

NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

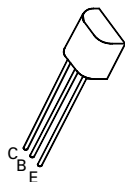
ZTX857

ISSUE 1 – APRIL 94

FEATURES

- * 300 Volt V_{CE0}
- * 3 Amps continuous current
- * Up to 5 Amps peak current
- * Very low saturation voltage
- * $P_{tot} = 1.2$ Watt

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|----------------|-------------|-------------|
| Collector-Base Voltage | V_{CBO} | 330 | V |
| Collector-Emitter Voltage | V_{CEO} | 300 | V |
| Emitter-Base Voltage | V_{EBO} | 6 | V |
| Peak Pulse Current | I_{CM} | 5 | A |
| Continuous Collector Current | I_C | 3 | A |
| Practical Power Dissipation* | P_{totp} | 1.58 | W |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | P_{tot} | 1.2 | W |
| Operating and Storage Temperature Range | $T_j; T_{stg}$ | -55 to +200 | $^{\circ}C$ |

*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 1 inch square minimum

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

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|--------------------------------------|--------------------------------|------|------------------------|--------------------------|----------------------|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 330 | 475 | | V | $I_C=100\mu A$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CER}$ | 330 | 475 | | V | $I_C=1\mu A, R_B \leq 1K\Omega$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 300 | 350 | | V | $I_C=10mA^*$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 6 | 8 | | V | $I_E=100\mu A$ |
| Collector Cut-Off Current | I_{CBO} | | | 50 1 | nA μA | $V_{CB}=300V$ $V_{CB}=300V, T_{amb}=100^{\circ}C$ |
| Collector Cut-Off Current | I_{CER} $R \leq 1K\Omega$ | | | 50 1 | nA μA | $V_{CB}=300V$ $V_{CB}=300V, T_{amb}=100^{\circ}C$ |
| Emitter Cut-Off Current | I_{EBO} | | | 10 | nA | $V_{EB}=6V$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | 50 80 140 170 | 100 140 200 250 | mV mV mV mV | $I_C=0.5A, I_B=50mA^*$ $I_C=1A, I_B=100mA^*$ $I_C=2A, I_B=200mA^*$ $I_C=3A, I_B=600mA^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | 870 | 1000 | mV | $I_C=2A, I_B=200mA^*$ |

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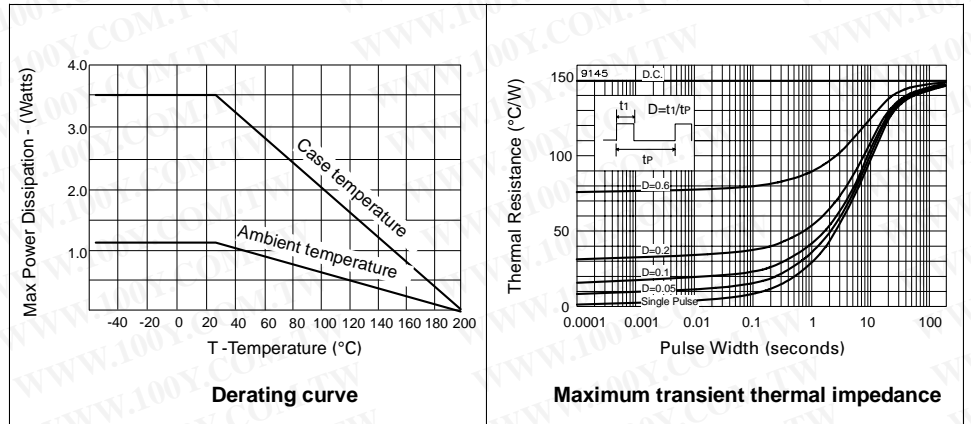
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$)

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---------------------------------------|-----------------------|------------------|------------------|------------------|----------|--|
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | 810 | 950 | mV | $I_C=2\text{A}, V_{CE}=5\text{V}^*$ |
| Static Forward Current Transfer Ratio | h_{FE} | 100 100 15 | 200 200 25 | 300 300 15 | | $I_C=10\text{mA}, V_{CE}=5\text{V}$ $I_C=500\text{mA}, V_{CE}=10\text{V}^*$ $I_C=2\text{A}, V_{CE}=10\text{V}^*$ $I_C=3\text{A}, V_{CE}=10\text{V}^*$ |
| Transition Frequency | f_T | | 80 | | MHz | $I_C=100\text{mA}, V_{CE}=10\text{V}$ $f=100\text{MHz}$ |
| Output Capacitance | C_{obo} | | 11 | | pF | $V_{CB}=20\text{V}, f=1\text{MHz}$ |
| Switching Times | t_{on} t_{off} | | 100 5300 | | ns ns | $I_C=250\text{mA}, I_{B1}=25\text{mA}$ $I_{B2}=25\text{mA}, V_{CC}=50\text{V}$ |

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

THERMAL CHARACTERISTICS

| PARAMETER | SYMBOL | MAX. | UNIT |
|---|------------------|------|----------------------|
| Thermal Resistance: Junction to Ambient | $R_{th(j-amb)}$ | 150 | $^{\circ}\text{C/W}$ |
| Junction to Case | $R_{th(j-case)}$ | 50 | $^{\circ}\text{C/W}$ |



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TYPICAL CHARACTERISTICS

