

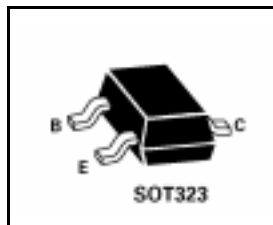
Super323™ SOT323 PNP SILICON POWER (SWITCHING) TRANSISTOR

ZUMT717

ISSUE 1 - SEPTEMBER 1998

FEATURES

- * **500mW POWER DISSIPATION**
- * **I_C CONT 1.5A**
- * 3A Peak Pulse Current
- * Excellent H_{FE} Characteristics Up To 3A (pulsed)
- * Extremely Low Saturation Voltage
- * Extremely Low Equivalent On Resistance; R_{CE(sat)}



APPLICATIONS

- * Negative boost functions in DC-DC converters
- * Supply line switching in mobile phones and pagers
- * Motor drivers in camcorders and mini disk players

| DEVICE TYPE | COMPLEMENT | PARTMARKING | R _{CE(sat)} |
|-------------|------------|-------------|----------------------|
| ZUMT717 | ZUMT617 | T71 | 150mΩ at 1.25A |

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|----------------------------------|------------------------------|-----------|
| Collector-Base Voltage | V _{CBO} | -12 | V |
| Collector-Emitter Voltage | V _{CEO} | -12 | V |
| Emitter-Base Voltage | V _{EBO} | -5 | V |
| Peak Pulse Current** | I _{CM} | -3 | A |
| Continuous Collector Current | I_C | -1.25 | A |
| Base Current | I _B | -200 | mA |
| Power Dissipation at T_{amb}=25°C* | P_{tot} | 385 † 500 ‡ | mW |
| Operating and Storage Temperature Range | T _J ;T _{stg} | -55 to +150 | °C |

† Recommended P_{tot} calculated using FR4 measuring 10 x 8 x 0.6mm (still air).

‡ Maximum power dissipation is calculated assuming that the device is mounted on FR4 size 25x25x0.6mm and using comparable measurement methods adopted by other suppliers.

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ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---------------------------------------|---------------|--------------------------------------|---------------------------------------|-------------------------------------|----------------------------|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -12 | | | V | $I_C = -100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -12 | | | V | $I_C = -10\text{mA}^*$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | -5 | | | V | $I_E = -100\mu\text{A}$ |
| Collector Cut-Off Current | I_{CBO} | | | -10 | nA | $V_{CB} = -10\text{V}$ |
| Emitter Cut-Off Current | I_{EBO} | | | -10 | nA | $V_{EB} = -4\text{V}$ |
| Collector Emitter Cut-Off Current | I_{CES} | | | -10 | nA | $V_{CES} = -10\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | -25 -55 -110 -160 -185 | -40 -100 -175 -215 -240 | mV mV mV mV mV | $I_C = -0.1\text{A}, I_B = -10\text{mA}^*$ $I_C = -0.25\text{A}, I_B = -10\text{mA}^*$ $I_C = -0.5\text{A}, I_B = -10\text{mA}^*$ $I_C = -1\text{A}, I_B = -50\text{mA}^*$ $I_C = -1.25\text{A}, I_B = -100\text{mA}^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | -990 | -1100 | mV | $I_C = -1.25\text{A}, I_B = -100\text{mA}^*$ |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | -850 | -1000 | mV | $I_C = -1.25\text{A}, V_{CE} = 2\text{V}^*$ |
| Static Forward Current Transfer Ratio | h_{FE} | 300 300 200 125 75 30 | 490 450 340 250 140 80 | | | $I_C = -10\text{mA}, V_{CE} = -2\text{V}^*$ $I_C = -0.1\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -1.25\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -2\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -3\text{A}, V_{CE} = -2\text{V}^*$ |
| Transition Frequency | f_T | | 220 | | MHz | $I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 100\text{MHz}$ |
| Output Capacitance | C_{obo} | | 15 | | pF | $V_{CB} = -10\text{V}, f = 1\text{MHz}$ |
| Turn-On Time | $t_{(on)}$ | | 50 | | ns | $V_{CC} = -10\text{V}, I_C = -1\text{A}$ $I_{B1} = I_{B2} = -100\text{mA}$ |
| Turn-Off Time | $t_{(off)}$ | | 135 | | ns | |

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

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TYPICAL CHARACTERISTICS

