAT) vs IC



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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|--|---|--|--|
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