

## SILICON P-CHANNEL MOS FET

**HIGH SPEED POWER SWITCHING,  
HIGH FREQUENCY POWER AMPLIFIER**  
Complementary Pair with 2SK298, 2SK312

### ■ FEATURES

- Low On-Resistance.
- High Speed Switching.
- High Cutoff Frequency.
- No Secondary Breakdown.
- Suitable for Switching Regulator, DC-DC Converter, RF Amplifiers, and Ultrasonic Power Oscillators.

### ■ ABSOLUTE MAXIMUM RATINGS ( $T_c=25^\circ\text{C}$ )

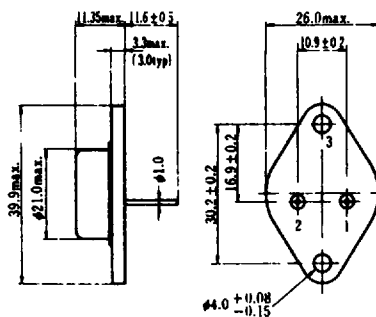
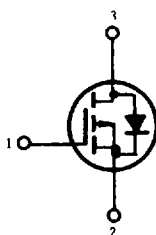
Item	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	-400	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	$I_D$	-8	A
Drain Peak Current	$I_{D(peak)}$	-15	A
Body-Drain Diode Reverse Drain Current	$I_{DR}$	-8	A
Channel Dissipation	$P_{ch}^*$	125	W
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

\*Value at  $T_c=25^\circ\text{C}$

### ■ ELECTRICAL CHARACTERISTICS ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{1BRDSS}$	$I_D=-10\text{mA}$ , $V_{GS}=0$	-400	—	—	V
Gate-Source Leak Current	$I_{GSS}$	$V_{GS}=\pm 20\text{V}$ , $V_{DS}=0$	—	—	$\pm 1$	$\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-320\text{V}$ , $V_{GS}=0$	—	—	-1	mA
Gate-Source Cutoff Voltage	$V_{GROff}$	$I_D=-1\text{mA}$ , $V_{DS}=-10\text{V}$	-0.2	—	-5.0	V
Static Drain-Source On State Resistance	$R_{DSON}$	$I_D=-4\text{A}$ , $V_{GS}=-15\text{V}^*$	—	1.75	2.25	$\Omega$
Drain-Source Saturation Voltage	$V_{DRON1}$	$I_D=-4\text{A}$ , $V_{GS}=-15\text{V}^*$	—	-7.0	-9.0	V
Forward Transfer Admittance	$ y_{fs} $	$I_D=-4\text{A}$ , $V_{DS}=-20\text{V}^*$	1.0	1.6	—	S
Input Capacitance	$C_{iss}$	$V_{DS}=-10\text{V}$ , $V_{GS}=0$ , $f=1\text{MHz}$	—	1400	—	pF
Output Capacitance	$C_{oss}$		—	330	—	pF
Reverse Transfer Capacitance	$C_{rss}$		—	25	—	pF
Turn-on Delay Time	$t_{don}$	$I_D=-2\text{A}$ , $V_{GS}=-15\text{V}$ $R_L=15\Omega$	—	15	—	ns
Rise Time	$t_r$		—	45	—	ns
Turn-off Delay Time	$t_{doff}$		—	160	—	ns
Fall Time	$t_f$		—	60	—	ns
Body-Drain Diode Forward Voltage	$V_{DF}$	$I_F=-4\text{A}$ , $V_{GS}=0$	—	-0.9	—	V
Body-Drain Diode Reverse Recovery Time	$t_r$	$I_F=-4\text{A}$ , $V_{GS}=0$ $di_F/dt=100\text{A}/\mu\text{s}$	—	400	—	ns

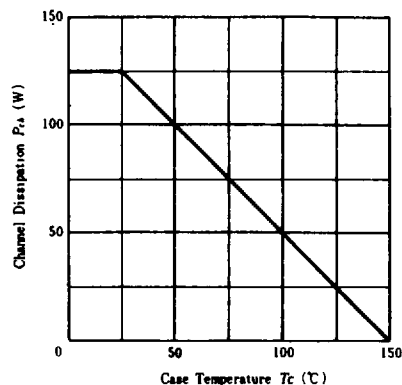
\*Pulse Test



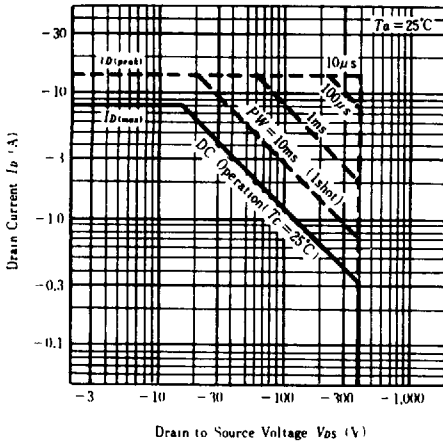
1. Gate  
2. Source  
3. Drain  
(Case)  
(Dimensions in mm)

(JEDEC TO-3)

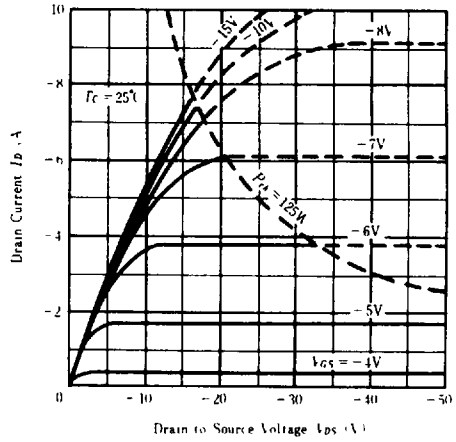
### POWER VS. TEMPERATURE DERATING



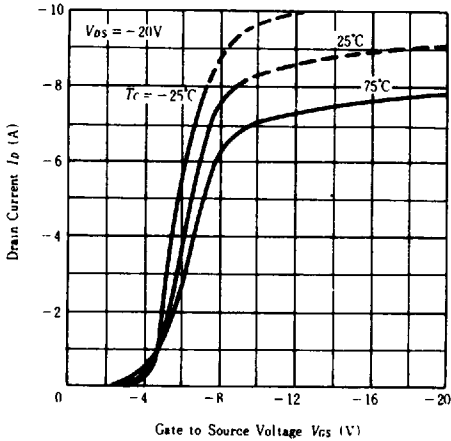
**MAXIMUM SAFE OPERATION AREA**



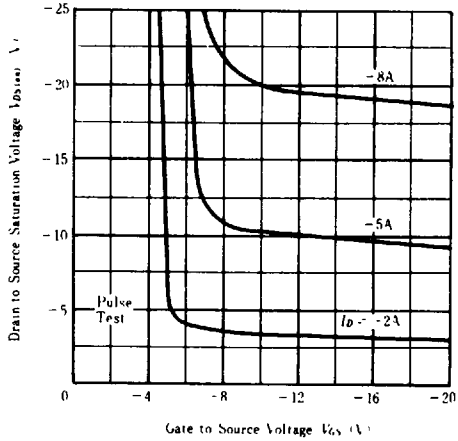
**TYPICAL OUTPUT CHARACTERISTICS**



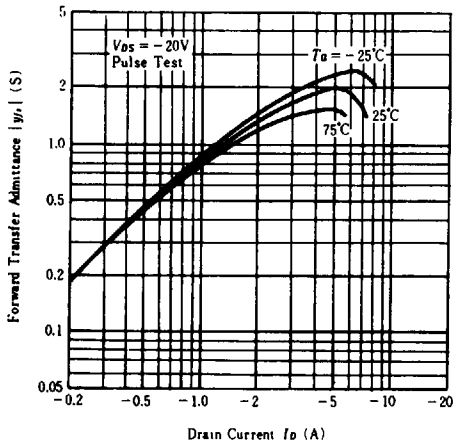
**TYPICAL TRANSFER CHARACTERISTICS**



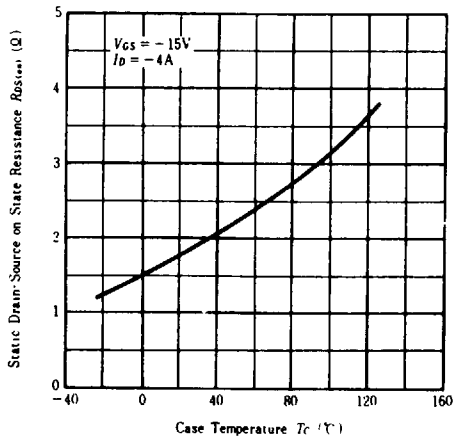
**DRAIN - SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE**



**FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT**

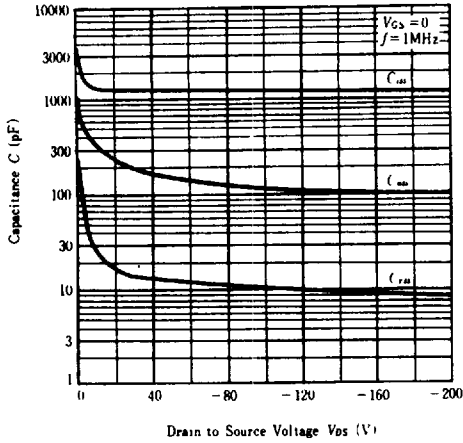


**STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE**

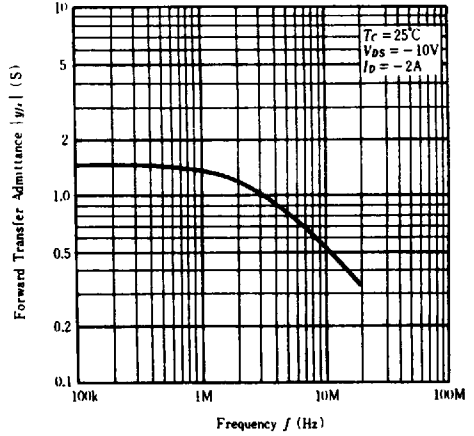


HITACHI/(OPTOELECTRONICS)

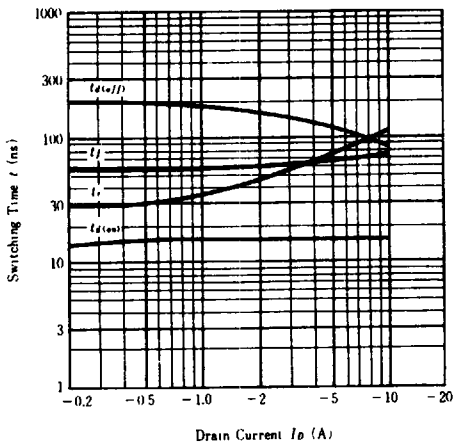
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



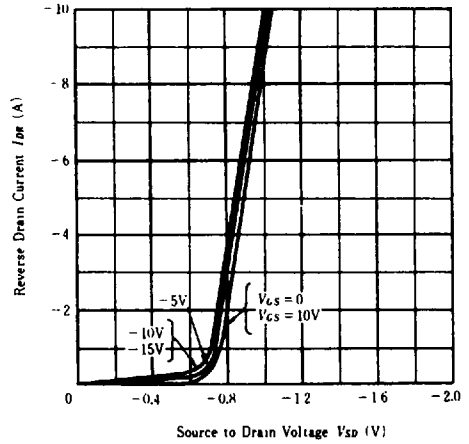
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



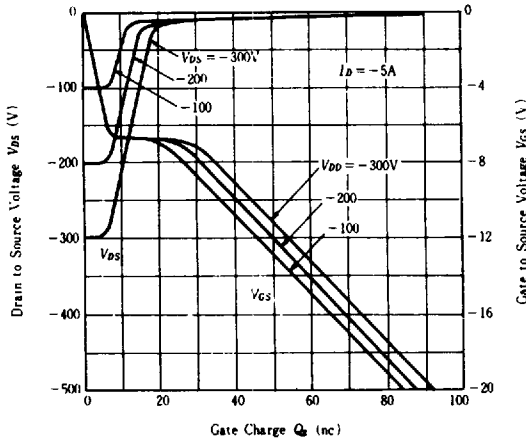
SWITCHING CHARACTERISTICS



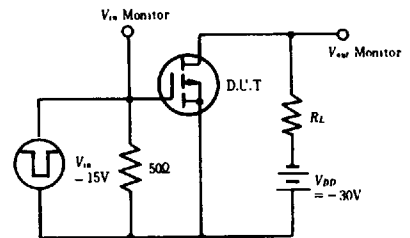
MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



DYNAMIC INPUT CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

