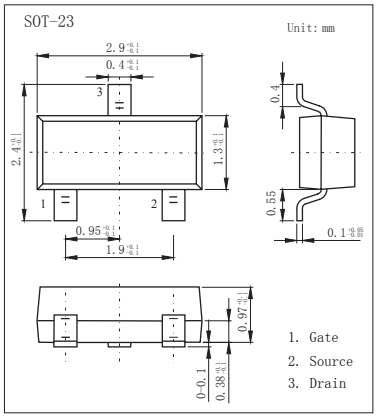
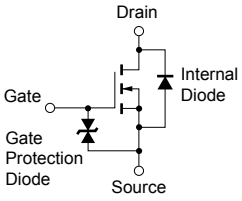
# N-Channel MOSFET
# 2SK1399




## ■ Features

- Can be driven by a 3.0-V power source
- Not necessary to consider driving current because of it is high input impedance
- Possible to reduce the number of parts by omitting the bias resistor
- Complments the 2SJ185




## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | 50 | V |
| Gate-Source Voltage | $V_{GS}$ | ±7 | |
| Continuous Drain Current | $I_D$ | 100 | mA |
| Pulsed Drain Current (Note.1) | $I_{DM}$ | 200 | |
| Power Dissipation Ta = 25℃ | $P_D$ | 200 | mW |
| Junction Temperature | $T_J$ | 150 | ℃ |
| Operating Temperature | $T_{opt}$ | -55 to 80 | |
| Storage Temperature Range | $T_{stg}$ | -55 to 150 | |

Note.1: PW ≤ 10ms,Duty Cycle ≤ 50%

## ■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{DSS}$ | $I_D$=250μA, $V_{GS}$=0V | 50 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=50V, $V_{GS}$=0V | | | 10 | uA |
| Gate-Body Leakage Current | $I_{GSS}$ | $V_{DS}$=0V, $V_{GS}$=±7V | | | ±5 | uA |
| Gate Cut-off Voltage | $V_{GS(off)}$ | $V_{DS}$=3 V $I_D$=1uA | 0.9 | | 1.5 | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}$=2.5V, $I_D$=10m A | | | 40 | Ω |
| | | $V_{GS}$=4V, $I_D$=10m A | | | 20 | |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$=3V, $I_D$=10m A | 20 | 38 | | ms |
| Input Capacitance | $C_{iss}$ | $V_{GS}$=0V, $V_{DS}$=3V, f=1MHz | | 8 | | pF |
| Output Capacitance | $C_{oss}$ | | | 7 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 3 | | |
| Turn-On DelayTime | $t_{d(on)}$ | $V_{GS}$=3V, $V_{DS}$=3V, $I_D$=20mA, $R_L$=150Ω, $R_G$=10Ω | | 15 | | ns |
| Turn-On Rise Time | $t_r$ | | | 100 | | |
| Turn-Off DelayTime | $t_{d(off)}$ | | | 30 | | |
| Turn-Off Fall Time | $t_f$ | | | 35 | | |

## ■ Marking

| Marking | G12 |
|---|---|

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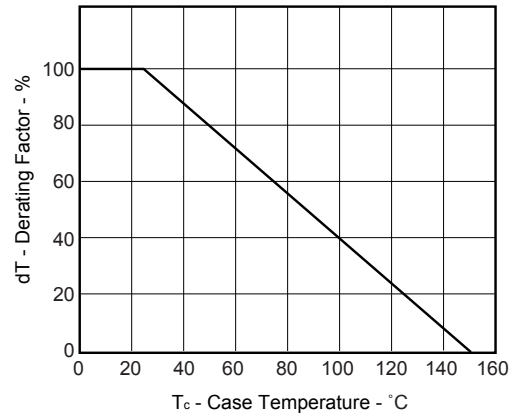
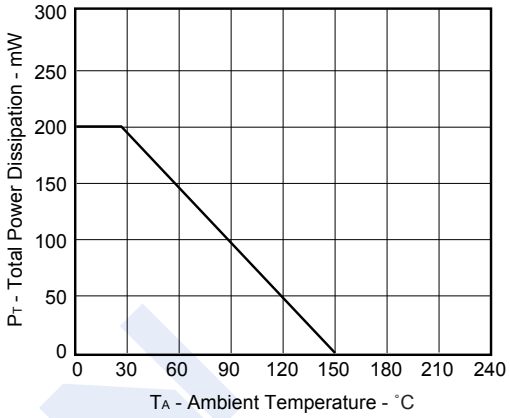
■ Typical Characterisitics

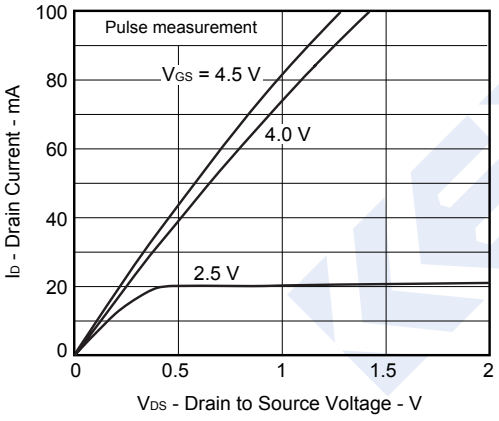
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



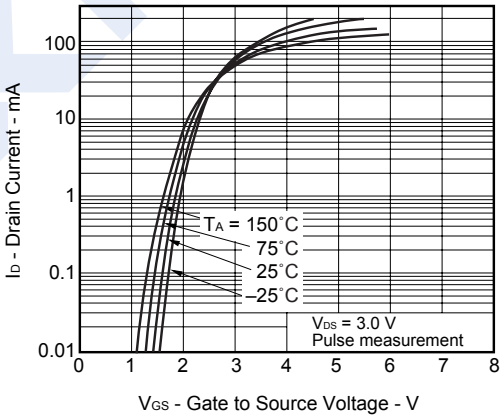

TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



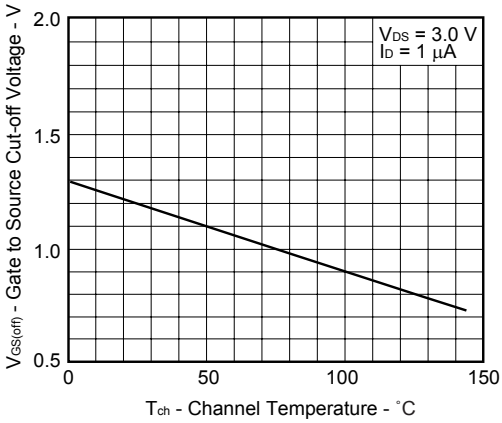

DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



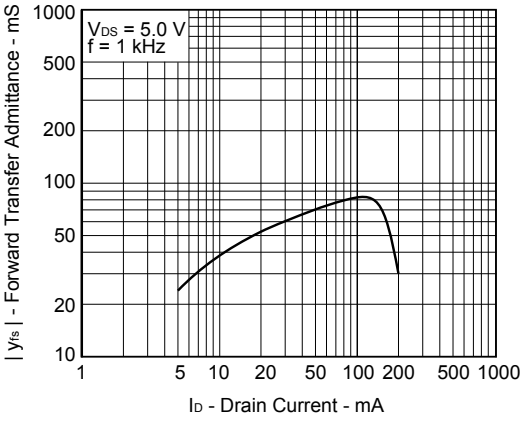

TRANSFER CHARACTERISTICS




GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE




FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



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■ Typical Characterisitics