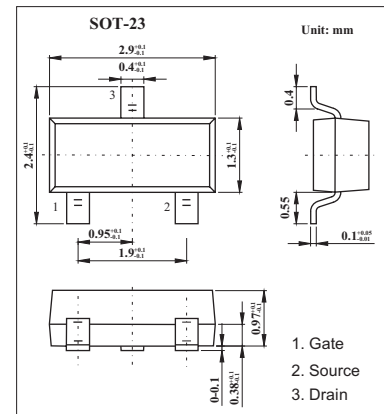
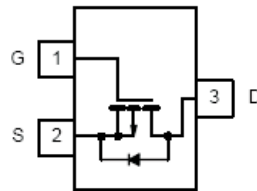


## P-Channel 12-V (D-S) MOSFET

## KI2335DS

## ■ Features

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

| Parameter   | Symbol    | 5 sec        | Steady State | Unit             |
|---|-----------|--------------|--------------|------------------|
| Drain-Source Voltage  | $V_{DS}$  |              | -12          | V                |
| Gate-Source Voltage   | $V_{GS}$  |              | $\pm 8$      | V                |
| Continuous Drain Current ( $T_J=150^\circ\text{C}$ )*1,2 $T_A=25^\circ\text{C}$<br>$T_A=70^\circ\text{C}$ | $I_D$     | -4.0<br>-3.3 | -3.2<br>-2.6 | A                |
| Pulsed Drain Current  | $I_{DM}$  |              | -15          | A                |
| Continuous Source Current (Diode Conduction)*1,2  | $I_S$     |              | -1.6         | A                |
| Power Dissipation *1,2 $T_A=25^\circ\text{C}$<br>$T_A=70^\circ\text{C}$                                   | $P_D$     | 1.25<br>0.8  | 0.75<br>0.48 | W                |
| Junction Temperature  | $T_J$     |              | 150          | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ |              | -55 to +150  | $^\circ\text{C}$ |

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

\*2 Pulse width limited by maximum junction temperature.

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

| Parameter  | Symbol     | Typical | Maximum | Unit               |
|--|------------|---------|---------|--------------------|
| Maximum Junction-to-Ambient * $t \leq 5 \text{ sec}$ | $R_{thJA}$ | 75      | 100     | $^\circ\text{C/W}$ |
| Maximum Junction-to-Ambient Steady State             |            | 120     | 166     |                    |
| Maximum Junction-to-Foot (Drain) Steady State        | $R_{thJF}$ | 40      | 50      |                    |

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

## KI2335DS

## ■ Electrical Characteristics Ta = 25°C

| Parameter                          | Symbol        | Testconditions   | Min   | Typ   | Max       | Unit           |
|------------------------------------|---------------|--|-------|-------|-----------|----------------|
| Drain-Source Breakdown Voltage     | $V_{(BR)DSS}$ | $V_{GS} = 0\text{ V}, I_D = -10\ \mu\text{ A}$   | -12   |       |           | V              |
| Gate Threshold Voltage             | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = -250\ \mu\text{ A}$  | -0.45 |       |           |                |
| Gate-Body Leakage                  | $I_{GSS}$     | $V_{DS} = 0\text{ V}, V_{GS} = \pm 8\text{ V}$   |       |       | $\pm 100$ | nA             |
| Zero Gate Voltage Drain Current    | $I_{DSS}$     | $V_{DS} = -9.6\text{ V}, V_{GS} = 0\text{ V}$  |       |       | -1        | $\mu\text{ A}$ |
|                                    |               | $V_{DS} = -9.6\text{ V}, V_{GS} = 0\text{ V}, T_J = 55\text{ }^\circ\text{C}$                          |       |       | -10       |                |
| On-State Drain Current             | $I_{D(on)}$   | $V_{DS} \leq -5\text{ V}, V_{GS} = -4.5\text{ V}$  | -15   |       |           | A              |
|                                    |               | $V_{DS} \leq -5\text{ V}, V_{GS} = -2.5\text{ V}$  | -6    |       |           |                |
| Drain-Source On-State Resistance * | $r_{DS(on)}$  | $V_{GS} = -4.5\text{ V}, I_D = -4.0\text{ A}$  |       | 0.042 | 0.051     | $\Omega$       |
|                                    |               | $V_{GS} = -2.5\text{ V}, I_D = -3.5\text{ A}$  |       | 0.058 | 0.070     |                |
|                                    |               | $V_{GS} = -1.8\text{ V}, I_D = -2.0\text{ A}$  |       | 0.082 | 0.106     |                |
| Forward Transconductance *         | $g_{fs}$      | $V_{DS} = -5\text{ V}, I_D = -4.0\text{ A}$  |       | 7     |           | S              |
| Diode Forward Voltage *            | $V_{SD}$      | $I_S = -1.6\text{ A}, V_{GS} = 0\text{ V}$   |       |       | -1.2      | V              |
| Total Gate Charge                  | $Q_g$         | $V_{DS} = -6\text{ V}, V_{GS} = -4.5\text{ V}, I_D = -4.0\text{ A}$                                    |       | 9     | 15        | nC             |
| Gate-Source Charge                 | $Q_{gs}$      |  |       | 1.9   |           |                |
| Gate-Drain Charge                  | $Q_{gd}$      |  |       | 1.5   |           |                |
| Input Capacitance                  | $C_{iss}$     | $V_{DS} = -6\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$   |       | 1225  |           | pF             |
| Output Capacitance                 | $C_{oss}$     |  |       | 260   |           |                |
| Reverse Transfer Capacitance       | $C_{rss}$     |  |       | 130   |           |                |
| Turn-On Time                       | $t_{d(on)}$   | $V_{DD} = -6\text{ V}, R_L = 6\ \Omega, I_D = -1.0\text{ A}, V_{GEN} = -4.5\text{ V}, R_G = 6\ \Omega$ |       | 13    | 20        | ns             |
|                                    | $t_r$         |  |       | 15    | 25        |                |
| Turn-Off Time                      | $t_{d(off)}$  |  |       | 50    | 70        |                |
|                                    | $t_f$         |  |       | 19    | 35        |                |

\* Pulse test:  $PW \leq 300\ \mu\text{s}$  duty cycle  $\leq 2\%$ .

## ■ Marking

|         |    |
|---------|----|
| Marking | E5 |
|---------|----|