

# NPN SILICON PLANAR MEDIUM POWER DARLINGTON TRANSISTOR

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## FEATURES

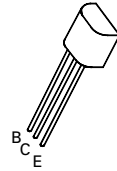
- \* 160 Volt  $V_{CEO}$
- \* Gain of 5K at  $I_C=1$  Amp
- \*  $P_{tot}=1$  Watt

## APPLICATIONS

- \* Lamp, solenoid and relay drivers
- \* Replacement of TO126 and TO220 packages

REFER TO ZTX601B FOR GRAPHS

# FXT601B



**E-Line**  
**TO92 Compatible**

## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL         | VALUE       | UNIT        |
|--------------------------------------------|----------------|-------------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$      | 180         | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$      | 160         | V           |
| Emitter-Base Voltage                       | $V_{EBO}$      | 10          | V           |
| Peak Pulse Current                         | $I_{CM}$       | 4           | A           |
| Continuous Collector Current               | $I_C$          | 1           | 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      | $V_{(BR)CBO}$ | 180             |                   |            | V                  | $I_C=100\mu A, I_E=0$                                                          |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CEO}$ | 160             |                   |            | V                  | $I_C=10mA, I_B=0^*$                                                            |
| Emitter-Base Breakdown Voltage        | $V_{(BR)EBO}$ | 10              |                   |            | V                  | $I_E=100\mu A, I_C=0$                                                          |
| Collector Cut-Off Current             | $I_{CBO}$     |                 |                   | 0.01<br>10 | $\mu A$<br>$\mu A$ | $V_{CB}=160V$<br>$V_{CB}=160V, T_{amb}=100^{\circ}C$                           |
| Emitter Cut-Off Current               | $I_{EBO}$     |                 |                   | 0.1        | $\mu A$            | $V_{EB}=8V, I_C=0$                                                             |
| Collector-Emitter Cut-Off Current     | $I_{CES}$     |                 |                   | 10         | $\mu A$            | $V_{CES}=160V$                                                                 |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |                 | 0.75<br>0.85      | 1.1<br>1.2 | V<br>V             | $I_C=0.5A, I_B=5mA^*$<br>$I_C=1A, I_B=10mA^*$                                  |
| Base-Emitter Saturation Voltage       | $V_{BE(sat)}$ |                 | 1.7               | 1.9        | V                  | $I_C=1A, I_B=10mA^*$                                                           |
| Base-Emitter Turn-On Voltage          | $V_{BE(on)}$  |                 | 1.5               | 1.7        | V                  | $I_C=1A, V_{CE}=5V^*$                                                          |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 5K<br>10K<br>5K | 10K<br>20K<br>10K | 100K       |                    | $I_C=50mA, V_{CE}=10V^*$<br>$I_C=0.5A, V_{CE}=10V^*$<br>$I_C=1A, V_{CE}=10V^*$ |
| Transition Frequency                  | $f_T$         | 150             | 250               |            | MHz                | $I_C=100mA, V_{CE}=10V$<br>$f=20MHz$                                           |

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