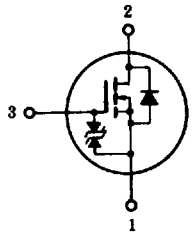
2SK1270

SILICON N-CHANNEL MOS FET
HIGH SPEED POWER SWITCHING

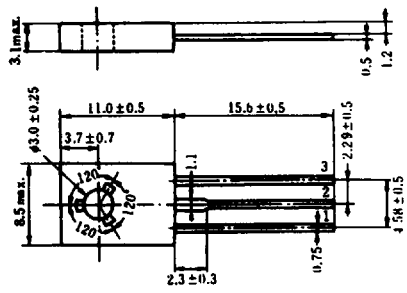
■ FEATURES

- Low On-Resistance
- High Speed Switching
- 4 V Gate Drive Device
  - Can be driven from 5 V source
- Suitable for Motor Drive, DC-DC Converter, Power Switch and Solenoid Drive



1. Source
2. Drain
3. Gate

(Dimensions in mm)



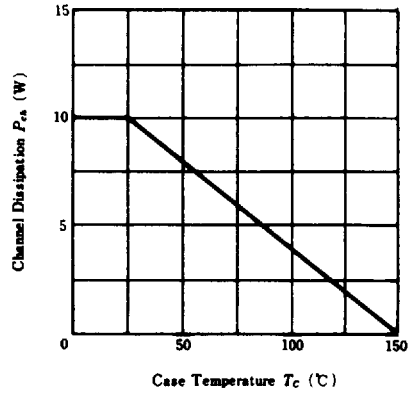
(JEDEC TO-126 MOD.)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	2	A
Drain Peak Current	$I_{D(pulse)}$*	6	A
Body-Drain Diode Reverse Drain Current	I_{DR}	2	A
Channel Dissipation	P_{ch}**	10	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	−55～+150	°C

*PW≦10μs, duty cycle≦1%
**Value at T_c=25°C

POWER VS. TEMPERATURE DERATING

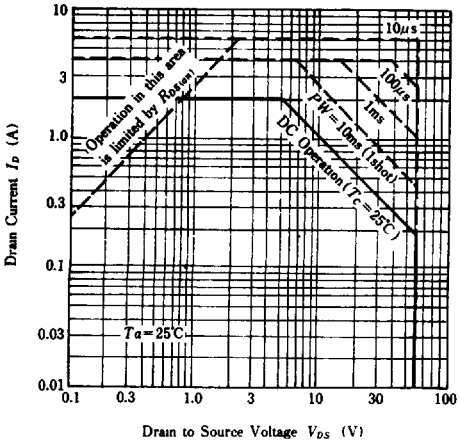


■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

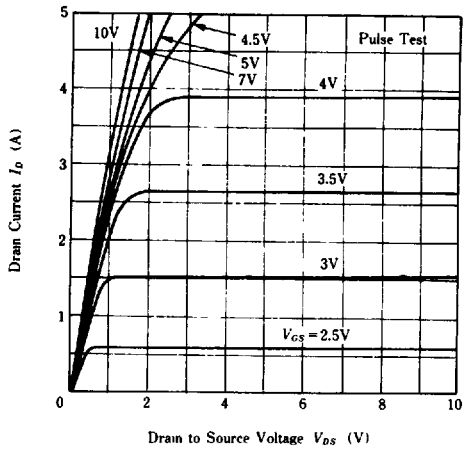
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0	60	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G=±100μA, V_{DS}=0	±20	—	—	V
Gate-Source Leak Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0	—	—	±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=50V, V_{GS}=0	—	—	100	μA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	I_D=1mA, V_{DS}=10V	1.0	—	2.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	I_D=1A, V_{GS}=10V *	—	0.3	0.4	Ω
		I_D=1A, V_{GS}=4V *	—	0.4	0.55	
Forward Transfer Admittance	$\|y_{fs}\|$	I_D=1A, V_{DS}=10V*	0.9	1.5	—	S
Input Capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0, f=1MHz	—	140	—	pF
Output Capacitance	C_{oss}		—	70	—	pF
Reverse Transfer Capacitance	C_{rss}		—	20	—	pF
Turn-on Delay Time	$t_{d(on)}$	I_D=1A, V_{GS}=10V, R_L=30Ω	—	3	—	ns
Rise Time	t_r		—	12	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	50	—	ns
Fall Time	t_f		—	30	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	I_F=2A, V_{GS}=0	—	0.9	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	I_F=2A, V_{GS}=0, dI_F/dt=50A/μs	—	50	—	ns

*Pulse Test

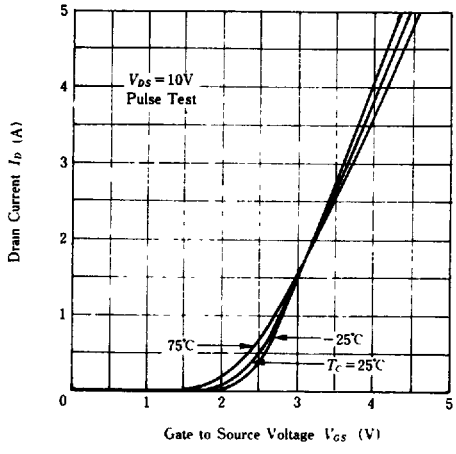
MAXIMUM SAFE OPERATION AREA



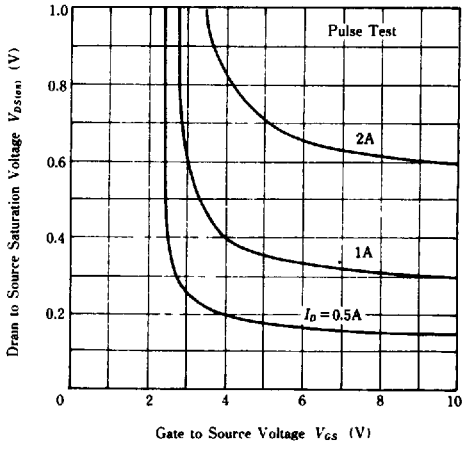
TYPICAL OUTPUT CHARACTERISTICS



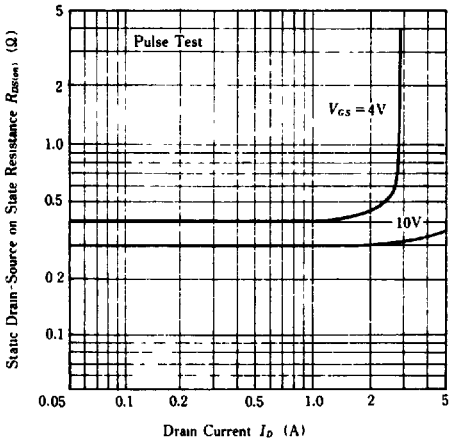
TYPICAL TRANSFER CHARACTERISTICS



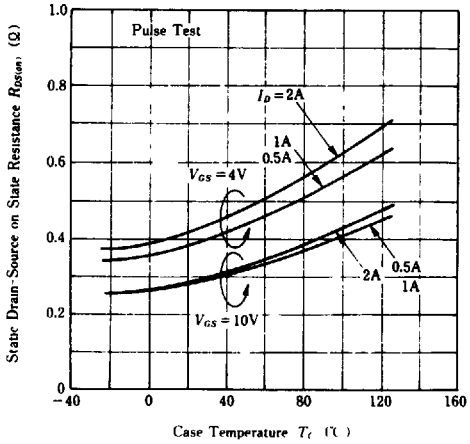
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



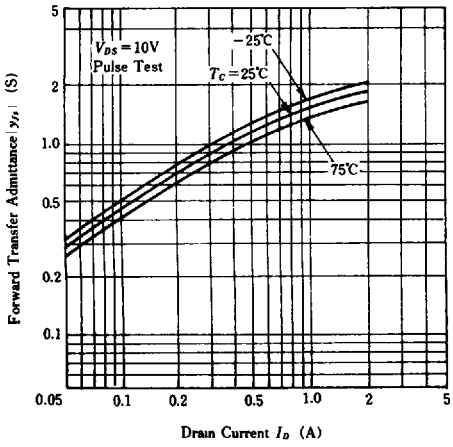
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT



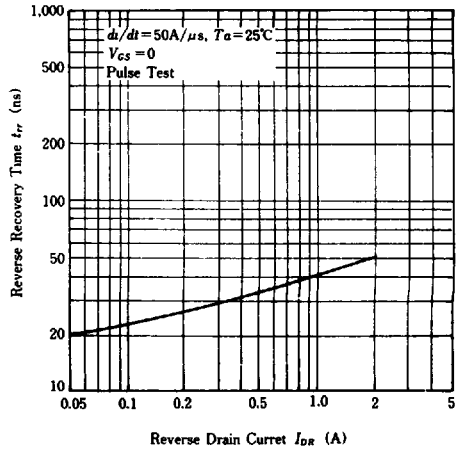
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT

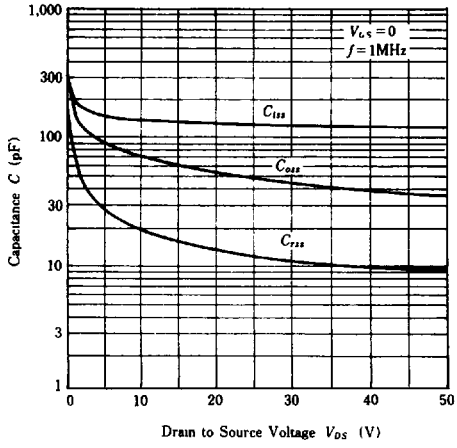


FORWARD TRANSFER ADMITTANCE VS. FREQUENCY

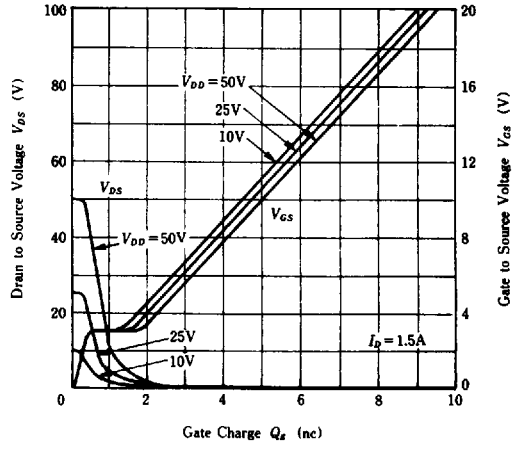


HITACHI/(OPTOELECTRONICS.

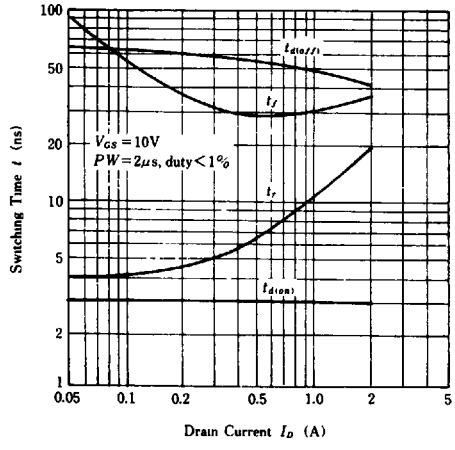
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



DYNAMIC INPUT CHARACTERISTICS



SWITCHING CHARACTERISTICS



REVERSE DRAIN CURRENT VS. SOURCE TO DRAIN VOLTAGE