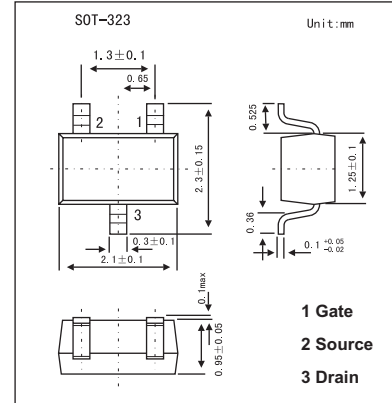
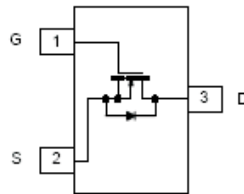


## N-Channel 30-V (D-S) MOSFET

## KI1302DL

## ■ Features

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

| Parameter  | Symbol         | 5 secs                   | Steady State | Unit             |
|--|----------------|--------------------------|--------------|------------------|
| Drain-source voltage                                   | $V_{DS}$       | 30                       |              | V                |
| Gate-source voltage                                    | $V_{GS}$       | $\pm 20$                 |              | V                |
| Continuous drain current ( $T_J = 150^\circ\text{C}$ ) | $I_D$          | $T_A = 25^\circ\text{C}$ | 0.64         | A                |
|  |                | $T_A = 70^\circ\text{C}$ | 0.51         |                  |
| Pulsed drain current                                   | $I_{DM}$       | 1.5                      |              | A                |
| Continuous source current (diode conduction) *         | $I_S$          | 0.26                     | 0.23         | A                |
| Power dissipation *                                    | $P_D$          | $T_A = 25^\circ\text{C}$ | 0.31         | W                |
|  |                | $T_A = 70^\circ\text{C}$ | 0.20         |                  |
| Operating junction and storage temperature range       | $T_J, T_{stg}$ | -55 to +150              |              | $^\circ\text{C}$ |

\* Surface Mounted on 1" X 1" FR4 Board.

■ Thermal Resistance Ratings  $T_a = 25^\circ\text{C}$ 

| Parameter                                     | Symbol     | Typical                | Maximum | Unit |                           |
|---|------------|------------------------|---------|------|---------------------------|
| Maximum Junction-to-Ambient*                  | $R_{thJA}$ | $t \leq 5 \text{ sec}$ | 355     | 400  | $^\circ\text{C}/\text{W}$ |
|   |            | Steady State           | 380     | 450  |                           |
| Maximum Junction-to-Foot (Drain) Steady State | $R_{thJF}$ | 285                    | 340     |      |                           |

\* Surface Mounted on 1" X 1" FR4 Board.

## KI1302DL

## ■ Electrical Characteristics Ta = 25°C

| Parameter                          | Symbol              | Testconditions   | Min | Typ   | Max   | Unit |
|------------------------------------|---------------------|--|-----|-------|-------|------|
| Gate threshold voltage             | V <sub>GS(th)</sub> | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA  | 1   |       |       | V    |
| Gate-body leakage                  | I <sub>GSS</sub>    | V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V   |     |       | ±100  | nA   |
| Zero gate voltage drain current    | I <sub>DSS</sub>    | V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V  |     |       | 1     | μA   |
|                                    |                     | V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 70 °C  |     |       | 5     |      |
| On-state drain current             | I <sub>D(on)</sub>  | V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V  | 1.5 |       |       | A    |
| Drain-source on-state resistance   | r <sub>DS(on)</sub> | V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.6 A   |     | 0.410 | 0.480 | Ω    |
|                                    |                     | V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.2 A   |     | 0.600 | 0.700 |      |
| Forward transconductance           | g <sub>fs</sub>     | V <sub>DS</sub> = 15 V, I <sub>D</sub> = 0.6 A   |     | 0.75  |       | S    |
| Diode forward voltage              | V <sub>SD</sub>     | I <sub>S</sub> = 0.23 A, V <sub>GS</sub> = 0 V   |     | 0.8   | 1.2   | V    |
| Total gate charge *                | Q <sub>g</sub>      | V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.6A   |     | 0.86  | 1.4   | nC   |
| Gate-source charge *               | Q <sub>gs</sub>     |  |     | 0.24  |       |      |
| Gate-drain charge *                | Q <sub>gd</sub>     |  |     | 0.08  |       |      |
| Turn-on time                       | t <sub>d(on)</sub>  | V <sub>DD</sub> = 15V, R <sub>L</sub> = 30 Ω,<br>I <sub>D</sub> = 0.5A, V <sub>GEN</sub> = 10V, R <sub>G</sub> = 6 Ω |     | 5     | 10    | ns   |
|                                    | t <sub>r</sub>      |  |     | 8     | 15    |      |
| Turn-off time                      | t <sub>d(off)</sub> |  |     | 8     | 15    |      |
|                                    | t <sub>f</sub>      |  |     | 7     | 15    |      |
| Source-Drain Reverse Recovery Time | t <sub>rr</sub>     | I <sub>F</sub> = 0.23 A, di/dt = 100 A/μs  |     | 15    | 30    |      |

\* Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.

## ■ Marking

|         |    |
|---------|----|
| Marking | KA |
|---------|----|