

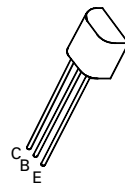
PNP SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ZTX968

ISSUE 2 – JUNE 94

FEATURES

- * 4.5 Amps continuous current
- * Up to 20 Amps peak current
- * Very low saturation voltage
- * High gain
- * Spice model available



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|--------------------------------------------|----------------|-------------|-------------|
| Collector-Base Voltage | V_{CBO} | -15 | V |
| Collector-Emitter Voltage | V_{CEO} | -12 | V |
| Emitter-Base Voltage | V_{EBO} | -6 | V |
| Peak Pulse Current | I_{CM} | -20 | A |
| Continuous Collector Current | I_C | -4.5 | 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 | $V_{(BR)CBO}$ | -15 | -28 | | V | $I_C = -100\mu A$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -12 | -20 | | 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 | $V_{CB} = -12V$ $V_{CB} = -12V, T_{amb} = 100^{\circ}C$ |
| Emitter Cut-Off Current | I_{EBO} | | | -10 | nA | $V_{EB} = -6V$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | -50 -100 -220 | -100 -150 -300 | mV mV mV | $I_C = -500mA, I_B = -5mA^*$ $I_C = -2A, I_B = -50mA^*$ $I_C = -5A, I_B = -200mA^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | -930 | -1050 | mV | $I_C = -5A, I_B = -200mA^*$ |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | -830 | -1000 | mV | $I_C = -5A, V_{CE} = -1V^*$ |

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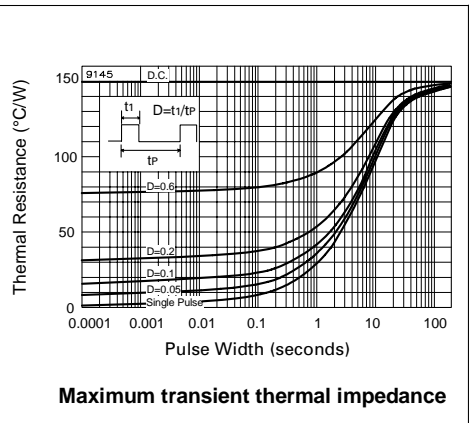
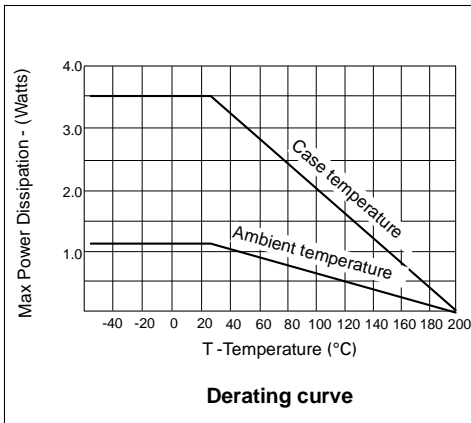
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$)

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|------------------------------------------|-----------------------|--------------------------|--------------------------------|------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Static Forward Current Transfer Ratio | h_{FE} | 300 300 200 150 | 450 450 300 240 50 | 1000 | | $I_C = 10\text{mA}, V_{CE} = 1\text{V}^*$ $I_C = 500\text{mA}, V_{CE} = 1\text{V}^*$ $I_C = 5\text{A}, V_{CE} = 1\text{V}^*$ $I_C = 10\text{A}, V_{CE} = 1\text{V}^*$ $I_C = 20\text{A}, V_{CE} = 1\text{V}^*$ |
| Transition Frequency | f_T | | 80 | | MHz | $I_C = 100\text{mA}, V_{CE} = 10\text{V}$ $f = 50\text{MHz}$ |
| Output Capacitance | C_{obo} | | 161 | | pF | $V_{CB} = 20\text{V}, f = 1\text{MHz}$ |
| Switching Times | t_{on} t_{off} | | 120 116 | | ns ns | $I_C = 4\text{A}, I_{B1} = 400\text{mA}$ $I_{B2} = 400\text{mA}, V_{CC} = 10\text{V}$ |

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

THERMAL CHARACTERISTICS

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



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TYPICAL CHARACTERISTICS

