

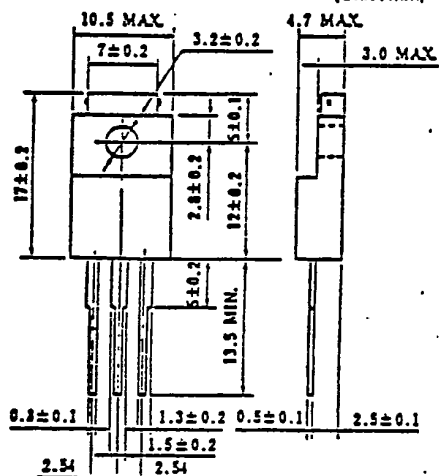
NEC
 ELECTRON DEVICE

MOS FIELD EFFECT TRANSISTOR

2SK817
FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET

PACKAGE DIMENSIONS

(Unit: mm)



Features

- Suitable for switching power supplies, actuator controls and pulse circuits
- 4V Gate Drive — Logic level —
- Low $R_{DS(on)}$
- Large Current Switching : $I_{D(DC)}=26A$
- No Second breakdown

Absolute Maximum Ratings($T_a=25^\circ C$)

Drain to Source Voltage	V_{DS}	60V
Gate to Source Voltage	V_{GS}	$\pm 20V$
Continuous Drain Current	$I_{D(DC)}$	$\pm 26A$
Pulse Drain Current	$I_{D(pulse)}$	$\pm 104A$
Total Power Dissipation	P_T	2.0W
Total Power Dissipation	$P_{T\#}$	35W
Channel Temperature	T_{ch}	150 °C
Storage Temperature	T_{stg}	-55to+150 °C
	* $T_{ch} \leq 150^\circ C$	
	** $T_c = 25^\circ C$	

Electrical Characteristics ($T_a=25^\circ C$)

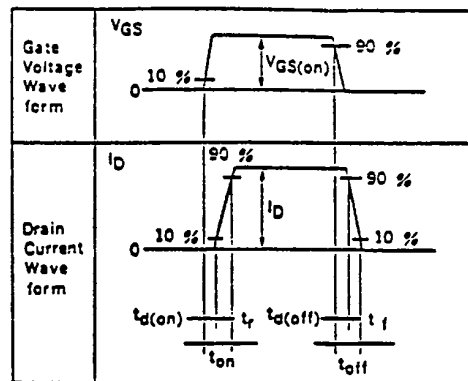
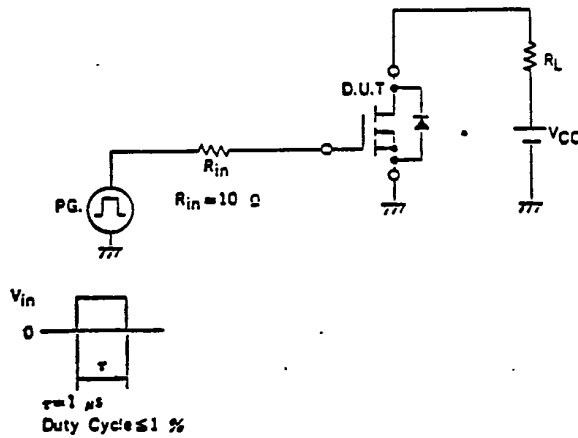
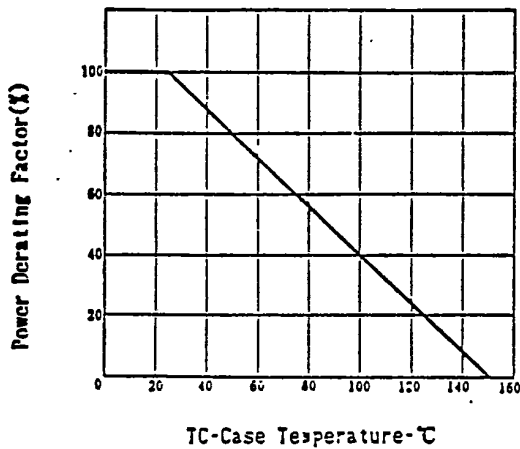
Characteristics	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain Leakage Current	I_{DSS}			10	μA	$V_{DS} = 60V, V_{GS} = 0$
Gate to Source Leakage Current	I_{GSS}			± 100	nA	$V_{GS} = \pm 20V, V_{DS} = 0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.0		2.5	V	$V_{DS} = 10V, I_D = 1.0mA$
Forward Transfer Admittance	$ y_{fs} $	8.0	17		S	$V_{DS} = 10V, I_D = 15A$
Drain To Source On-State Resistance	$R_{DS(on)}$		0.04	0.055	Ω	$V_{GS} = 10V, I_D = 15A$
Drain to Source On-State Resistance	$R_{DS(on)}$		0.06	0.08	Ω	$V_{GS} = 4.0V, I_D = 15A$
Input Capacitance	C_{iss}		2100		pF	$V_{DS} = 10V$
Output Capacitance	C_{oss}		800		pF	$V_{GS} = 0$
Reverse Transfer Capacitance	C_{rss}		200		pF	$f = 1.0MHz$
Turn-On Delay Time	$t_{d(on)}$		20		ns	$I_D = 15A$
Rise Time	t_r		20		ns	$V_{GS(on)} = 10V$
Turn-Off Delay Time	$t_{d(off)}$		120		ns	$V_{cc} = 30V$
Fall Time	t_f		140		ns	$R_L = 2 \Omega$

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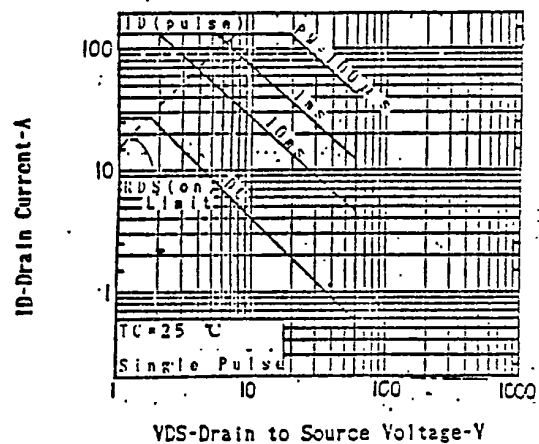
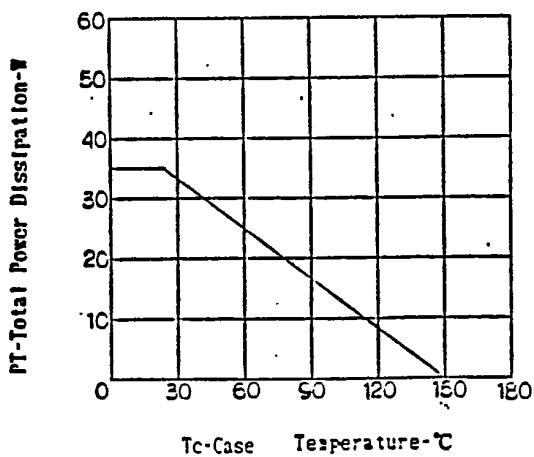
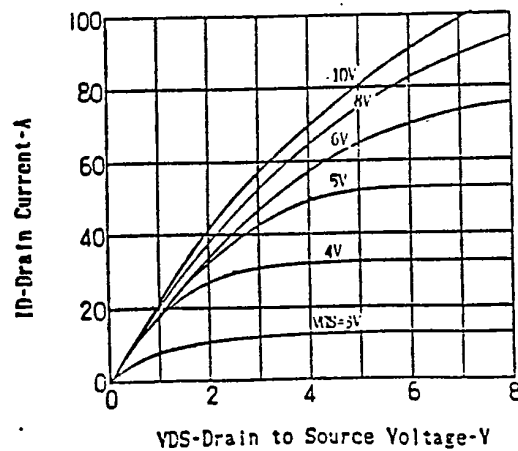
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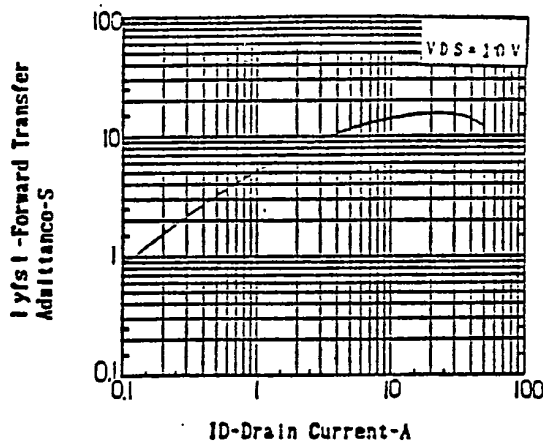
TURN-ON AND TURN-OFF TIME TEST CIRCUIT

DERATING FACTOR OF FORWARD BIAS
SAFE OPERATING AREA

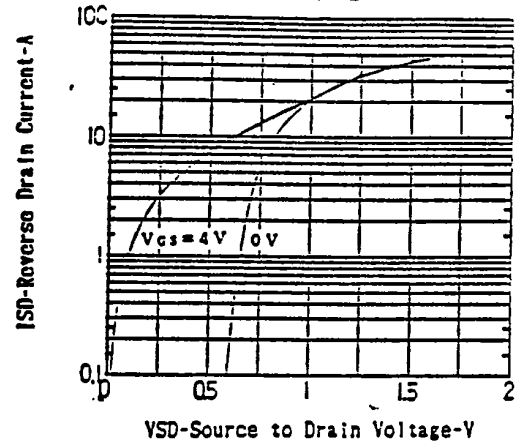
FORWARD BIAS SAFE OPERATING AREA

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

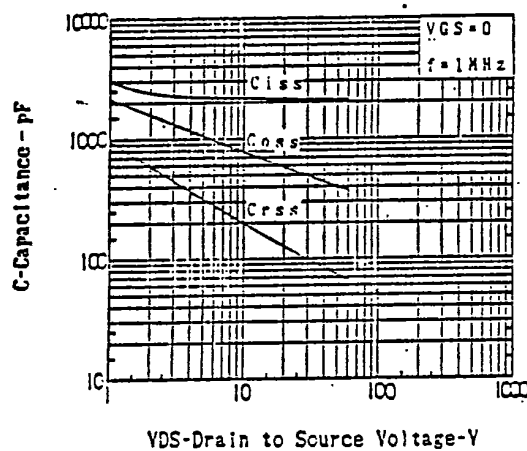
FORWARD TRANSFER ADMITTANCE
vs. DRAIN CURRENT



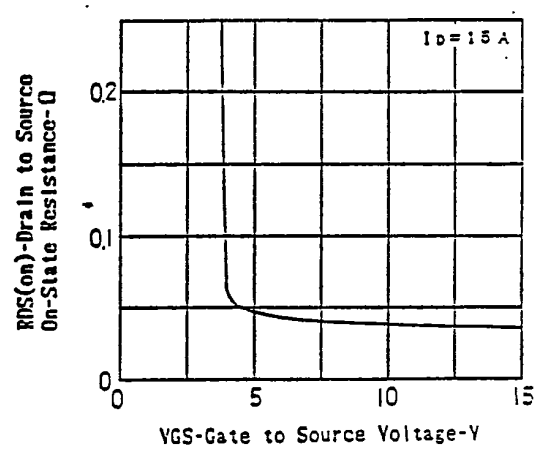
SOURCE TO DRAIN DIODE
FORWARD VOLTAGE



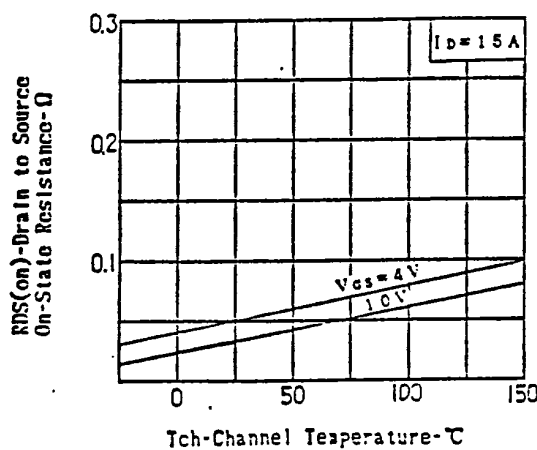
CAPACITANCE vs. DRAIN TO
SOURCE VOLTAGE



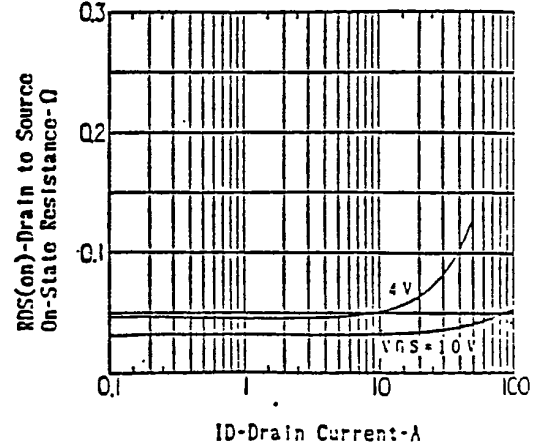
DRAIN TO SOURCE ON-STATE RESISTANCE
vs. GATE TO SOURCE VOLTAGE



DRAIN TO SOURCE ON-STATE RESISTANCE
vs. CHANNEL TEMPERATURE



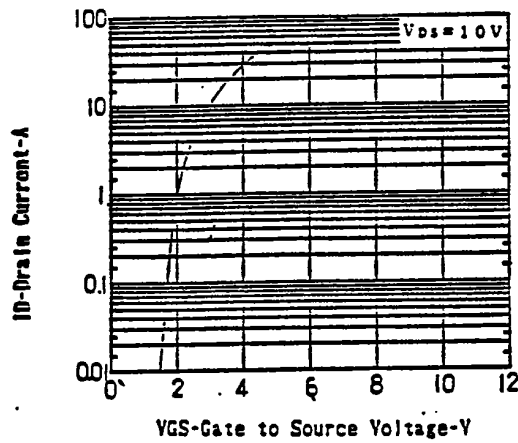
DRAIN TO SOURCE ON-STATE RESISTANCE
vs. DRAIN CURRENT



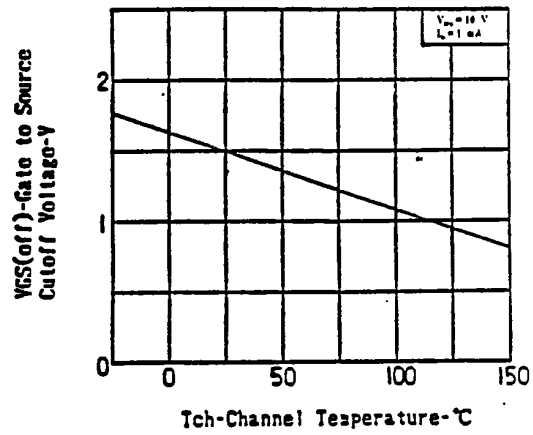
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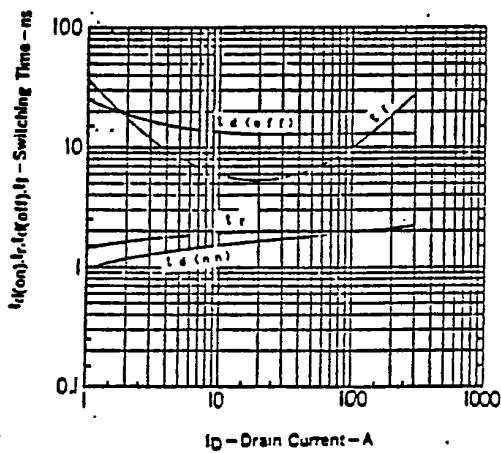
TRANSFER CHARACTERISTICS



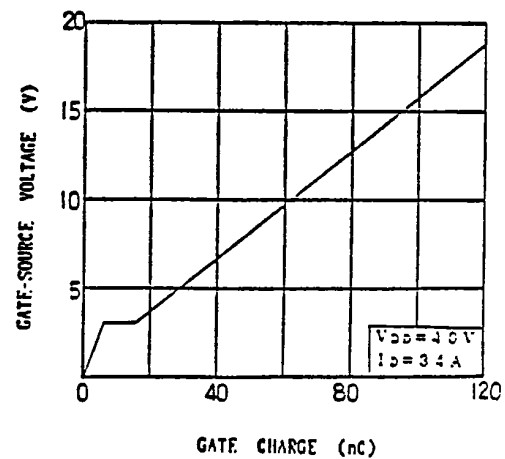
GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE



SWITCHING TIME vs. DRAIN CURRENT



GATE CHARGE VS GATE-SOURCE VOLTAGE



NORMALIZED TRANSIENT THERMAL IMPEDANCE vs. PULSE WIDTH

