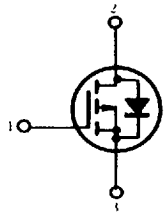
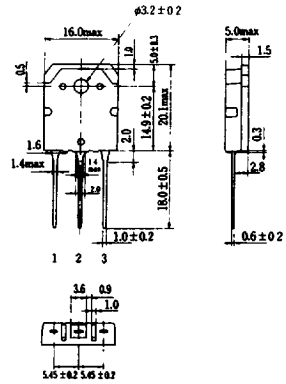
2SJ114

SILICON P-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING, HIGH FREQUENCY POWER AMPLIFIER





1. Gate
2. Drain (Flange)
3. Source

(Dimensions in mm)

(TO-3P)

■ FEATURES

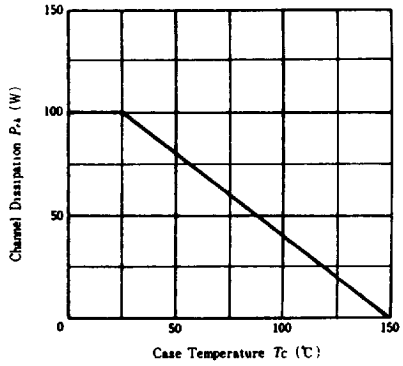
- Low On-Resistance.
- High Speed Switching.
- High Cutoff Frequency.
- No Secondary Breakdown.
- Suitable for Switching Regulator, DC-DC Converter, Motor Control, and Ultrasonic Power Oscillators.

■ ABSOLUTE MAXIMUM RATINGS (T_a=25 °C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	−200	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	−8	A
Drain Peak Current	$I_{D(peak)}$	−12	A
Body-Drain Diode Reverse Drain Current	I_{DR}	−8	A
Channel Dissipation	P_{ch}*	100	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	−55 ~ +150	°C

*Value at T_c=25 °C

POWER VS. TEMPERATURE DERATING

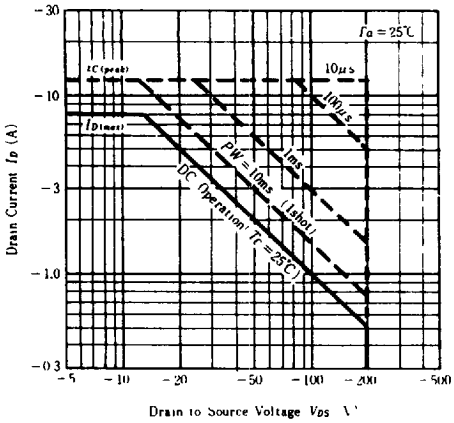


■ ELECTRICAL CHARACTERISTICS (T_a=25 °C)

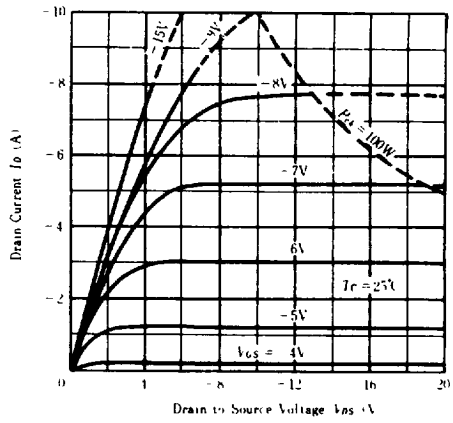
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=−10mA, V_{GS}=0	−200	—	—	V
Gate-Source Leak Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0	—	—	±1	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=−160V, V_{GS}=0	—	—	−1	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	I_D=−1mA, V_{DS}=−10V	−2.0	—	−5.0	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	I_D=−4A, V_{GS}=−15V*	—	0.6	0.8	Ω
Drain-Source Saturation Voltage	$V_{DS(on)}$	I_D=−4A, V_{GS}=−15V*	—	−2.4	−3.2	V
Forward Transfer Admittance	$\|y_{fs}\|$	I_D=−4A, V_{DS}=−10V*	1.0	1.8	—	S
Input Capacitance	C_{iss}	V_{DS}=−10V, V_{GS}=0, f=1MHz	—	1000	—	pF
Output Capacitance	C_{oss}		—	400	—	pF
Reverse Transfer Capacitance	C_{rss}		—	70	—	pF
Turn-on Delay Time	$t_{d(on)}$	I_D=−2A, V_{GS}=−15V, R_L=15Ω	—	15	—	ns
Rise Time	t_r		—	35	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	100	—	ns
Fall Time	t_f		—	60	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	I_F=−4A, V_{GS}=0	—	−0.9	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	I_F=−4A, V_{GS}=0, di_F/dt=50A/μs	—	300	—	ns

*Pulse Test

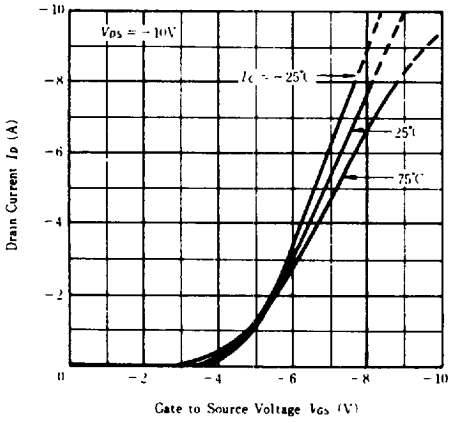
MAXIMUM SAFE OPERATION AREA



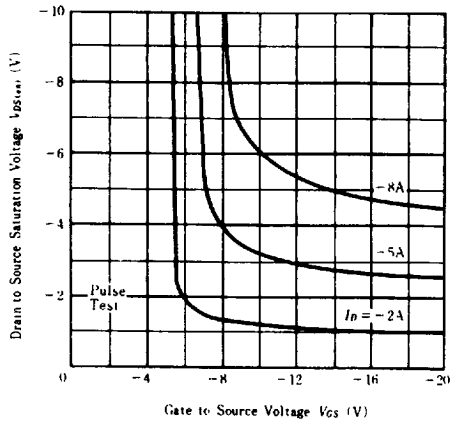
TYPICAL OUTPUT CHARACTERISTICS



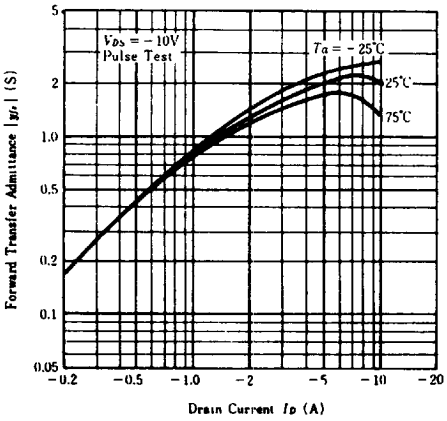
TYPICAL TRANSFER CHARACTERISTICS



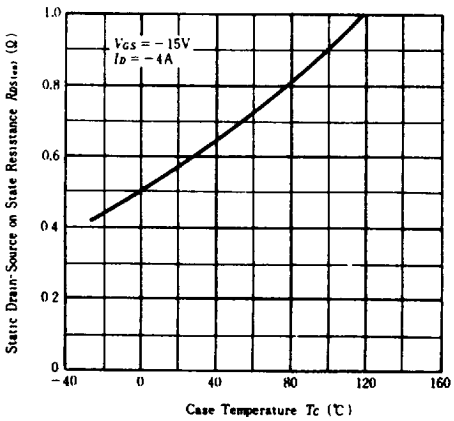
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



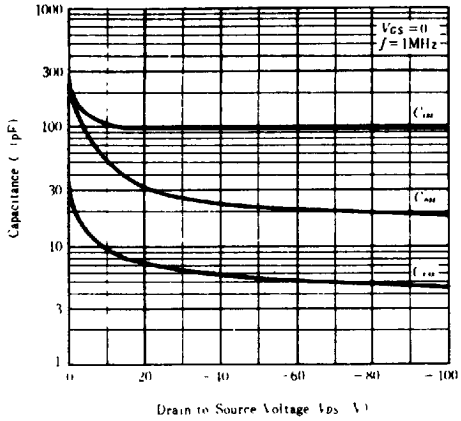
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



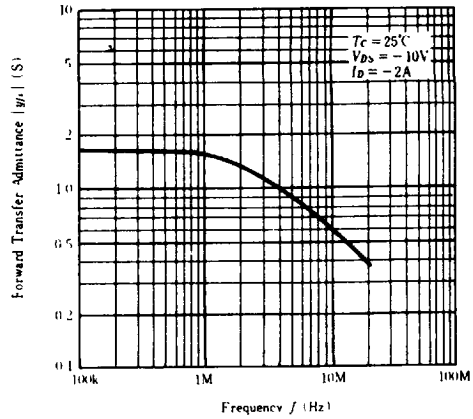
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



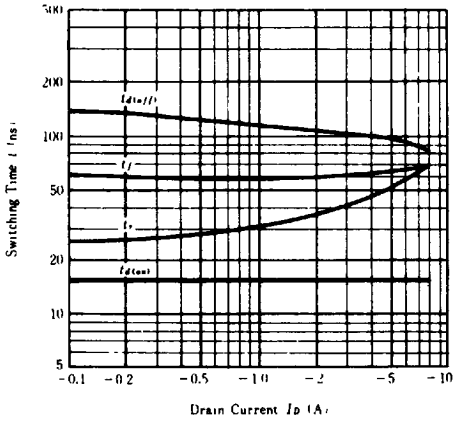
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



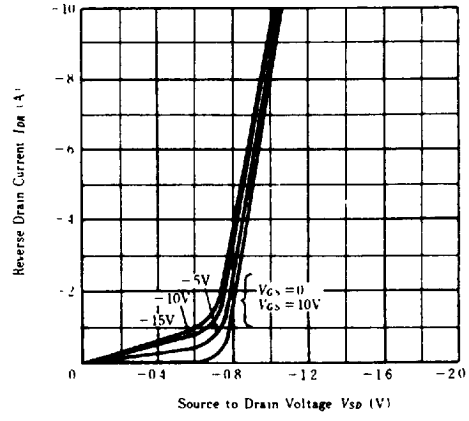
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



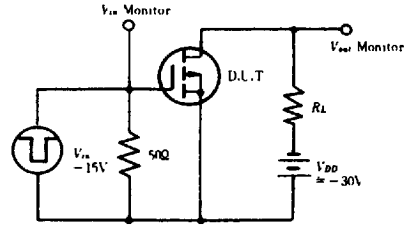
SWITCHING CHARACTERISTICS



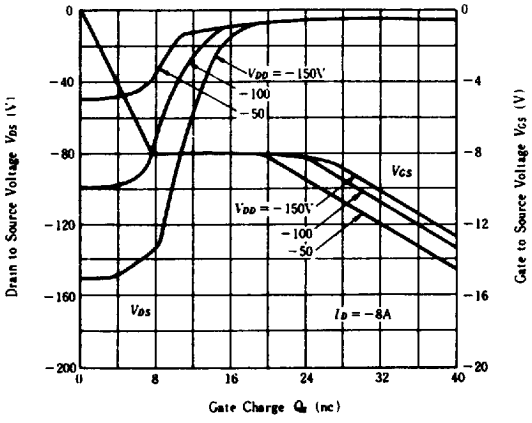
MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



SWITCHING TIME TEST CIRCUIT



DYNAMIC INPUT CHARACTERISTICS



WAVEFORMS