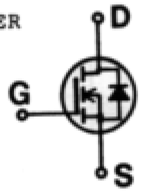
2SK308

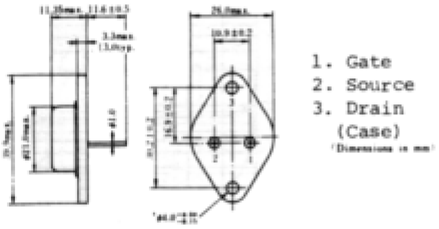
SILICON N-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING
HIGH FREQUENCY POWER AMPLIFIER



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.



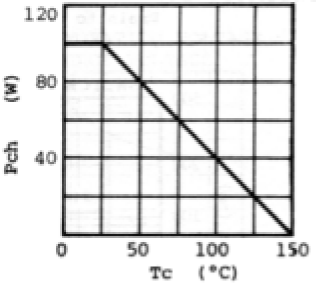
(JEDEC TO-3)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	120	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	10	A
Drain Peak Current	$I_{D(peak)}$	15	A
Body-Drain Diode Reverse Drain Current	I_{DR}	10	A
Channel Dissipation	Pch*	100	W
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	-55 ~ +150	°C

*Value at Tc=25°C

POWER VS. TEMPERATURE DERATING

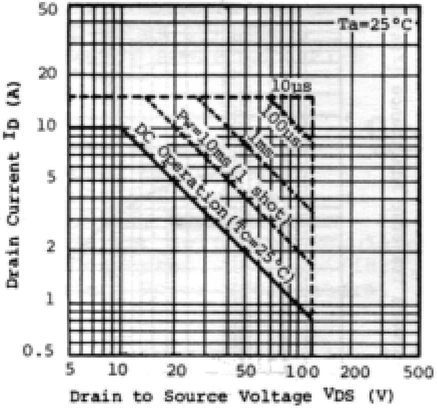


■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

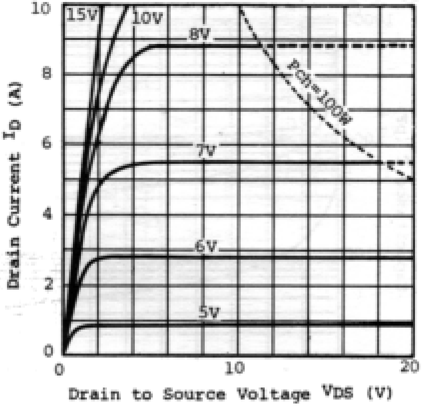
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA , V_{GS}=0	120	-	-	V
Gate-Source Leak Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0	-	-	±1	µA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0	-	-	1	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	I_D= 1mA , V_{DS}=10V	1.0	-	4.5	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	I_D= 5A , V_{GS}=15V *	-	0.2	0.3	Ω
Drain-Source Saturation Voltage	$V_{DS(on)}$	I_D= 5A , V_{GS}=15V *	-	1.0	1.5	V
Forward Transfer Admittance	$\|y_{fs}\|$	I_D= 5A , V_{DS}=10V *	1.5	2.0	-	S
Input Capacitance	Ciss	V_{DS}= 10V, V_{GS}=0 f=1MHz	-	1130	-	pF
Output Capacitance	Coss		-	650	-	pF
Reverse Transfer Capacitance	Crss		-	80	-	pF
Turn-On Delay Time	$t_{d(on)}$	I_D= 2A , V_{GS}=15V R_L= 15Ω	-	10	-	ns
Rise Time	t_r		-	50	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	90	-	ns
Fall Time	t_f		-	70	-	ns
Body-Drain Diode Forward Voltage	V_{DF}	I_F= 5A , V_{GS}=0	-	0.9	-	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	I_F=5A , V_{GS}=0	-	160	-	ns

*Pulse Test

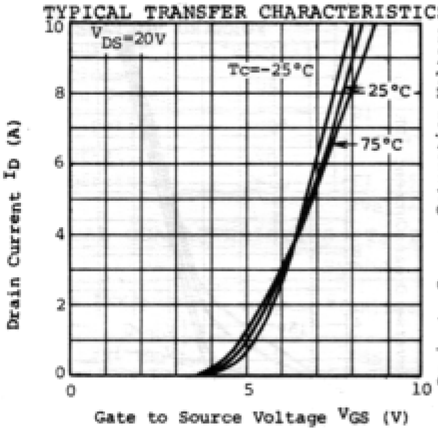
MAXIMUM SAFE OPERATION AREA



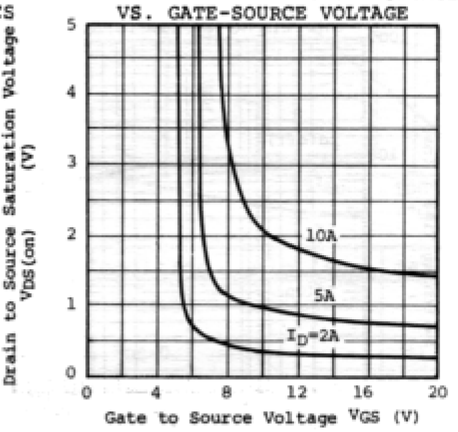
TYPICAL OUTPUT CHARACTERISTICS



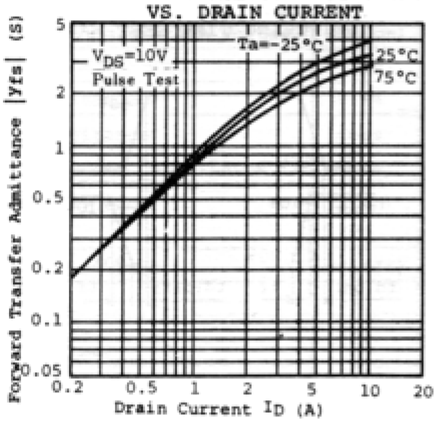
TYPICAL TRANSFER CHARACTERISTICS



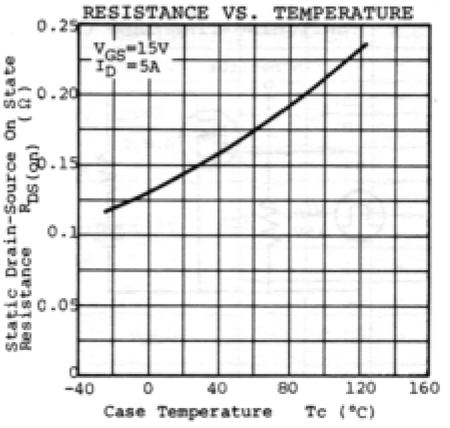
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



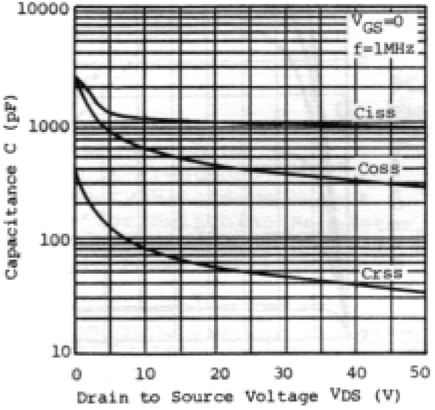
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



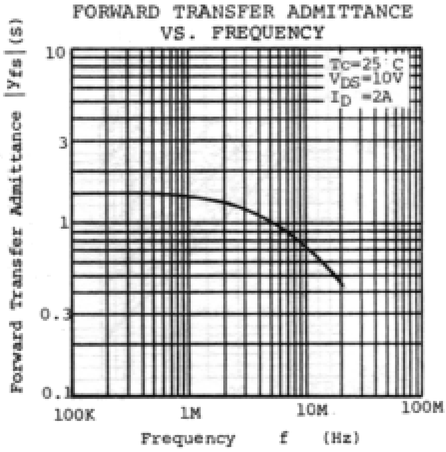
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



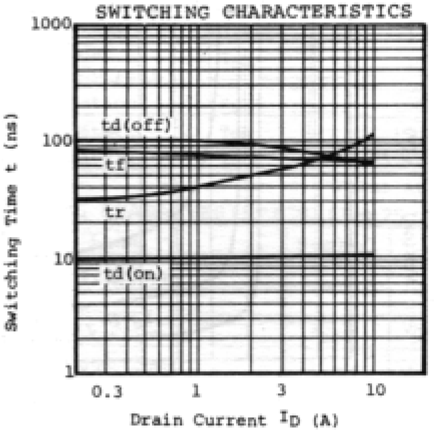
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



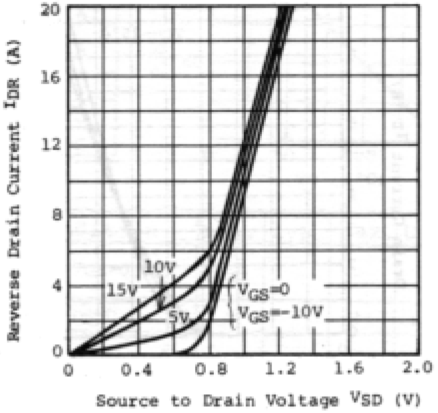
FORWARD TRANSFER ADMITTANCE VS. FREQUENCY



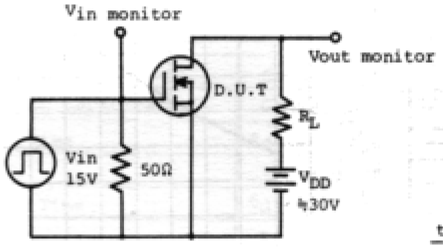
SWITCHING CHARACTERISTICS



MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



SWITCHING TIME TEST CIRCUIT



SWITCHING TIME TEST WAVEFORMS