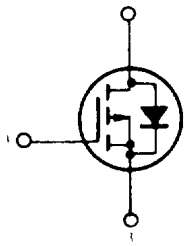
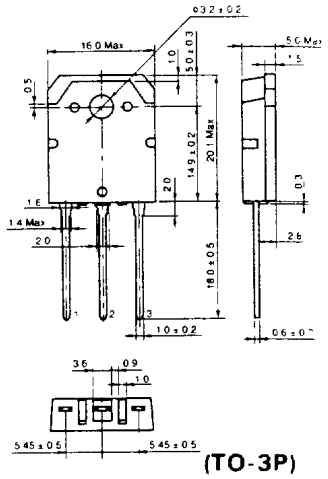
2SJ118, 2SJ119

SILICON P-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING, HIGH FREQUENCY POWER AMPLIFIER

Complementary pair with 2SK413, 2SK414





1 Gate
2 Drain (Flange)
3 Source

(TO-3P)

(Dimensions in mm)

■ FEATURES

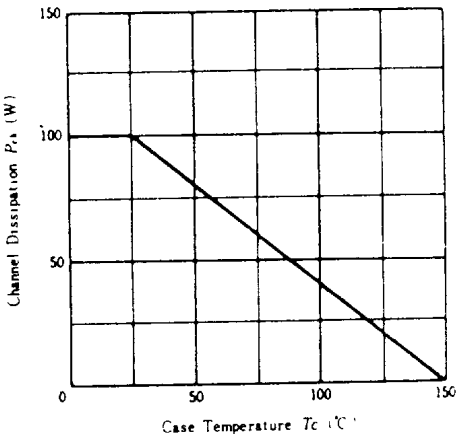
- Low On-Resistance
- High Speed Switching
- High Cutoff Frequency
- No Secondary Breakdown
- Suitable for Switching Regulator, DC-DC Converter, PWM Amplifiers, and Ultrasonic Power Oscillators

■ ABSOLUTE MAXIMUM RATINGS (T_a=25 °C)

Item	Symbol	2SJ118	2SJ119	Unit
Drain-Source Voltage	V_{DSS}	−140	−160	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

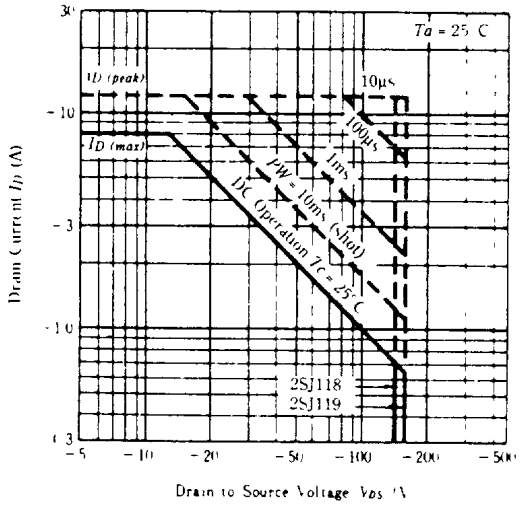


■ ELECTRICAL CHARACTERISTICS (T_a=25 °C)

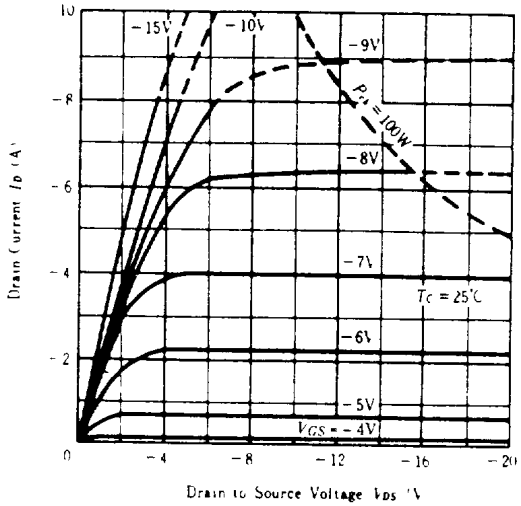
Item		Symbol	Test Condition	min	typ	max	Unit
Drain-Source Breakdown Voltage	2SJ118	$V_{(BR)DSS}$	I_D=−10mA, V_{GS}=0	−140	—	—	V
	2SJ119			−160	—	—	V
Gate Source Leak Current		I_{GSS}	V_{GS}=±20V V_{DS}=0	—	—	±1	μA
Zero Gate Voltage Drain Current	2SJ118	I_{DSS}	V_{DS}=−120V, V_{GS}=0	—	—	−1	mA
	2SJ119		V_{DS}=−140V, V_{GS}=0				
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*	—	0.4	0.5	Ω
Drain-Source Saturation Voltage		$V_{DS(on)}$	I_D=−4A, V_{GS}=−15V*	—	−1.6	−2.0	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	—	1050	—	pF
Output Capacitance		C_{oss}		—	450	—	pF
Reverse Transfer Capacitance		C_{rss}		—	80	—	pF
Turn-on Delay Time		$t_{d(on)}$	I_D=−2A V_{GS}=−15V R_L=15Ω	—	20	—	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= 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

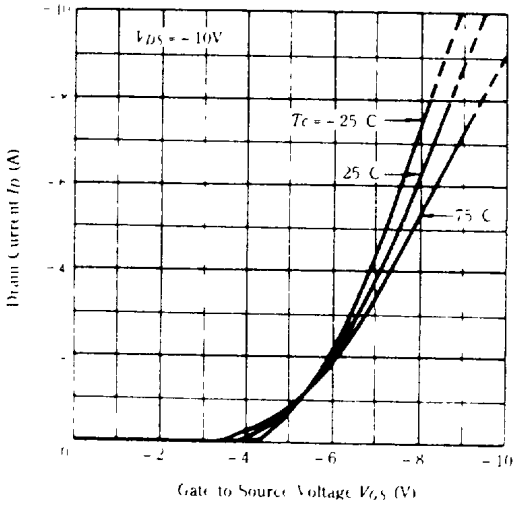
MAXIMUM SAFE OPERATION AREA



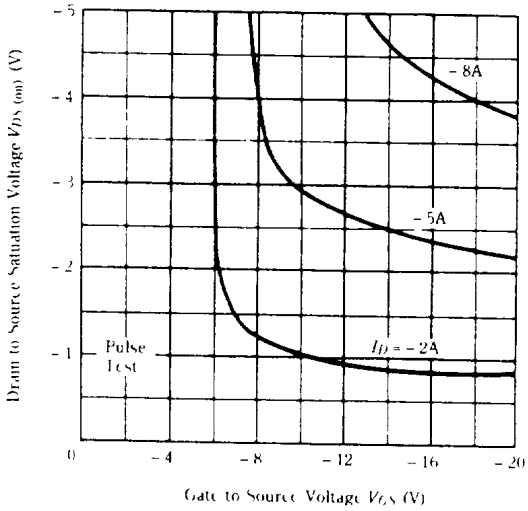
TYPICAL OUTPUT CHARACTERISTICS



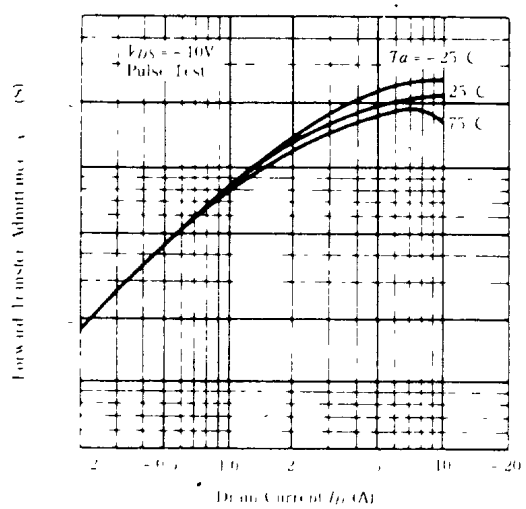
TYPICAL TRANSFER CHARACTERISTICS



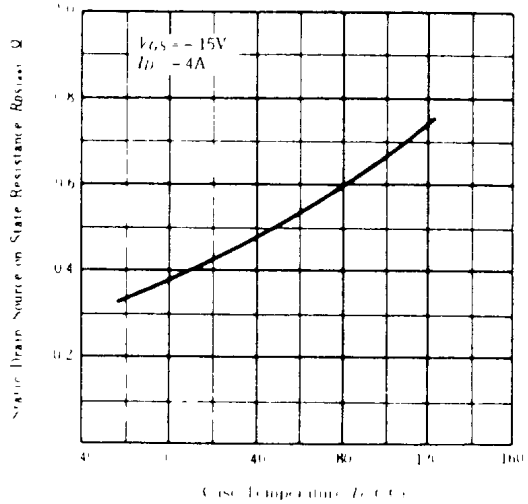
DRAIN - SOURCE SATURATION VOLTAGE VS GATE-SOURCE VOLTAGE



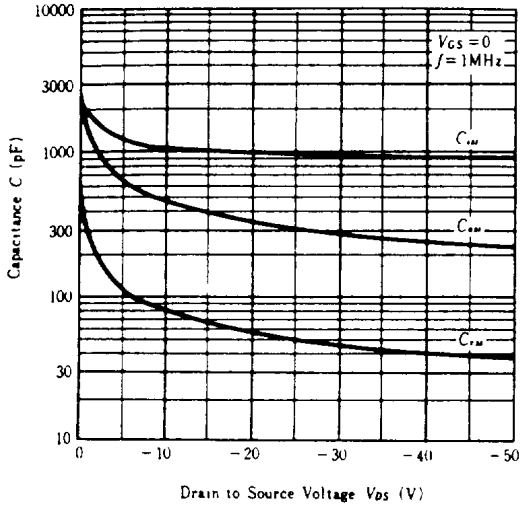
FORWARD TRANSFER ADMITTANCE VS DRAIN CURRENT



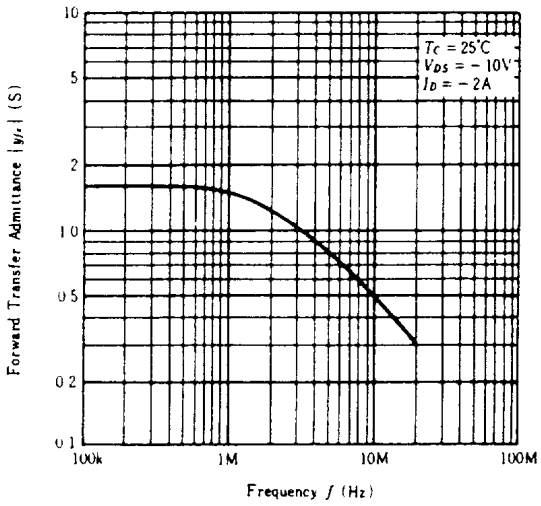
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS TEMPERATURE



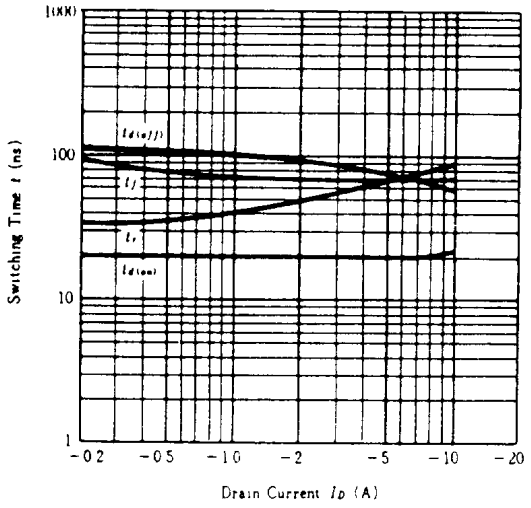
TYPICAL CAPACITANCE VS DRAIN-SOURCE VOLTAGE



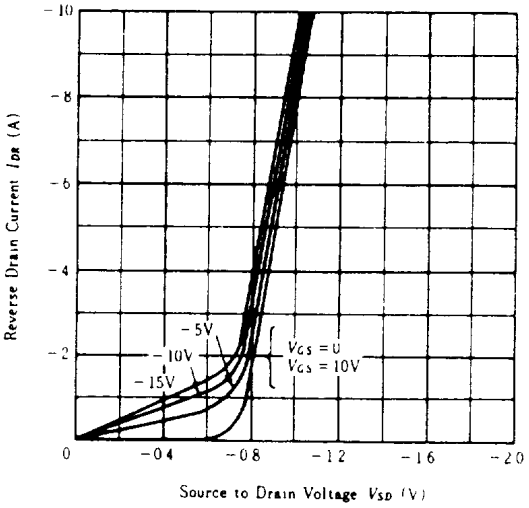
FORWARD TRANSFER ADMITTANCE VS FREQUENCY



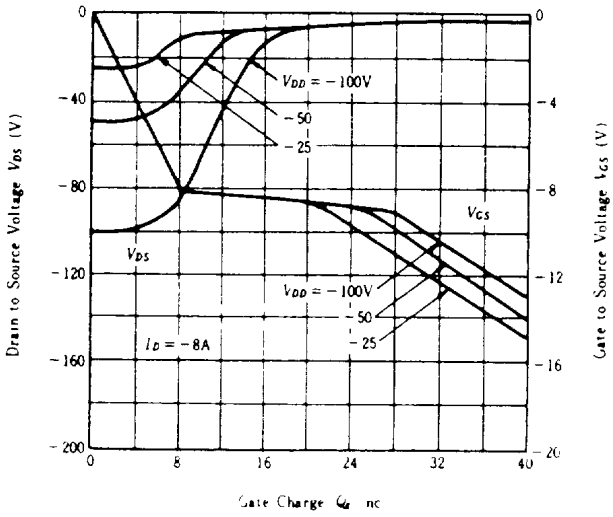
SWITCHING CHARACTERISTICS



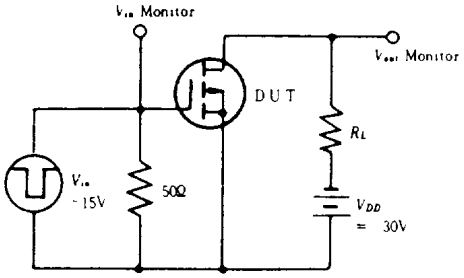
MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



DYNAMIC INPUT CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



WAVEFORMS