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PRELIMINARY SPECIFICATION

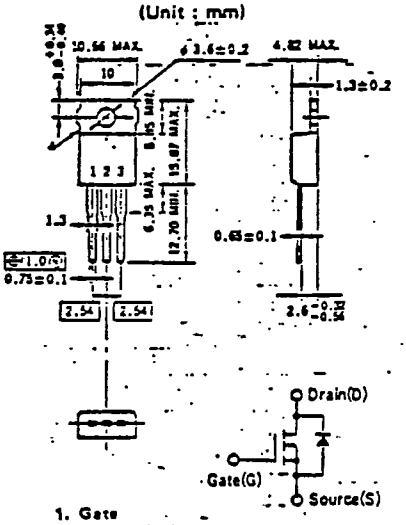
NEC ELECTRON DEVICE

MOS FIELD EFFECT TRANSISTOR

# 2SK786

## FAST SWITCHING N-CHANNEL SILICON POWER MOS FET

PACKAGE DIMENSIONS
(Unit : mm)




1. Gate
2. Drain (Fin)
3. Source
4. Fin

Features
- Suitable for switching power supplies, DC-DC converters and pulse circuits
- Ultra High Voltage:VDSS=900V
- Low RDS(on)
- No second breakdown

Absolute Maximum Ratings(Ta=25℃)

| | | |
|---|---|---|
| Drain to Source Voltage | VDSS | 900V |
| Gate to Source Voltage | VGSS | ± 20V |
| Continuous Drain Current | ID(DC) | ±3.0A |
| Pulse Drain Current | ID(pulse) | ±6.0A |
| Total Power Dissipation | PT | 1.5W |
| Total Power Dissipation | PT** | 50W |
| Channel Temperature | Tch | 150 ℃ |
| Storage Temperature | Tstg | -55to+150 ℃ |

* PW≦100 μs,Duty Cycles ≦2 %
** Tc=25 ℃

Electrical Characteristics (Ta=25 ℃)

| 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\| | 0.8 | | | S | VDS=20V,ID=2.0A |
| Drain To Source On-State Resistance | RDS(on) | | | 7.0 | Ω | VGS=15V,ID=20A |
| Input Capacitance | Ciss | | 470 | | pF | VDS= 10V |
| Output Capacitance | Coss | | 100 | | pF | VGS=0 |
| Reverse Transfer Capacitance | Crss | | 40 | | pF | f=1.0MHz |
| Turn-On Delay Time | td(on) | | 10 | | ns | ID=1.5A, |
| Rise Time | tr | | 40 | | ns | VGS(on)= 10V |
| Turn-Off Delay Time | td(off) | | 45 | | ns | Vcc=150V |
| Fall Time | tf | | 15 | | ns | RL=100Ω |

NEC cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement

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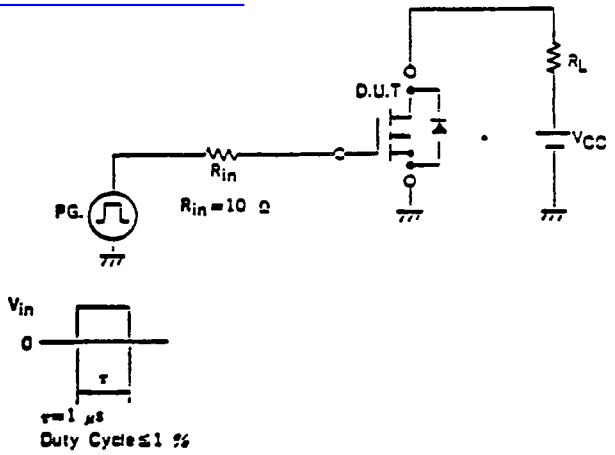
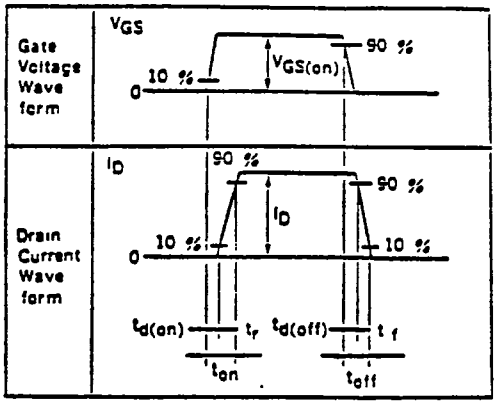
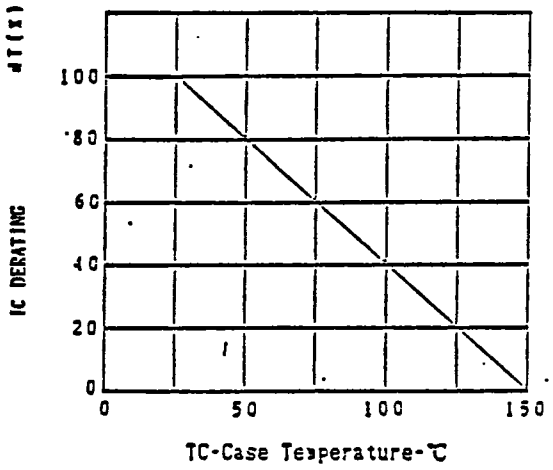
TURN-ON AND TURN-OFF TIME TEST CIRCUIT

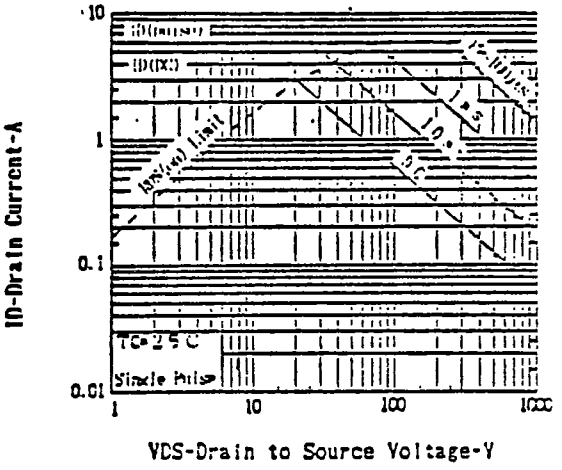


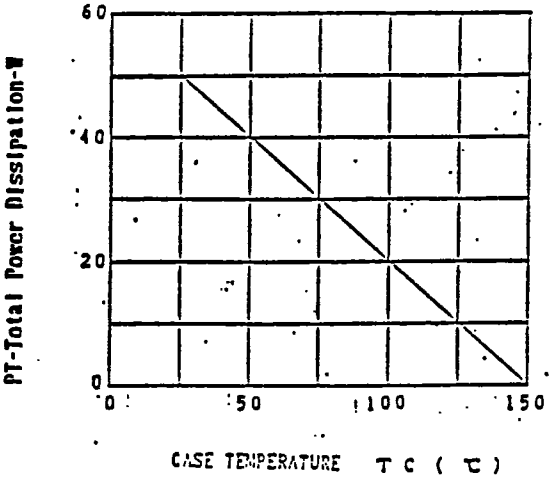

DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



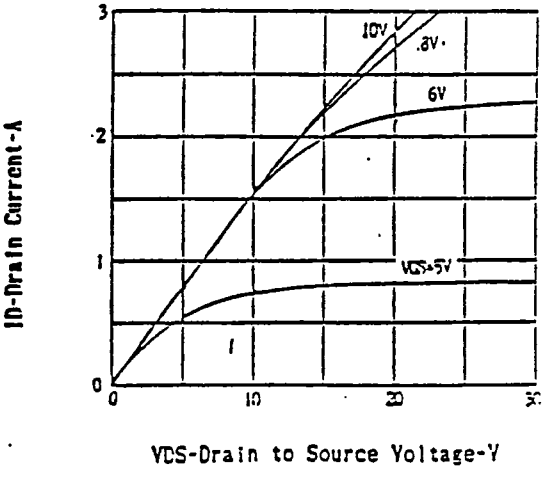

FORWARD BIAS SAFE OPERATING AREA




TOTAL POWER DISSIPATION vs CASE TEMPERATURE




DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

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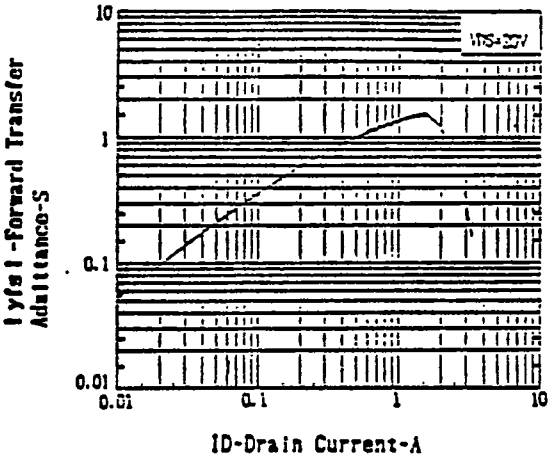
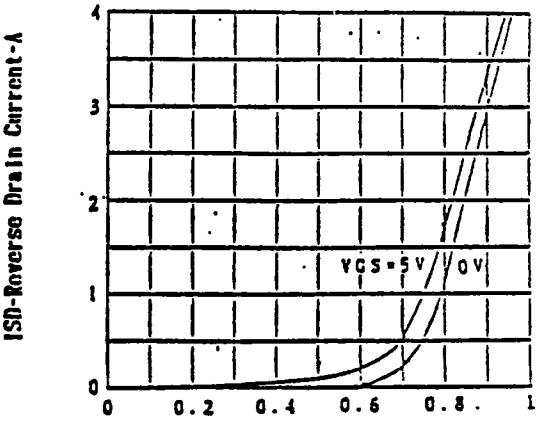
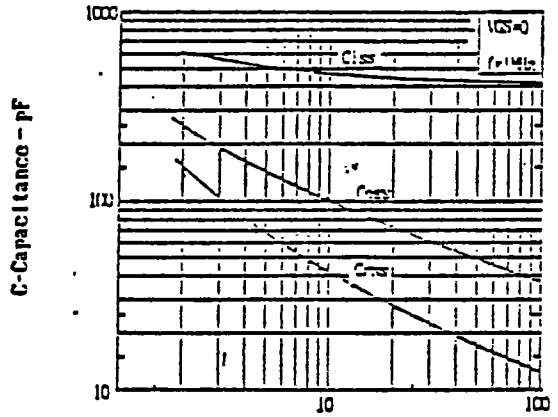
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



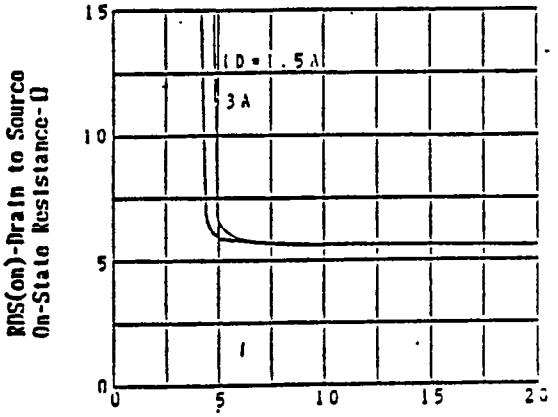

SOURCE TO DRAIN DIODE FORWARD VOLTAGE



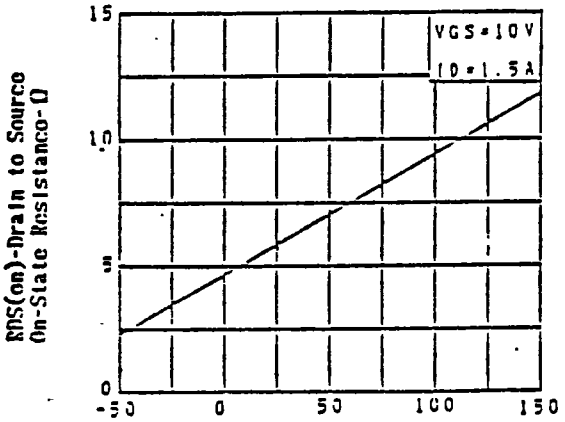

CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



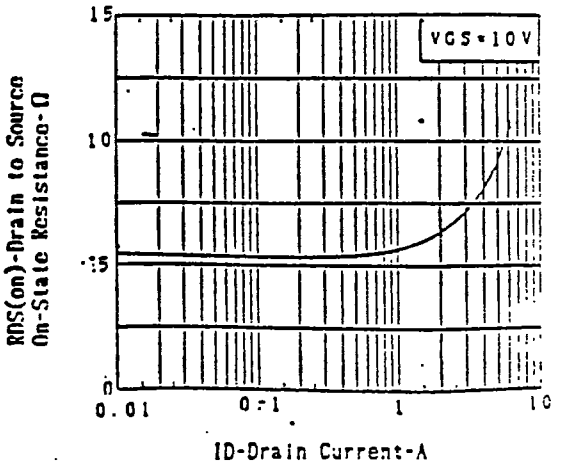

DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE




DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE




DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



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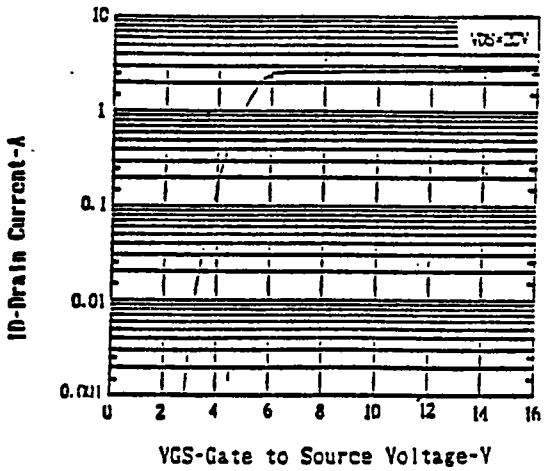
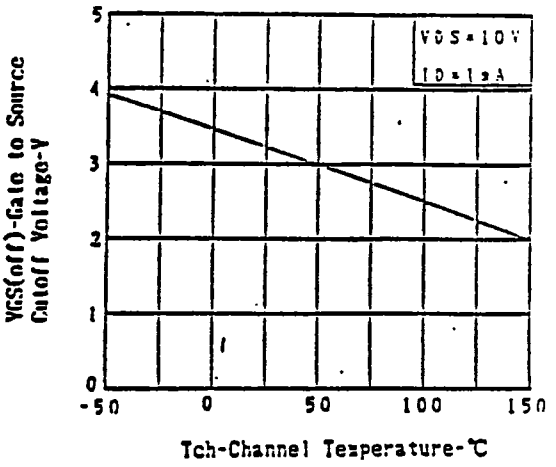
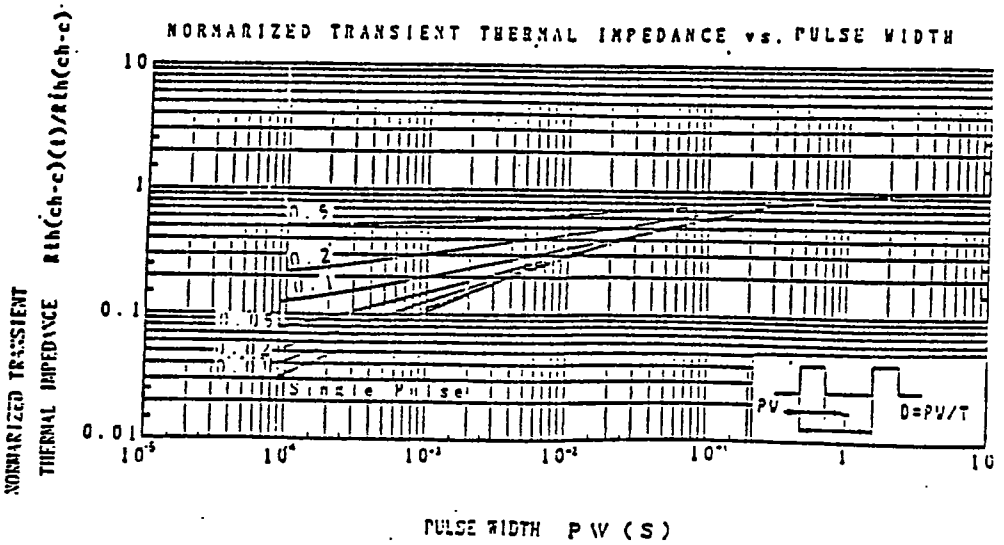
TRANSFER CHARACTERISTICS

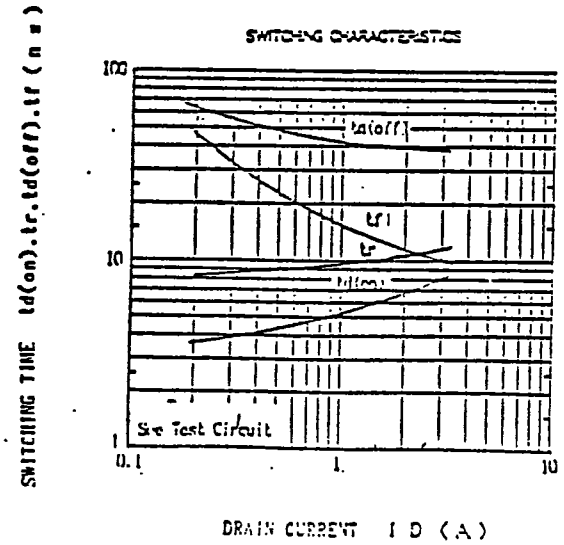



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE




NORMARIZED TRANSIENT THERMAL IMPEDANCE vs. PULSE WIDTH




SWITCHING CHARACTERISTICS