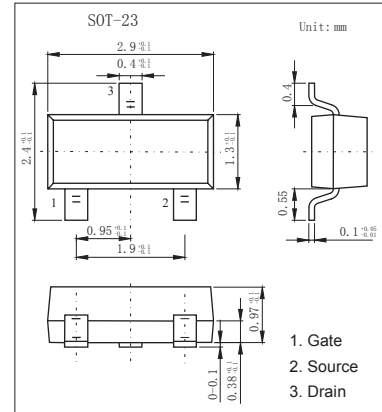
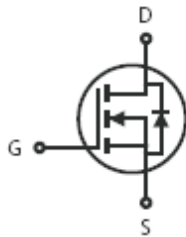


N-Channel Enhancement Mode Field Effect Transistor

SI2300 (K12300)

■ Features

- $V_{DS}=20V, R_{DS(ON)}=40m\Omega @ V_{GS}=4.5V, I_D=5.0A$
- $V_{DS}=20V, R_{DS(ON)}=60m\Omega @ V_{GS}=2.5V, I_D=4.0A$
- $V_{DS}=20V, R_{DS(ON)}=75m\Omega @ V_{GS}=1.8V, I_D=1.0A$

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

| Parameter | Symbol | Rating | Unit | |
|--|----------------|---------------------------------|--------------|---|
| Drain-Source Voltage | V_{DS} | 20 | V | |
| Gate-Source Voltage | V_{GS} | ± 10 | V | |
| Drain-Current | I_D | -Continuous * $T_J=125^\circ C$ | 3.8 | A |
| | | -Pulsed | 15 | A |
| Power Dissipation * | P_D | 1.25 | W | |
| Thermal Resistance, Junction- to-Ambient | R_{thJA} | 100 | $^\circ C/W$ | |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | $^\circ C$ | |

* Surface Mounted on FR 4 Board, $t \leq 10$ sec.

SI2300 (KI2300)

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Testconditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------------|--|-----|-------|------|------|
| Drain-Source Breakdown Voltage | V _{DSS} | V _{GS} =0V, I _D =250uA | 20 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =20V, V _{GS} =0V | | | 1 | uA |
| Gate-Body Leakage | I _{GSS} | V _{GS} =±10V, V _{DS} =0V | | | ±100 | nA |
| Gate Threshold Voltage * | V _{GS(th)} | V _{GS} =V _{DS} , I _D =250uA | 0.6 | 0.78 | 1.5 | V |
| Drain- Source on-state Resistance * | R _{DS(ON)} | V _{GS} =4.5V, I _D =5.0A | | 32 | 40 | mΩ |
| | | V _{GS} =2.5V, I _D =4.0A | | 50 | 60 | mΩ |
| | | V _{GS} =1.8V, I _D =1.0A | | 62 | 75 | mΩ |
| On-State Drain Current * | I _{D(ON)} | V _{DS} =5V, V _{GS} =4.5V | 18 | | | A |
| Forward Transconductance * | g _{FS} | V _{DS} =5V, I _D =5A | 5 | | | S |
| Input Capacitance | C _{ISS} | V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHZ | | 888 | | pF |
| Output Capacitance | C _{OSS} | | | 144 | | pF |
| Reverse Transfer Capacitance | C _{RSS} | | | 115 | | pF |
| Turn-On Delay Time | t _{D(on)} | | | 31.8 | | ns |
| Rise Time | t _r | V _{DD} =10V, I _D =1A, V _{GS} =4.5V, R _L =10Ω, R _{GEN} =6Ω | | 14.5 | | ns |
| Turn-Off Delay Time | t _{D(off)} | | | 50.3 | | ns |
| Fall Time | t _f | | | 31.9 | | ns |
| Total Gate Charge | Q _g | V _{DS} = 10V, I _D = 3.5A, V _{GS} = 4.5V | | 16.8 | | nC |
| Gate-Source Charge | Q _{gs} | | | 2.5 | | nC |
| Gate-Drain Charge | Q _{gd} | | | 5.4 | | nC |
| Drain-Source Diode Forward Current * | I _S | | | | 1.25 | A |
| Diode Forward Voltage | V _{SD} | V _{GS} =0V, I _S =1.25A | | 0.825 | 1.2 | V |

* Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%

■ Marking

| | |
|---------|------|
| Marking | 00A* |
|---------|------|