

6427525 N E C ELECTRONICS INC

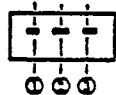
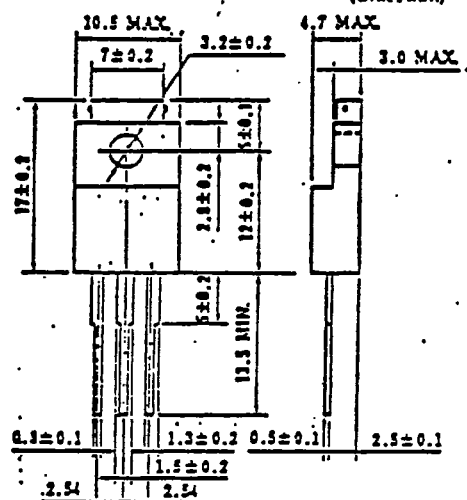
98D 18966 D 7-39-11

NEC
 ELECTRON DEVICE

MOS FIELD EFFECT TRANSISTOR

2SK811
FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET
PACKAGE DIMENSIONS

(Unit:mm)



1. Gate
2. Drain
3. Source

Electrical Characteristics (Ta=25 °C)

Features

Suitable for switching power supplies,
 actuator controls and pulse circuits
 4V Gate Drive — Logic level —
 Large Current Switching : ID(DC)=12A
 Low RDS(on)
 No second breakdown

Absolute Maximum Ratings(Ta=25°C)

Drain to Source Voltage	VDSS	100V
Gate to Source Voltage	VGSS	± 20V
Continuous Drain Current	ID(DC)	± 12A
Pulse Drain Current	ID(pulse) *	± 48A
Total Power Dissipation	PT	2.0W
Total Power Dissipation	PT**	35W
Channel Temperature	Tch	150 °C
Storage Temperature	Tstg	-55to+150 °C
	* Tch ≤ 150 °C	
	** Tc = 25 °C	

Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	IDSS			10	μA	VDS=100V, VGS=0
Gate to Source Leakage Current	IGSS			100	nA	VGS= 20V, VDS=0
Gate to Source Cutoff Voltage	VGS(off)	1.0		2.5	V	VDS=10V, ID=1.0mA
Forward Transfer Admittance	yfs	4.0	10		S	VDS=10V, ID=8.0A
Drain to Source On-State Resistance	RDS(on)		0.1	0.18	Ω	VGS=10V, ID=8.0A
Drain to Source On-State Resistance	RDS(on)		0.15	0.25	Ω	VGS=4.0V ID=8.0A
Input Capacitance	Ciss		1200		pF	VDS= 10V,
Output Capacitance	Coss		400		pF	VGS=0,
Reverse Transfer Capacitance	Crss		90		pF	f=1.0MHz
Turn-On Delay Time	td(on)		10		ns	ID=8.0A,
Rise Time	tr		20		ns	VGS(on)= 10V,
Turn-Off Delay Time	td(off)		65		ns	Vcc= 40V,
Fall Time	tf		55		ns	RL= 5.0 Ω

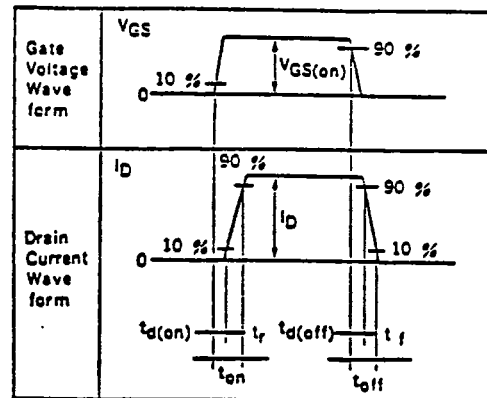
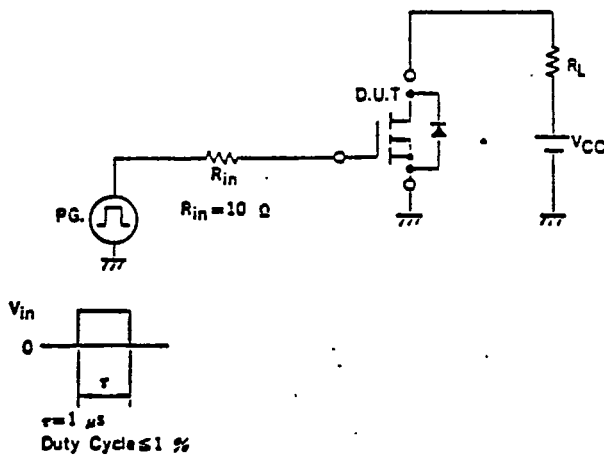
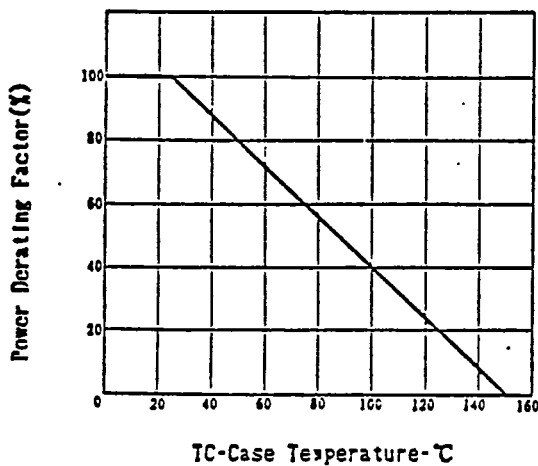
6427525 N E C ELECTRONICS INC

98D 18967

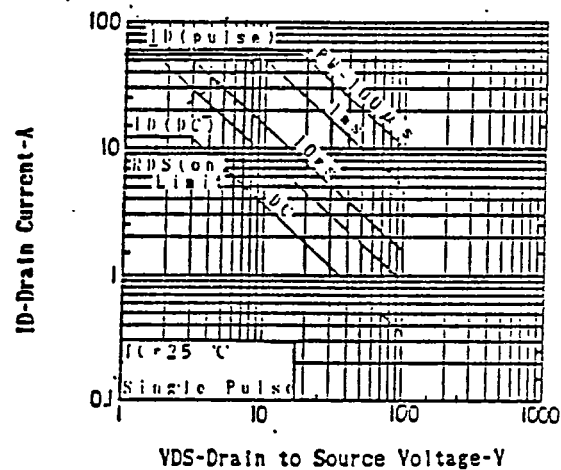
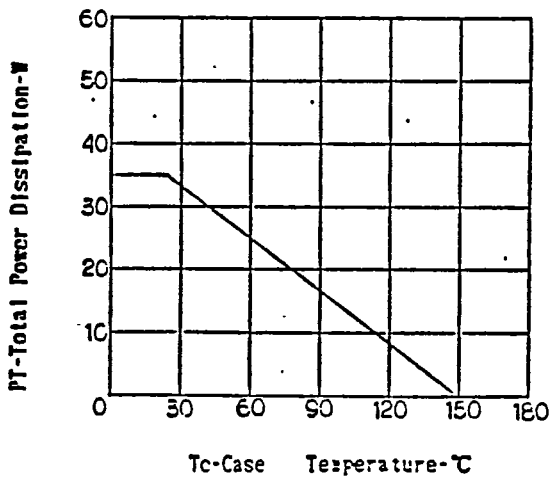
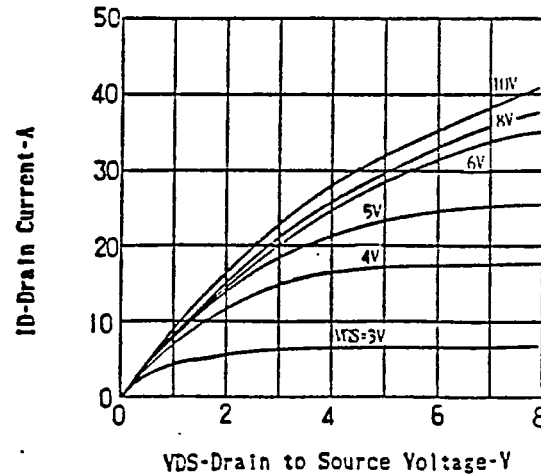
D

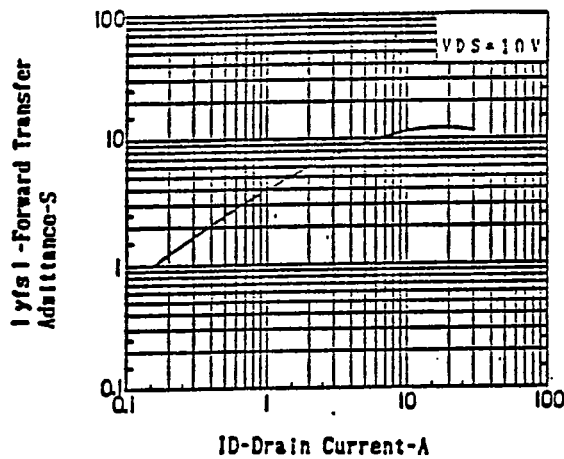
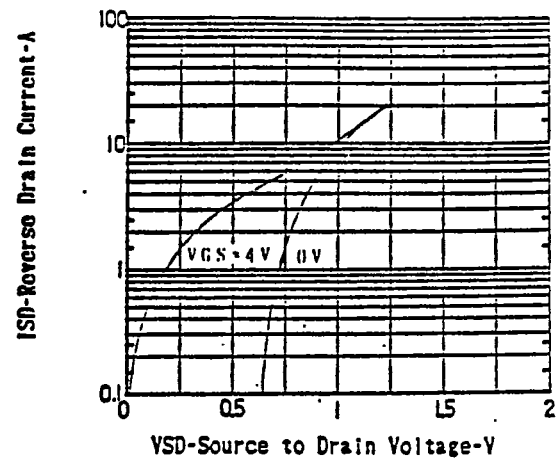
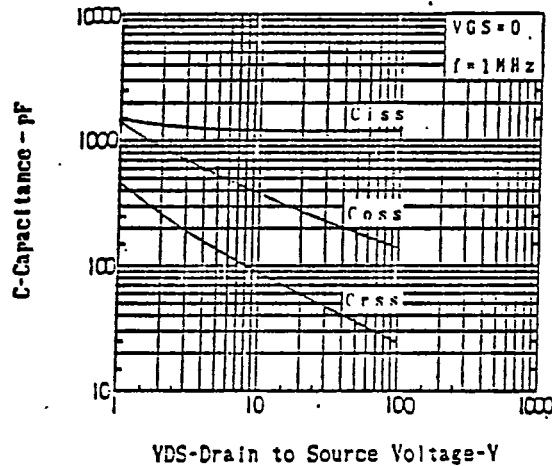
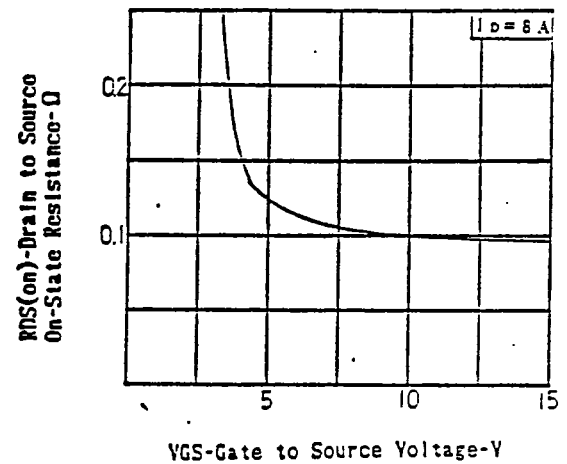
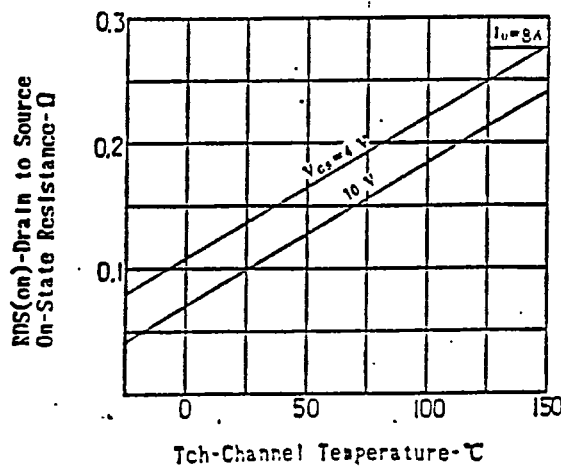
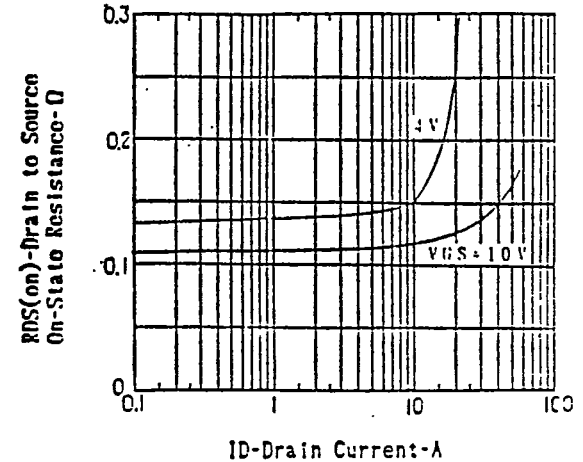
T-39-11

TURN-ON AND TURN-OFF TIME TEST CIRCUIT

DERATING FACTOR OF FORWARD BIAS
SAFE OPERATING AREA

FORWARD BIAS SAFE OPERATING AREA

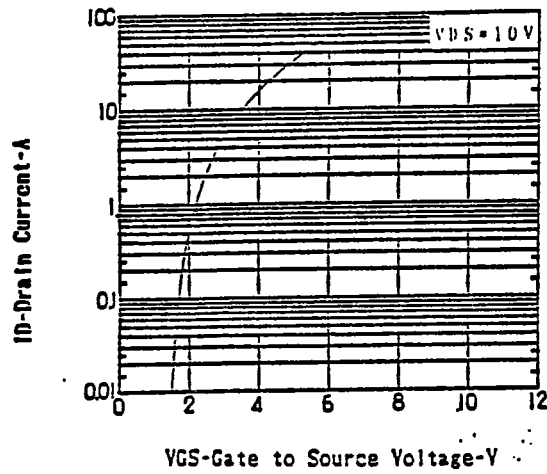
TOTAL POWER DISSIPATION vs.
CASE TEMPERATUREDRAIN CURRENT vs. DRAIN TO
SOURCE VOLTAGE

FORWARD TRANSFER ADMITTANCE
vs. DRAIN CURRENTSOURCE TO DRAIN DIODE
FORWARD VOLTAGECAPACITANCE vs. DRAIN TO
SOURCE VOLTAGEDRAIN TO SOURCE ON-STATE RESISTANCE
vs. GATE TO SOURCE VOLTAGEDRAIN TO SOURCE ON-STATE RESISTANCE
vs. CHANNEL TEMPERATUREDRAIN TO SOURCE ON-STATE RESISTANCE
vs. DRAIN CURRENT

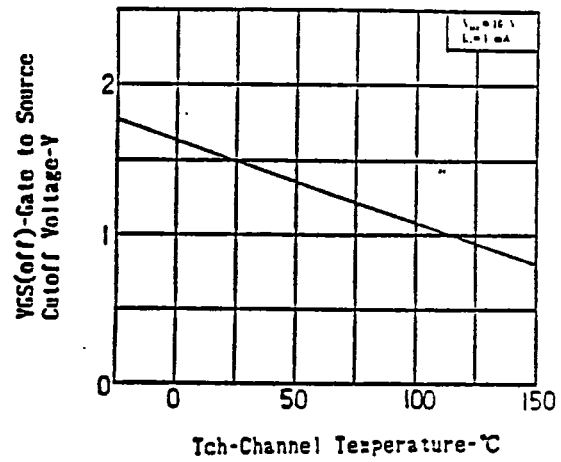
6427525 N E C ELECTRONICS INC

98D 18969 D T-39-11

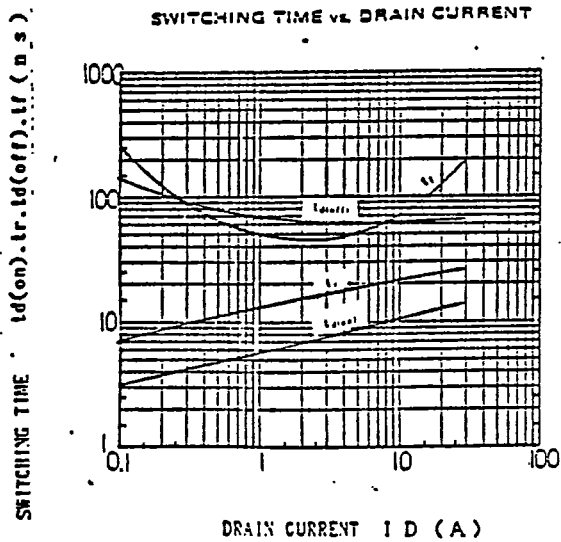
TRANSFER CHARACTERISTICS



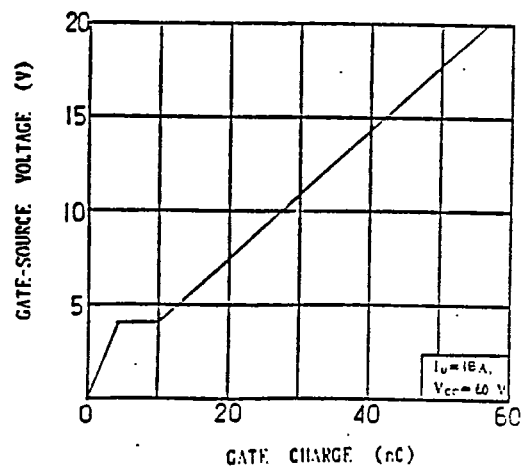
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING TIME vs. DRAIN CURRENT



GATE CHARGE VS GATE-SOURCE VOLTAGE



NORMARIZED TRANSIENT THERMAL IMPEDANCE vs. PULSE WIDTH

