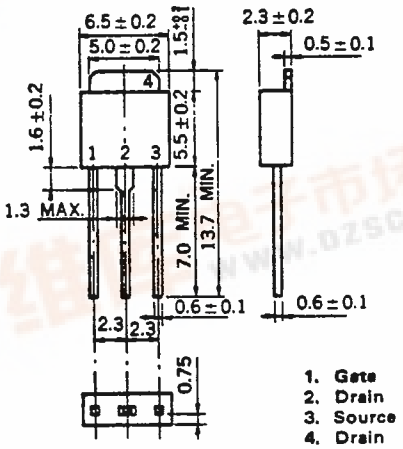
MOS FIELD EFFECT POWER TRANSISTOR
2SK611

FAST SWITCHING
N-CHANNEL SILICON POWER MOS FET
INDUSTRIAL USE

PACKAGE DIMENSIONS (Unit: mm)



FEATURES

- Suitable for switching power supplies, actuater controls, and pulse circuits.
- Low C_{iss}
- No second breakdown
- 4 V Gate Drive — Logic level —

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

Drain to Source Voltage	V_{DSS}	100	V
Gate to Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	$I_{D(DC)}$	±1	A
Peak Drain Current	$I_{D(pulse)}$*	±3	A
Total Power Dissipation	P_T**	10	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	−55 to +150	°C

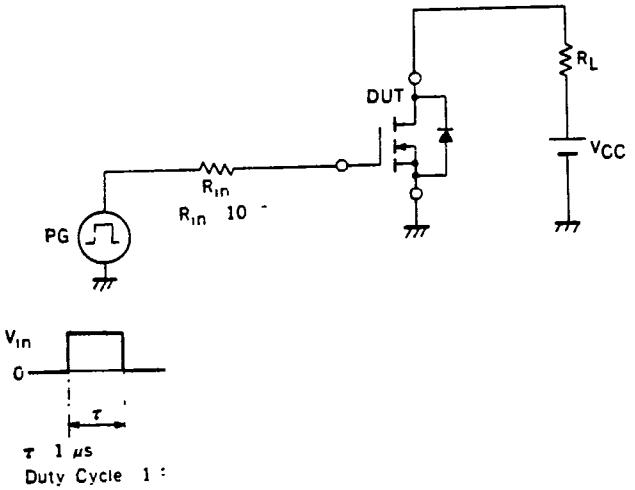
* PW ≦ 10 ms, Duty Cycle ≦ 50 %

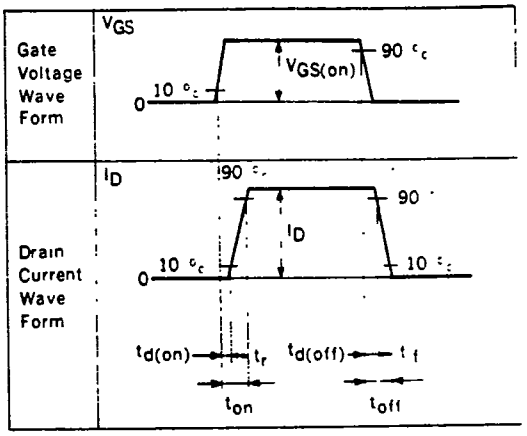
** T_c = 25 °C

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

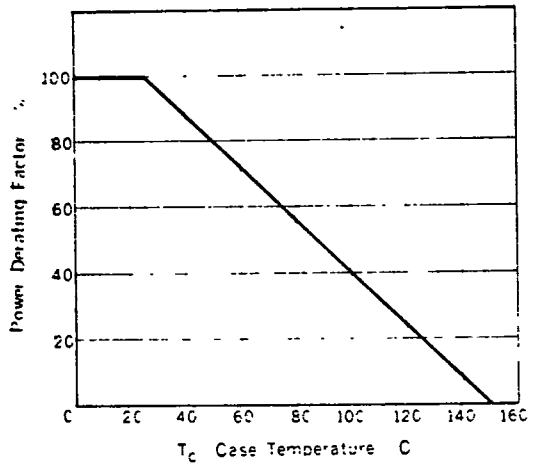
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Leakage Current	I_{DSS}			10	μA	V_{DS} = 80 V, V_{GS} = 0
Gate to Source Leakage Current	I_{GSS}			±100	nA	V_{GS} = ±15 V, V_{DS} = 0
Gate to Source Cutoff Voltage	$V_{GS(off)}$	0.8		3.0	V	V_{DS} = 10 V, I_D = 1 mA
Forward Transfer Admittance	$\|y_{fs}\|$	0.2			S	V_{DS} = 10 V, I_D = 0.5 A
Drain to Source On-State Resistance	$R_{DS(on)}$		3.0	5.0	Ω	V_{GS} = 10 V, I_D = 0.5 A
Drain to Source On-State Resistance	$R_{DS(on)}$		5.0	6.0	Ω	V_{GS} = 4 V, I_D = 0.2 A
Input Capacitance	C_{iss}		45		pF	V_{DS} = 10 V, V_{GS} = 0 f = 1 MHz
Output Capacitance	C_{oss}		25		pF	
Reverse Transfer Capacitance	C_{rss}		5		pF	
Turn-On Delay Time	$t_{d(on)}$		2		ns	I_D = 0.5 A, V_{CC} ≒ 50 V $V_{GS(on)}$ = 10 V R_L = 100 Ω R_{in} = 10 Ω
Rise Time	t_r		10		ns	
Turn-Off Delay Time	$t_{d(off)}$		10		ns	
Fall Time	t_f		5		ns	

TURN-ON AND TURN-OFF TIME TEST CIRCUIT

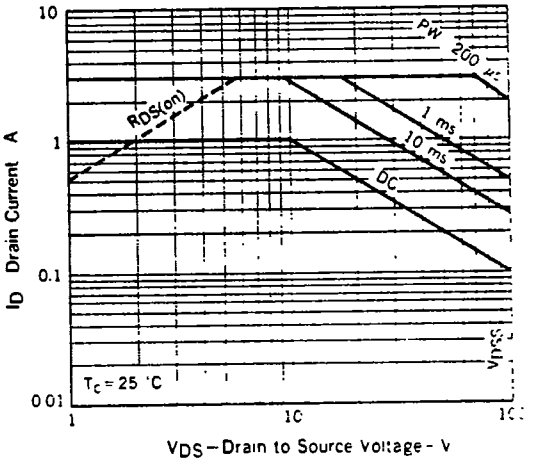




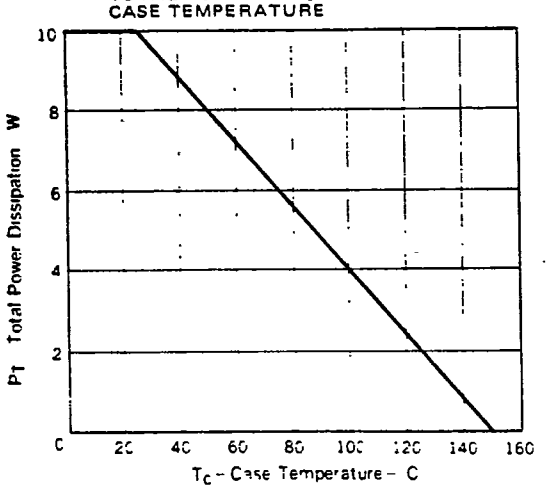
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



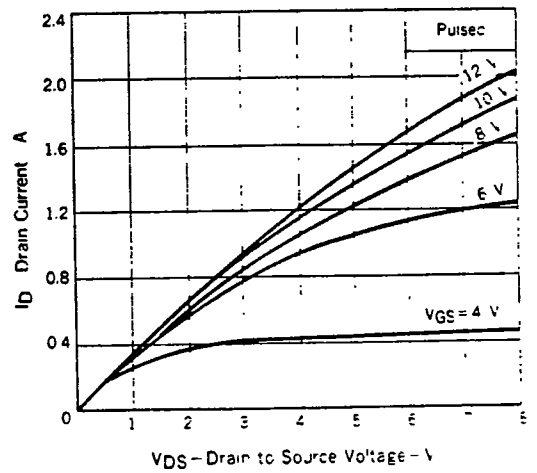
FORWARD BIAS SAFE OPERATING AREA



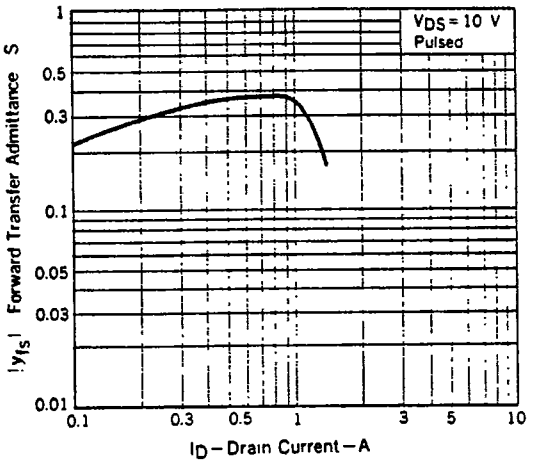
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



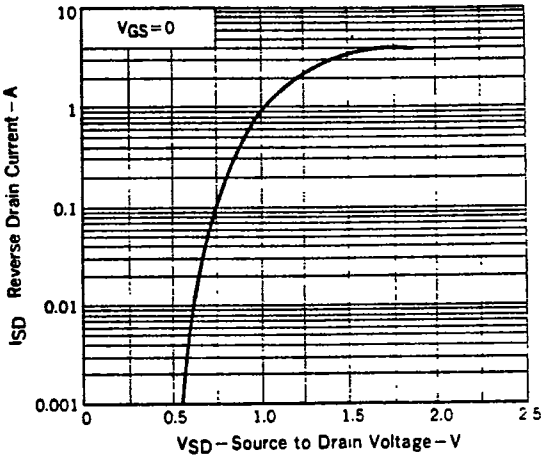
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



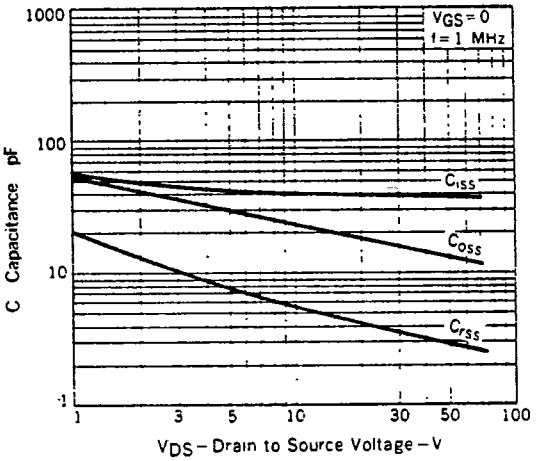
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



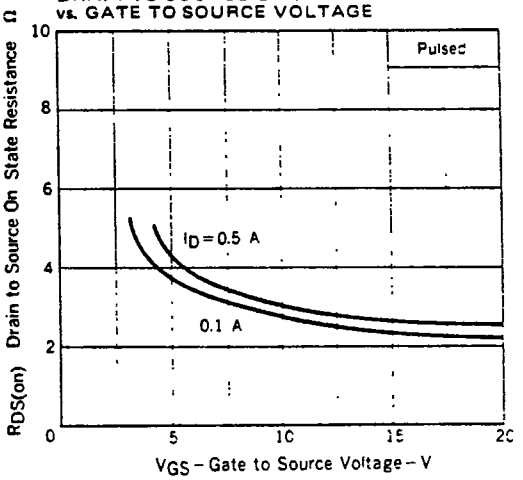
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



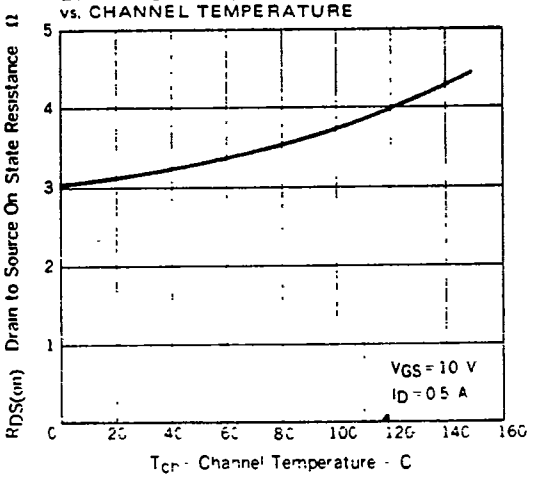
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



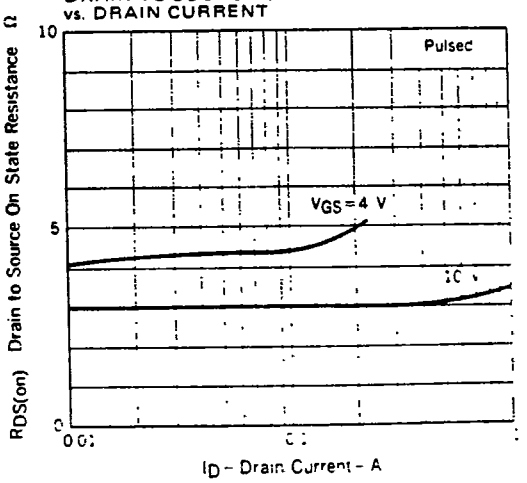
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



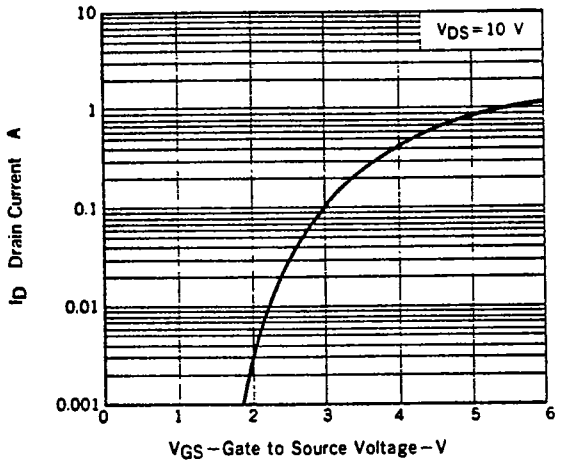
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



TRANSFER CHARACTERISTIC



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE