

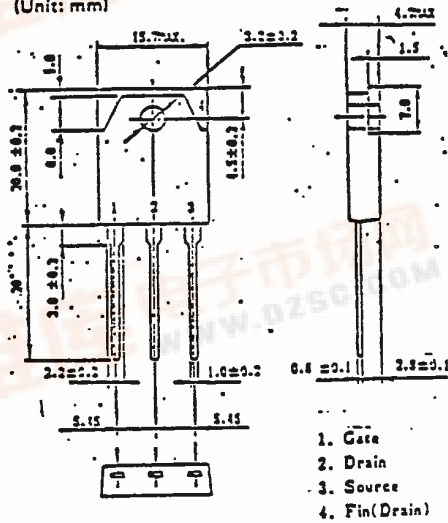


MOS FIELD EFFECT TRANSISTOR

2SK833

FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET

PACKAGE DIMENSIONS
(Unit: mm)



Features

Suitable for switching power supplies,
actuator controls and pulse circuits
Low RDS(on)

Absolute Maximum Ratings(Ta=25°C)

| | | |
|--------------------------|-------------|--------------|
| Drain to Source Voltage | VDS | 900V |
| Gate to Source Voltage | VGS | ± 20V |
| Continuous Drain Current | ID(DC) | ± 5A |
| Pulse Drain Current | ID(pulse) * | ± 20A |
| Total Power Dissipation | PT | 3.0W |
| Total Power Dissipation | PT** | 120W |
| Channel Temperature | Tch | 150 °C |
| Storage Temperature | Tstg | -55to+150 °C |

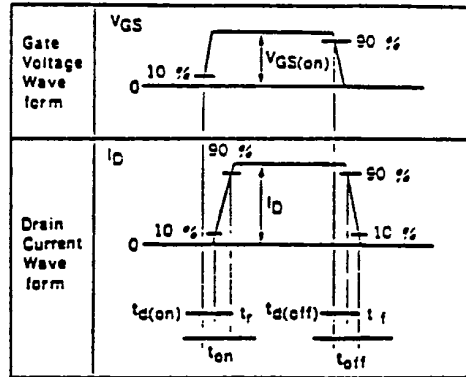
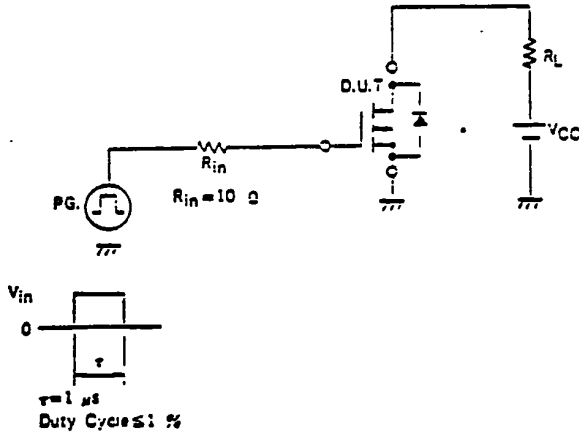
* PW ≤ 100 us, Duty Cycle ≤ 2%
** Tc=25 °C

Electrical Characteristics (Ta=25 °C)

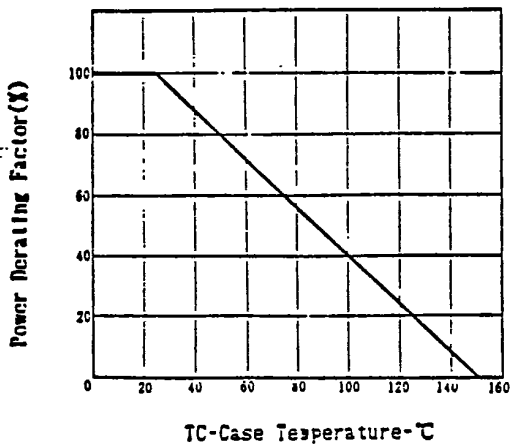
| Characteristics | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|-------------------------------------|----------|------|------|------|------|-------------------|
| Drain Leakage Current | IDSS | | | 100 | μA | VDS=900V, VGS=0 |
| Gate to Source Leakage Current | IGSS | | | ±100 | nA | VGS=±20V, VDS=0 |
| Gate to Source Cutoff Voltage | VGS(off) | 1.5 | | 3.5 | V | VDS=10V, ID=1.0mA |
| Forward Transfer Admittance | yfs | 1.0 | | | S | VDS=20V, ID=3.0A |
| Drain to Source On-State Resistance | RDS(on) | | 3.2 | 4.0 | Ω | VGS=10V, ID=3.0A |
| Input Capacitance | Ciss | | 950 | | pF | VDS= 10V, |
| Output Capacitance | Coss | | 170 | | pF | VGS=0, |
| Reverse Transfer Capacitance | Crss | | 65 | | pF | f=1.0MHz |
| Turn-On Delay Time | td(on) | | 15 | | ns | ID=3.0A |
| Rise Time | tr | | 40 | | ns | VGS(on)= 10V, |
| Turn-Off Delay Time | td(off) | | 80 | | ns | Vcc=150V, |
| Fall Time | tf | | 20 | | ns | RL= 50 Ω |



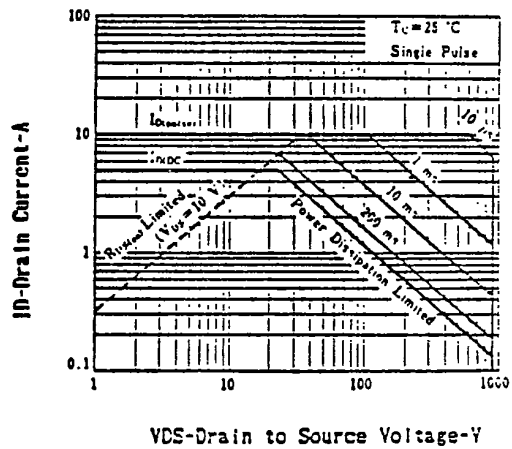
TURN-ON AND TURN-OFF TIME TEST CIRCUIT



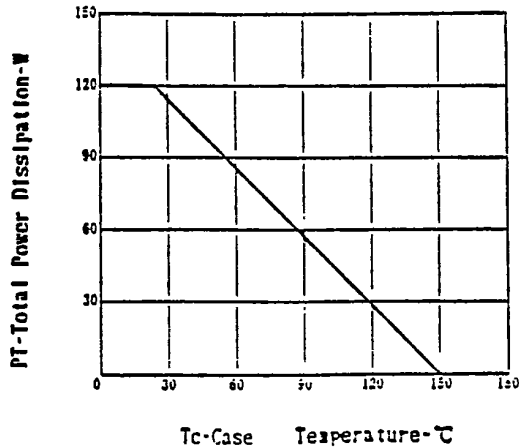
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



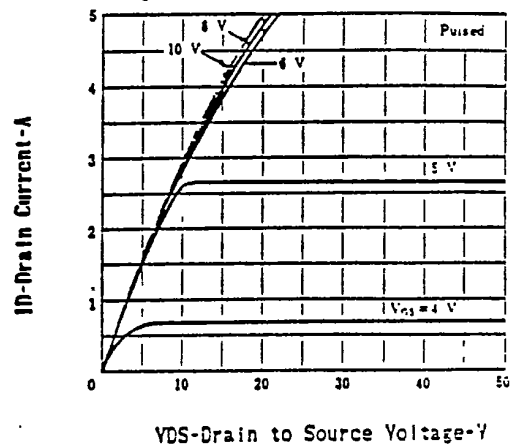
FORWARD BIAS SAFE OPERATING AREA



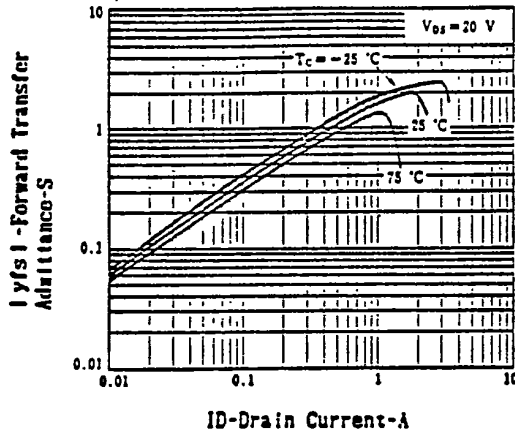
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



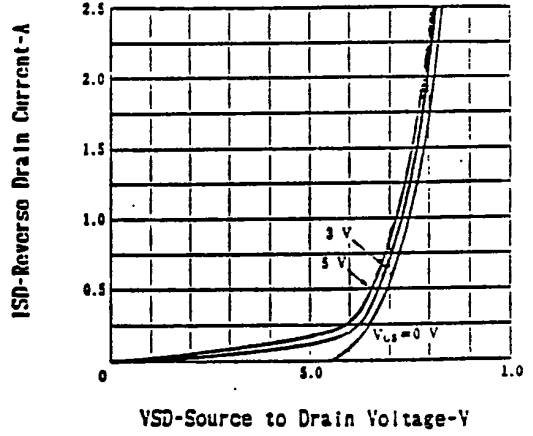
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



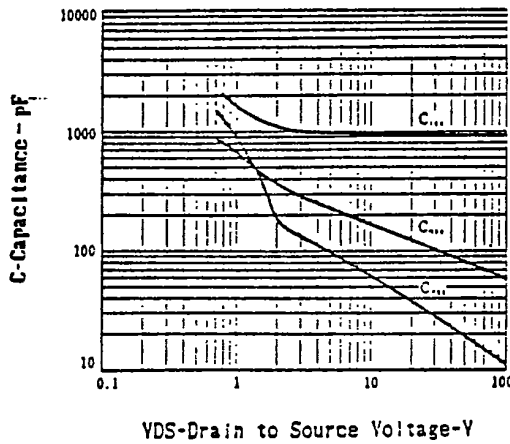
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



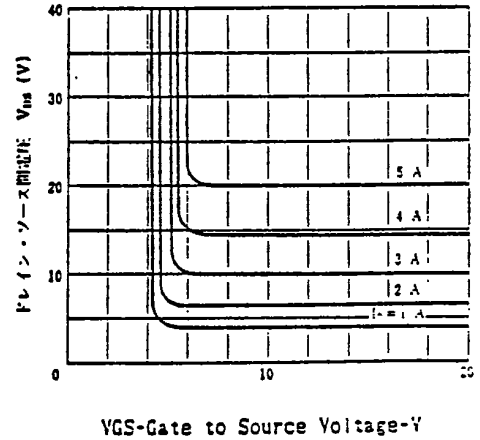
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



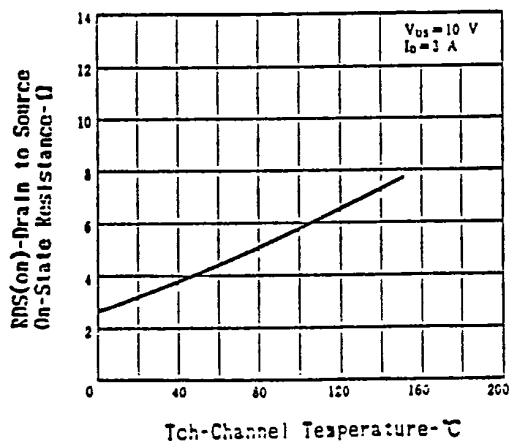
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



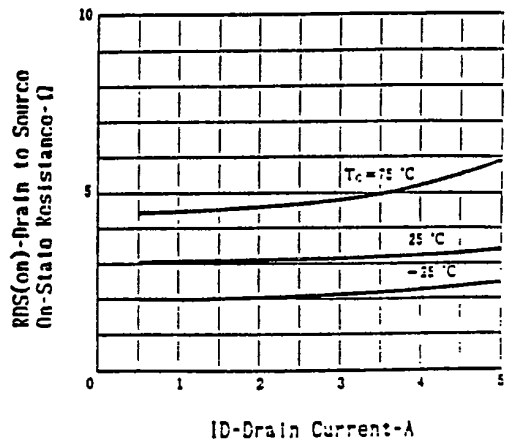
DRAIN TO SOURCE SATURATION VOLTAGE vs. GATE TO SOURCE VOLTAGE



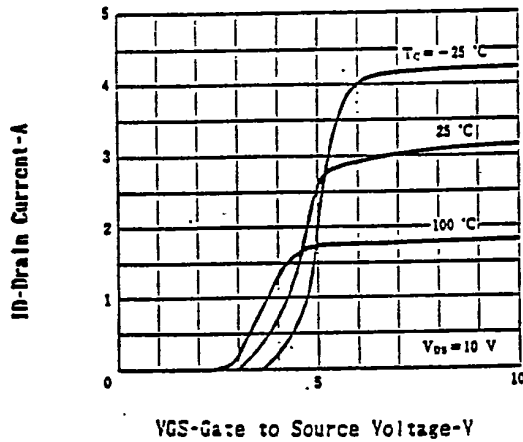
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



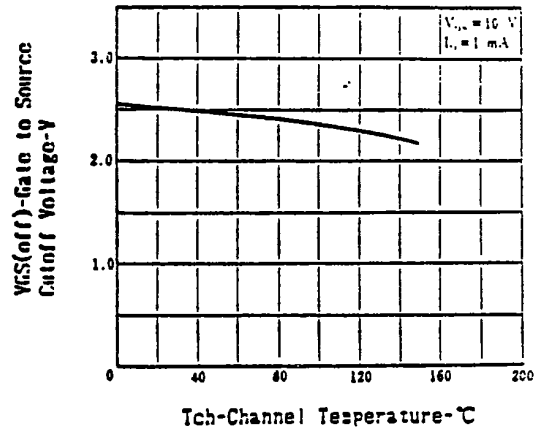
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



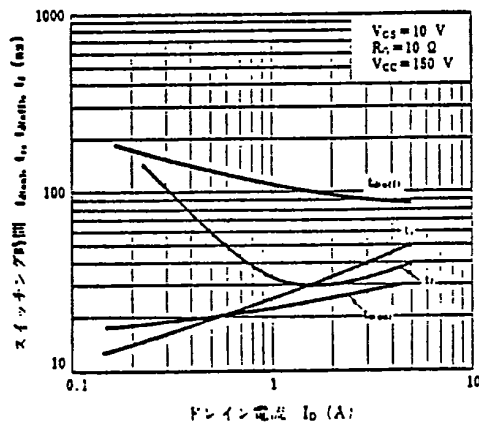
TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING CHARACTERISTICS



NEC Corporation

INTERNATIONAL ELECTRON DEVICES DIV.
 NEC Building, 33-1, Shiba Gochome
 Minato-ku, Tokyo 108, Japan
 Tel: Tokyo 454-1111
 Telex Address: NECTOK J22686
 Cable Address: MICROPHONE TOKYO