

# NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

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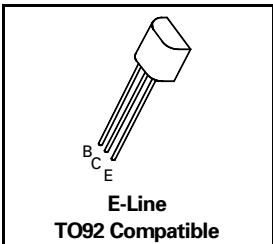
## FEATURES

- \* 100 Volt  $V_{CE0}$
- \* 2 Amps continuous current
- \* Low saturation voltage
- \*  $P_{tot} = 1$  Watt

REFER TO ZTX653 FOR GRAPHS

## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL         | VALUE       | UNIT        |
|--------------------------------------------|----------------|-------------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$      | 120         | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$      | 100         | V           |
| Emitter-Base Voltage                       | $V_{EBO}$      | 5           | V           |
| Peak Pulse Current                         | $I_{CM}$       | 6           | A           |
| Continuous Collector Current               | $I_C$          | 2           | A           |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | $P_{tot}$      | 1           | W           |
| Operating and Storage Temperature Range    | $T_j; T_{stg}$ | -55 to +200 | $^{\circ}C$ |



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

| PARAMETER                             | SYMBOL        | MIN.                  | TYP.                    | MAX.       | UNIT               | CONDITIONS.                                                                                           |
|---------------------------------------|---------------|-----------------------|-------------------------|------------|--------------------|-------------------------------------------------------------------------------------------------------|
| Collector-Base Breakdown Voltage      | $V_{(BR)CBO}$ | 120                   |                         |            | V                  | $I_C=100\mu A, I_E=0$                                                                                 |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CEO}$ | 100                   |                         |            | V                  | $I_C=10mA, I_B=0^*$                                                                                   |
| Emitter-Base Breakdown Voltage        | $V_{(BR)EBO}$ | 5                     |                         |            | V                  | $I_E=100\mu A, I_C=0$                                                                                 |
| Collector Cut-Off Current             | $I_{CBO}$     |                       |                         | 0.1<br>10  | $\mu A$<br>$\mu A$ | $V_{CB}=100V, I_E=0$<br>$V_{CB}=100V, T_{amb}=100^{\circ}C$                                           |
| Emitter Cut-Off Current               | $I_{EBO}$     |                       |                         | 0.1        | $\mu A$            | $V_{EB}=4V, I_C=0$                                                                                    |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |                       | 0.13<br>0.23            | 0.3<br>0.5 | V<br>V             | $I_C=1A, I_B=100mA^*$<br>$I_C=2A, I_B=200mA^*$                                                        |
| Base-Emitter Saturation Voltage       | $V_{BE(sat)}$ |                       | 0.9                     | 1.25       | V                  | $I_C=1A, I_B=100mA^*$                                                                                 |
| Base-Emitter Turn-On Voltage          | $V_{BE(on)}$  |                       | 0.8                     | 1          | V                  | $I_C=1A, V_{CE}=2V^*$                                                                                 |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 70<br>100<br>55<br>25 | 200<br>200<br>110<br>55 | 300        |                    | $I_C=50mA, V_{CE}=2V^*$<br>$I_C=500mA, V_{CE}=2V^*$<br>$I_C=1A, V_{CE}=2V^*$<br>$I_C=2A, V_{CE}=2V^*$ |
| Transition Frequency                  | $f_T$         | 140                   | 175                     |            | MHz                | $I_C=100mA, V_{CE}=5V$<br>$f=100MHz$                                                                  |
| Output Capacitance                    | $C_{obo}$     |                       |                         | 30         | pF                 | $V_{CB}=10V, f=1MHz$                                                                                  |

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