

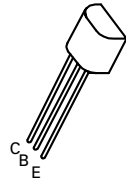
PNP SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ZTX1151A

ISSUE 1 - JANUARY 1997

FEATURES

- * $V_{CE0} = -40V$
- * 3 Amp Continuous Current
- * 5 Amp Pulse Current
- * Low Saturation voltage
- * High Gain



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

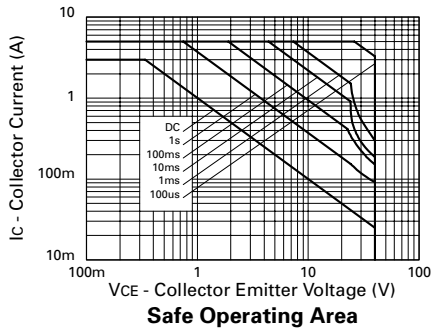
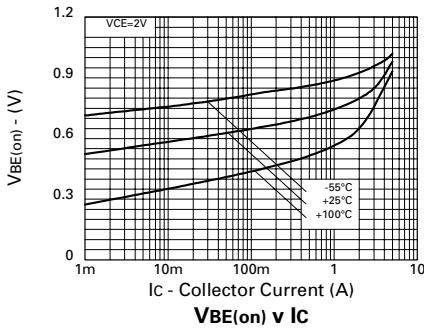
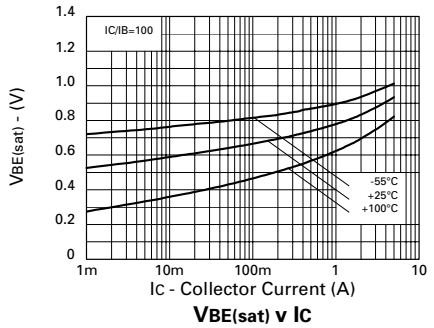
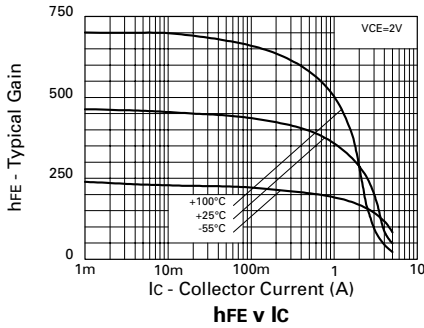
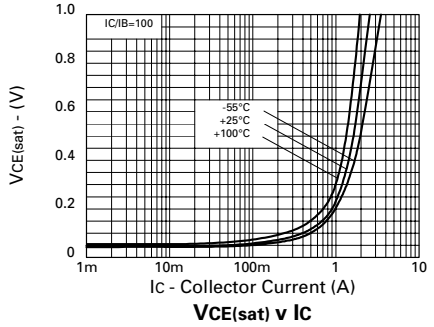
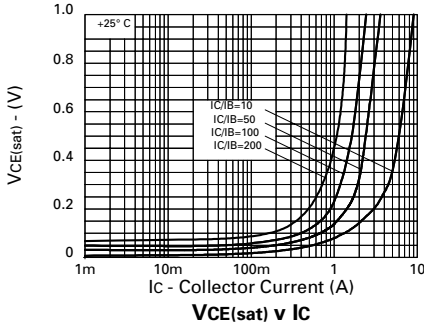
| PARAMETER | SYMBOL | VALUE | UNIT |
|--|----------------|-------------|-------------|
| Collector-Base Voltage | V_{CBO} | -45 | V |
| Collector-Emitter Voltage | V_{CEO} | -40 | V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Peak Pulse Current | I_{CM} | -5 | A |
| Continuous Collector Current | I_C | -3 | A |
| Base Current | I_B | -500 | mA |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | P_{tot} | 1 | W |
| Operating and Storage Temperature Range | $T_j; T_{stg}$ | -55 to +200 | $^{\circ}C$ |

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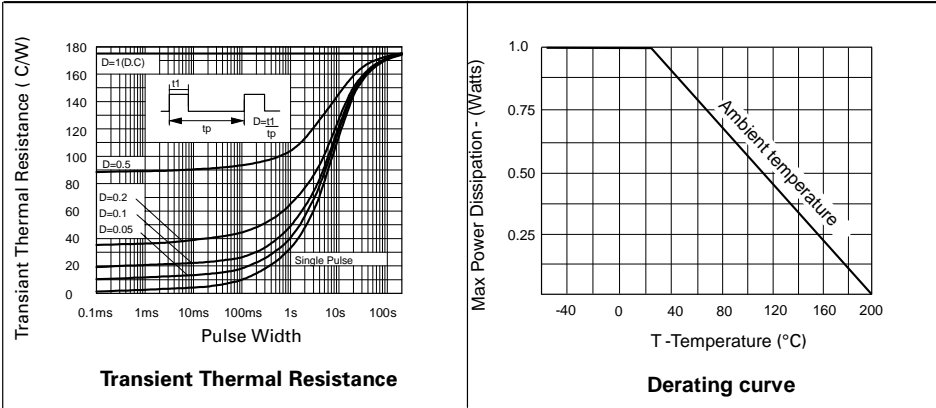
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

| PARAMETER | SYMBOL | VALUE | | | UNIT | CONDITIONS. |
|---------------------------------------|---------------|--------------------------|-------------------------------------|-------------------------------------|----------------------------|--|
| | | MIN. | TYP. | MAX. | | |
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -45 | -95 | | V | $I_C = -100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CES}$ | -40 | -90 | | V | $I_C = -100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -40 | -85 | | V | $I_C = -10\text{mA}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEV}$ | -40 | -90 | | V | $I_C = -100\mu\text{A}$, $V_{EB} = +1\text{V}$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | -5 | -8.5 | | V | $I_E = -100\mu\text{A}$ |
| Collector Cut-Off Current | I_{CBO} | | -0.3 | -100 | nA | $V_{CB} = -36\text{V}$ |
| Emitter Cut-Off Current | I_{EBO} | | -0.3 | -100 | nA | $V_{EB} = -4\text{V}$ |
| Collector Emitter Cut-Off Current | I_{CES} | | -0.3 | -100 | nA | $V_{CE} = -32\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | -60 -115 -135 -160 -180 | -90 -170 -210 -230 -240 | mV mV mV mV mV | $I_C = -0.1\text{A}$, $I_B = -1.0\text{mA}^*$ $I_C = -0.5\text{A}$, $I_B = -5\text{mA}^*$ $I_C = -1\text{A}$, $I_B = -20\text{mA}^*$ $I_C = -1.8\text{A}$, $I_B = -70\text{mA}^*$ $I_C = -3\text{A}$, $I_B = -250\text{mA}^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | -950 | -1050 | mV | $I_C = -3\text{A}$, $I_B = -250\text{mA}^*$ |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | -815 | -950 | mV | $I_C = -3\text{A}$, $V_{CE} = -2\text{V}^*$ |
| Static Forward Current Transfer Ratio | h_{FE} | 270 250 180 100 | 450 400 300 190 40 | 800 | | $I_C = -10\text{mA}$, $V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -2\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -3\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -5\text{A}$, $V_{CE} = -2\text{V}^*$ |
| Transition Frequency | f_T | | 145 | | MHz | $I_C = -50\text{mA}$, $V_{CE} = -10\text{V}$ $f = 50\text{MHz}$ |
| Output Capacitance | C_{cb} | | 40 | | pF | $V_{CB} = -10\text{V}$, $f = 1\text{MHz}$ |
| Switching Times | t_{on} | | 170 | | ns | $I_C = -2\text{A}$, $I_B = -20\text{mA}$, $V_{CC} = -30\text{V}$ |

TYPICAL CHARACTERISTICS



ZTX1151A



*ZETEX ZTX1151 Spice model Last revision 12/12/96

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.MODEL      ZTX1151 PNP IS =1.7e-12 NF =1.004 ISE=1.02e-13 NE =1.55 BF =562
+          VAF=26.01 IKF=3.5 NR =.97 ISC= 1.5e-13 NC =1.3
+          BR =38 VAR=2.41 IKR=0.3 RE =25.37e-3 RB =250e-3
+          RC =25e-3 CJE=440e-12 CJC=160e-12 VJC=1.058
+          MJC= 0.5678 TF =0.8e-9 TR =55.5e-9
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