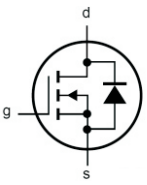
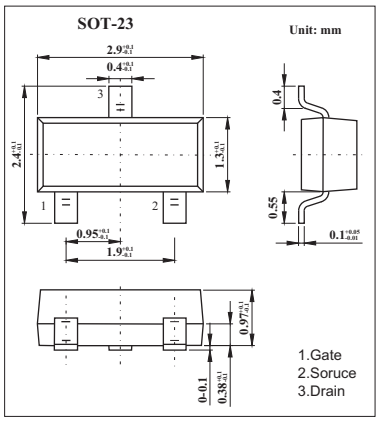
# N-Channel Enhancement Mode MOSFET

# 2N7000

## ■ Features

- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability




## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-Source voltage | $V_{DS}$ | 60 | V |
| Gate-Source Voltage | $V_{GS}$ | ±20 | V |
| Drain Current - Continuous | $I_D$ | 200 | mA |
| - Pulsed Note(1) | | 500 | |
| Power dissipation @ $T_A$ = 25℃ | $P_D$ | 0.4 | W |
| Operating and storage junction temperature range | $T_J$, $T_{stg}$ | -55 to +150 | ℃ |

Notes: 1. Pulse width limited by maximum junction temperature.

## ■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Test conditons | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS}$=0 V, $I_D$=10 μA | 60 | | | V |
| Gate-threshold voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$, $I_D$=1mA | 0.8 | 2.1 | 3 | |
| Gate-body leakage | $I_{GSS}$ | $V_{DS}$=0 V, $V_{GS}$=±20 V | | | ±100 | nA |
| Zero gate voltage drain current | $I_{DSS}$ | $V_{DS}$=48 V, $V_{GS}$=0 V | | | 1 | μA |
| | | $T_C$ = 125℃ | | | 1000 | μA |
| On-state drain current | $I_{D(ON)}$ | $V_{GS}$=4.5 V, $V_{DS}$=10 V | | 0.35 | 0.075 | A |
| Drain-source on-resistance | $R_{DS(on)}$ | $V_{GS}$=10 V, $I_D$=500 mA | | | 5 | Ω |
| | | $V_{GS}$=4.5 V, $I_D$=75 mA | | | 5.3 | |
| Forward tran conductance | $g_{ts}$ | $V_{DS}$=10 V, $I_D$=200 mA | 100 | | | ms |
| Input capacitance | $C_{iss}$ | $V_{DS}$=25 V, $V_{GS}$=0 V, f=1 MHz | | 22 | 60 | pF |
| Output capacitance | $C_{oss}$ | | | 11 | 25 | |
| Reverse transfer capacitance | $C_{rss}$ | | | 2 | 5 | |
| Turn-on Time | $t_{d(on)}$ | $V_{DD}$ = 15 V, $R_L$ = 25 Ω | | | 10 | ns |
| Turn-off Time | $t_{d(off)}$ | $I_D$ =0.5 A, $V_{GEN}$ = 10 V, $R_G$ = 25Ω | | | 10 | ns |

## ■ Marking

| Marking | 702 |
|---|---|