

## Thermal Characteristics

| Package | $I_D$<br>(continuous) <sup>†</sup> | $I_D$<br>(pulsed) | Power Dissipation<br>@ $T_c = 25^\circ\text{C}$ | $I_{DR}$ <sup>†</sup> | $I_{DRM}$ |
|---------|------------------------------------|-------------------|---|-----------------------|-----------|
| TO-92   | 230mA                              | 1.0A              | 1.0W  | 230mA                 | 1.0A      |

### Notes:

<sup>†</sup>  $I_D$  (continuous) is limited by max rated  $T_j$ .

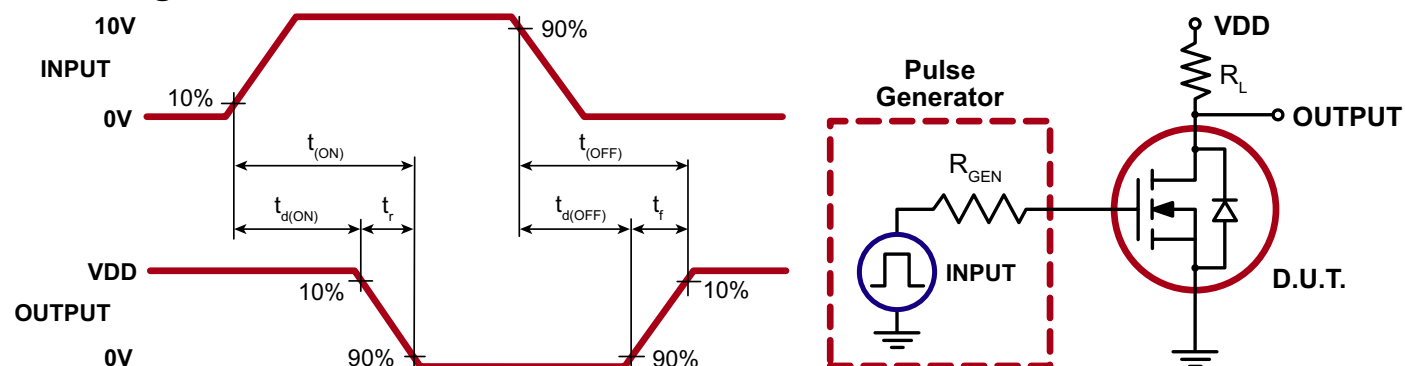
## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Sym          | Parameter                                  | Min  | Typ  | Max | Units         | Conditions  |
|--------------|--|------|------|-----|---------------|---|
| $BV_{DSS}$   | Drain-to-source breakdown voltage          | 60   | -    | -   | V             | $V_{GS} = 0V, I_D = 100\mu\text{A}$                       |
| $V_{GS(th)}$ | Gate threshold voltage                     | 0.6  | -    | 2.5 | V             | $V_{GS} = V_{DS}, I_D = 1.0\text{mA}$                     |
| $I_{GSS}$    | Gate body leakage current                  | -    | -    | 100 | nA            | $V_{GS} = \pm 20V, V_{DS} = 0V$                           |
| $I_{DSS}$    | Zero gate voltage drain current            | -    | -    | 10  | $\mu\text{A}$ | $V_{GS} = 0V, V_{DS} = \text{Max Rating}$                 |
|              |  | -    | -    | 500 |               | $V_{GS} = 0V, V_{DS} = 48V,$<br>$T_A = 125^\circ\text{C}$ |
| $I_{D(ON)}$  | On-state drain current                     | 0.75 | -    | -   | A             | $V_{GS} = 10V, V_{DS} = 10V$                              |
| $R_{DS(ON)}$ | Static drain-to-source on-state resistance | -    | -    | 7.5 | $\Omega$      | $V_{GS} = 5.0V, I_D = 200\text{mA}$                       |
|              |  | -    | -    | 7.5 |               | $V_{GS} = 10V, I_D = 500\text{mA}$                        |
| $G_{FS}$     | Forward transconductance                   | 100  | -    | -   | mmho          | $V_{DS} = 10V, I_D = 500\text{mA}$                        |
| $C_{ISS}$    | Input capacitance                          | -    | -    | 60  | pF            | $V_{GS} = 0V,$<br>$V_{DS} = 25V,$<br>$f = 1.0\text{MHz}$  |
| $C_{OSS}$    | Common source output capacitance           | -    | -    | 25  |               |   |
| $C_{RSS}$    | Reverse transfer capacitance               | -    | -    | 8.0 |               |   |
| $t_{(ON)}$   | Turn-on time                               | -    | -    | 10  | ns            | $V_{DD} = 15V, I_D = 0.6A,$<br>$R_{GEN} = 25\Omega$       |
| $t_{(OFF)}$  | Turn-off time                              | -    | -    | 10  |               |   |
| $V_{SD}$     | Diode forward voltage drop                 | -    | 0.85 | -   | V             | $V_{GS} = 0V, I_{SD} = 0.2A$                              |

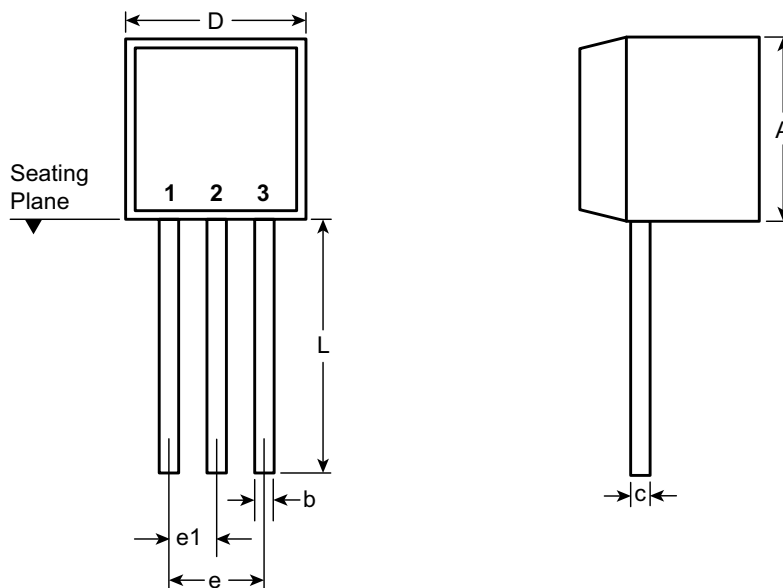
### Notes:

- All D.C. parameters 100% tested at  $25^\circ\text{C}$  unless otherwise stated. (Pulse test:  $300\mu\text{s}$  pulse, 2% duty cycle.)
- All A.C. parameters sample tested.

## Switching Waveforms and Test Circuit

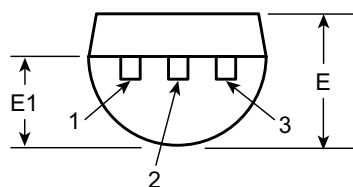


## 3-Lead TO-92 Package Outline (LL)



**Front View**

**Side View**



**Bottom View**

| Symbol                 | A   | b    | c                 | D                 | E    | E1   | e    | e1   | L     |
|------------------------|-----|------|-------------------|-------------------|------|------|------|------|-------|
| Dimensions<br>(inches) | MIN | .170 | .014 <sup>†</sup> | .175              | .125 | .080 | .095 | .045 | .500  |
|                        | NOM | -    | -                 | -                 | -    | -    | -    | -    | -     |
|                        | MAX | .210 | .022 <sup>†</sup> | .022 <sup>†</sup> | .205 | .165 | .105 | .105 | .610* |

JEDEC Registration TO-92.

\* This dimension is not specified in the JEDEC drawing.

† This dimension differs from the JEDEC drawing.

**Drawings not to scale.**

**Supertex Doc.#:** DSPD-3TO92N3, Version E041009.

(The package drawing(s) in this data sheet may not reflect the most current specifications. For the latest package outline information go to <http://www.supertex.com/packaging.html>.)

**Supertex inc.** does not recommend the use of its products in life support applications, and will not knowingly sell them for use in such applications unless it receives an adequate "product liability indemnification insurance agreement." **Supertex inc.** does not assume responsibility for use of devices described, and limits its liability to the replacement of the devices determined defective due to workmanship. No responsibility is assumed for possible omissions and inaccuracies. Circuitry and specifications are subject to change without notice. For the latest product specifications refer to the **Supertex inc.** (website: <http://www.supertex.com>)