



# THE DATASHEET OF ZTX958STZ



# ZTX958

## PNP SILICON PLANAR ME HIGH CURRENT TRANSIS ISSUE 3 – JUNE 94

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

| PARAMETER                             | SYMBOL       | MIN. | TYP. | MAX. | UNIT | CONDITIONS.  |
|---------------------------------------|--------------|------|------|------|------|--|
| Base-Emitter Turn-On Voltage          | $V_{BE(on)}$ |      | -690 | -800 | mV   | $I_C = 500\text{mA}$ , $V_{CE} = -10\text{V}^*$                    |
| Static Forward Current Transfer Ratio | $h_{FE}$     | 100  | 200  | 300  |      | $I_C = 10\text{mA}$ , $V_{CE} = 10\text{V}^*$                      |
|                                       |              | 100  | 200  |      |      | $I_C = 500\text{mA}$ , $V_{CE} = 10\text{V}^*$                     |
|                                       |              | 10   | 20   |      |      | $I_C = 1\text{A}$ , $V_{CE} = 10\text{V}^*$                        |
| Transition Frequency                  | $f_T$        |      | 85   |      | MHz  | $I_C = 100\text{mA}$ , $V_{CE} = 10\text{V}$<br>$f = 50\text{MHz}$ |
| Output Capacitance                    | $C_{obbo}$   |      | 19   |      | pF   | $V_{CB} = 20\text{V}$ , $f = 1\text{MHz}$                          |
| Switching Times                       | $t_{on}$     |      | 104  |      | ns   | $I_C = 500\text{mA}$ , $I_B = 50\text{mA}$                         |
|                                       | $t_{off}$    |      | 2400 |      | ns   | $I_B = 50\text{mA}$ , $V_{CC} = 100\text{V}$                       |

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

### THERMAL CHARACTERISTICS

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

### FEATURES

- \* 0.5 Amp continuous current
- \* Up to 1.5 Amps peak current
- \* Very low saturation voltage
- \* Excellent gain characteristics up to
- \* Spice model available

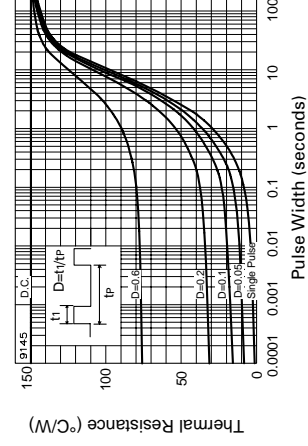
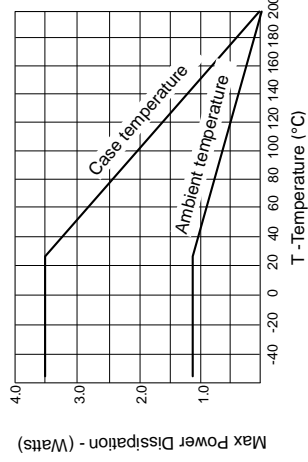
### ABSOLUTE MAXIMUM RATINGS

| PARAMETER   |
|---|
| Collector-Base Voltage                              |
| Collector-Emitter Voltage                           |
| Emitter-Base Voltage                                |
| Peak Pulse Current                                  |
| Continuous Collector Current                        |
| Practical Power Dissipation*                        |
| Power Dissipation at $T_{amb} = 25^{\circ}\text{C}$ |
| Operating and Storage Temperature Range             |

\*The power which can be dissipated as a function of ambient temperature. For P.C.B. with copper equal to 1 inch square.

### ELECTRICAL CHARACTERISTICS

| PARAMETER                            | SYMBOL                                |
|--------------------------------------|---------------------------------------|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$                         |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CER}$                         |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$                         |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$                         |
| Collector Cut-Off Current            | $I_{CBO}$                             |
| Collector Cut-Off Current            | $I_{CER}$<br>$R \leq 1\text{K}\Omega$ |
| Emitter Cut-Off Current              | $I_{EBO}$                             |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$                         |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$                         |



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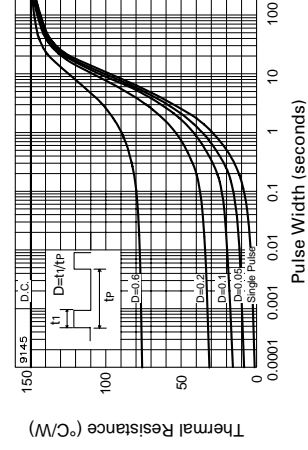
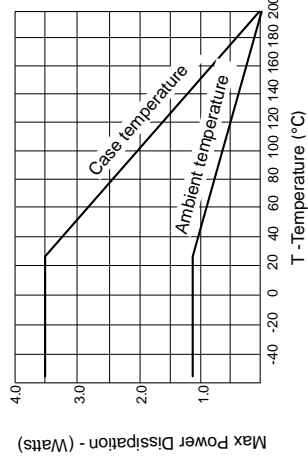
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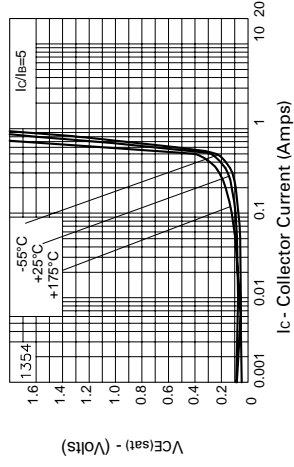
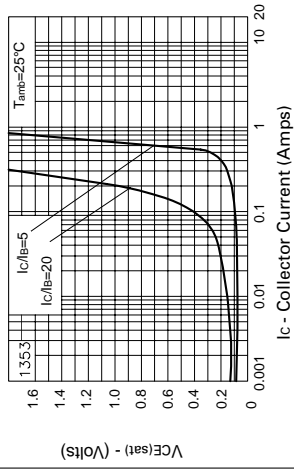
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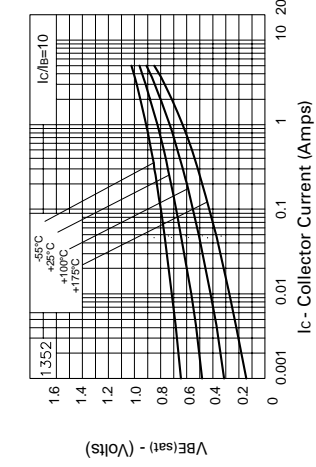
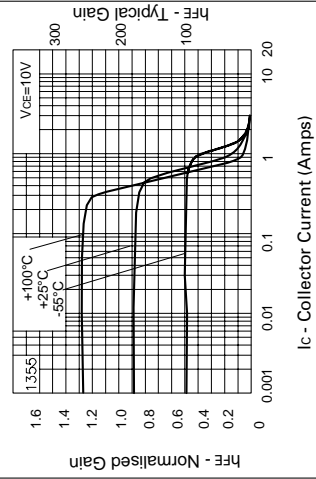
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## TYPICAL CHARACTERISTICS



**VCE(sat) v IC**

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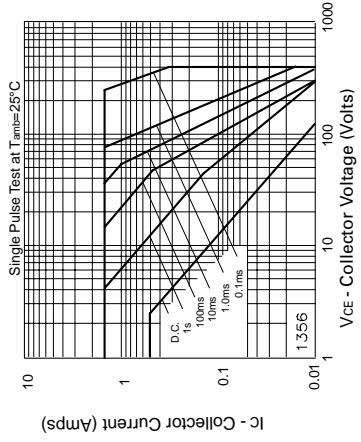
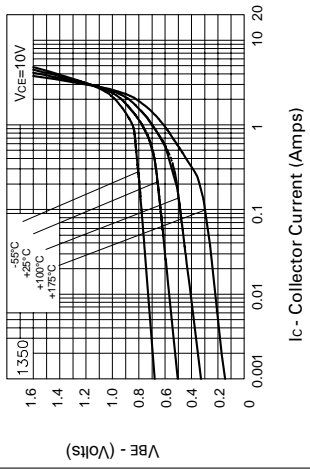


**hFE v IC**

**hFE(sat) v IC**

**hFE v IC**

**VBE(sat) v IC**



**VBE(on) v IC**

**Safe Operating Area**

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- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management