

2SJ118, 2SJ119

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SILICON P-CHANNEL MOS FET

**HIGH SPEED POWER SWITCHING,
HIGH FREQUENCY POWER AMPLIFIER**
Complementary pair with 2SK413, 2SK414

■ 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 ($T_a=25^\circ\text{C}$)

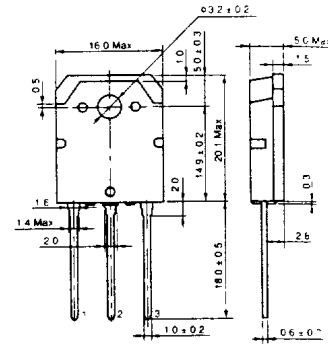
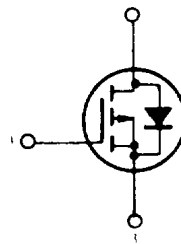
Item	Symbol	2SJ118	2SJ119	Unit
Drain-Source Voltage	V_{DS}	-140	-160	V
Gate-Source Voltage	V_{GS}	± 20		V
Drain Current	I_D	-8		A
Drain Peak Current	$I_{D(\text{peak})}$	-12		A
Body-Drain Diode Reverse Drain Current	I_{DR}	-8		A
Channel Dissipation	P_{ch}^*	100		W
Channel Temperature	T_{ch}	150		$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim +150$		$^\circ\text{C}$

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

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

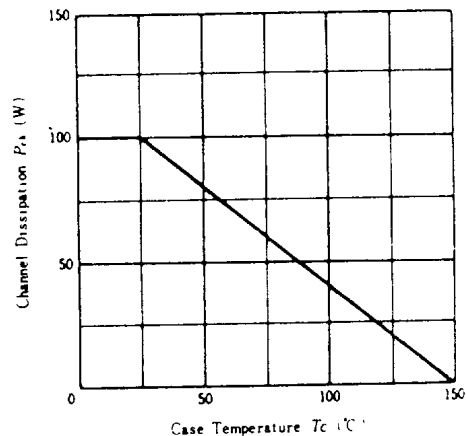
Item		Symbol	Test Condition	min	typ	max	Unit
Drain-Source Breakdown Voltage	2SJ118	$V_{(BR)DS}$	$I_D=-10\text{mA}, V_{GS}=0$	-140	—	—	V
	2SJ119			-160	—	—	V
Gate Source Leak Current		I_{GSS}	$V_{GS}=\pm 20\text{V}, V_{DS}=0$	—	—	± 1	μA
Zero Gate Voltage Drain Current	2SJ118	I_{DSS}	$V_{DS}=-120\text{V}, V_{GS}=0$	—	—	-1	mA
	2SJ119		$V_{DS}=-140\text{V}, V_{GS}=0$	—	—	—	—
Gate-Source Cutoff Voltage		$V_{GS(off)}$	$I_D=-1\text{mA}, V_{DS}=-10\text{V}$	-2.0	—	-5.0	V
Static Drain-Source On State Resistance		$R_{DS(on)}$	$I_D=-4\text{A}, V_{GS}=-15\text{V}^*$	—	0.4	0.5	Ω
Drain-Source Saturation Voltage		$V_{DS(on)}$	$I_D=-4\text{A}, V_{GS}=-15\text{V}^*$	—	-1.6	-2.0	V
Forward Transfer Admittance		$ y_{fs} $	$I_D=-4\text{A}, V_{DS}=-10\text{V}^*$	1.0	1.8	—	S
Input Capacitance		C_{iss}	$V_{DS}=-10\text{V}, V_{GS}=0, f=1\text{MHz}$	—	1050	—	pF
Output Capacitance		C_{oss}		—	450	—	pF
Reverse Transfer Capacitance		C_{rss}		—	80	—	pF
Turn-on Delay Time		$t_{d(on)}$	$I_D=-2\text{A}, V_{GS}=-15\text{V}, R_L=15\Omega$	—	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}	$I_F=4\text{A}, V_{GS}=0$	—	0.9	—	V
Body Drain Diode Reverse Recovery Time		t_{rr}	$I_F=4\text{A}, V_{GS}=0, dI_F/dt=50\text{A}/\mu\text{s}$	—	300	—	ns

*Pulse Test

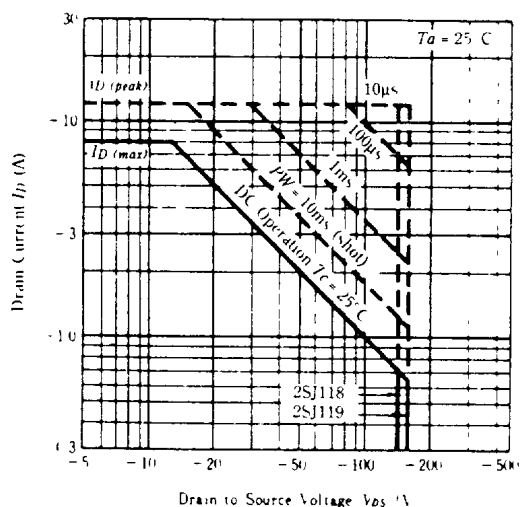


1 Gate
2 Drain
(Flange)
3 Source
(TO-3P)
(Dimensions in mm)

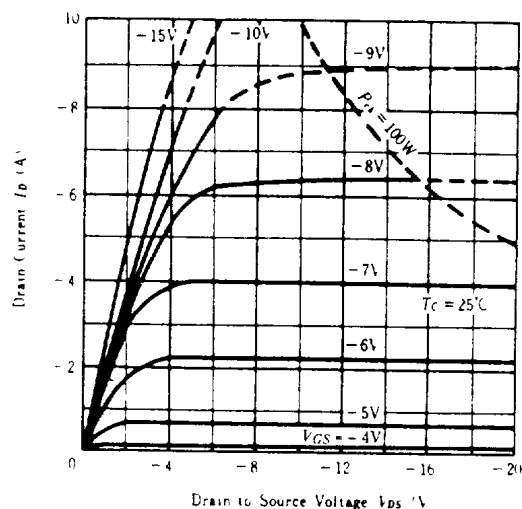
POWER VS TEMPERATURE DERATING



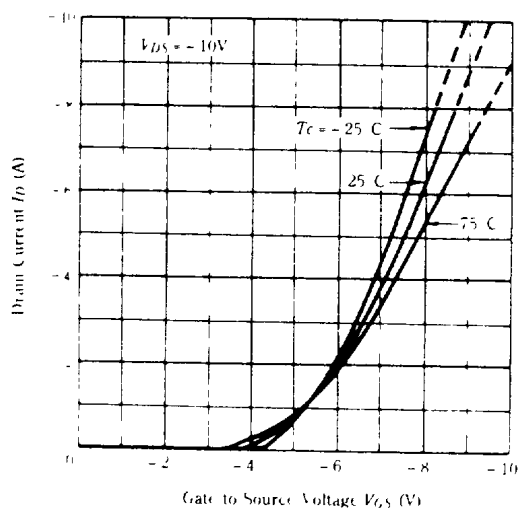
MAXIMUM SAFE OPERATION AREA



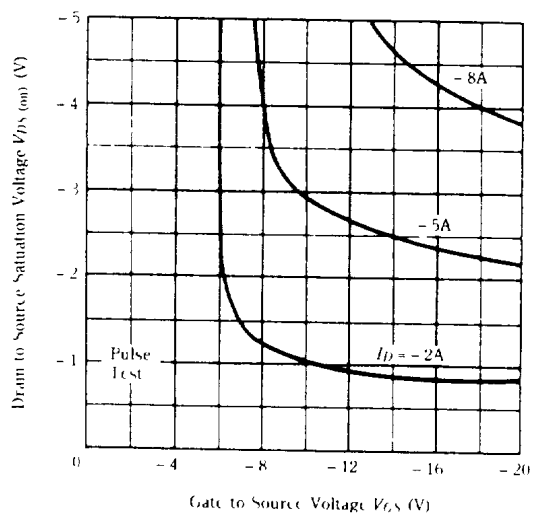
TYPICAL OUTPUT CHARACTERISTICS



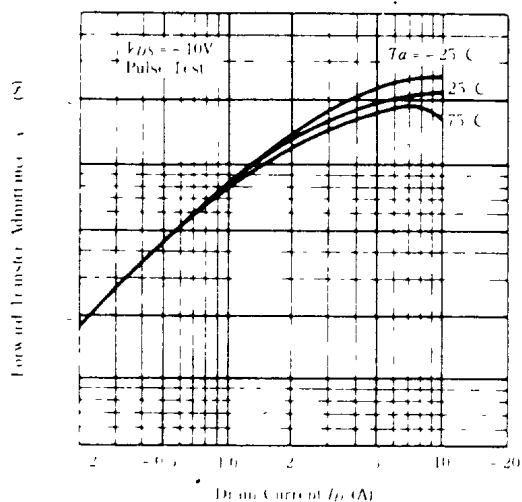
TYPICAL TRANSFER CHARACTERISTICS



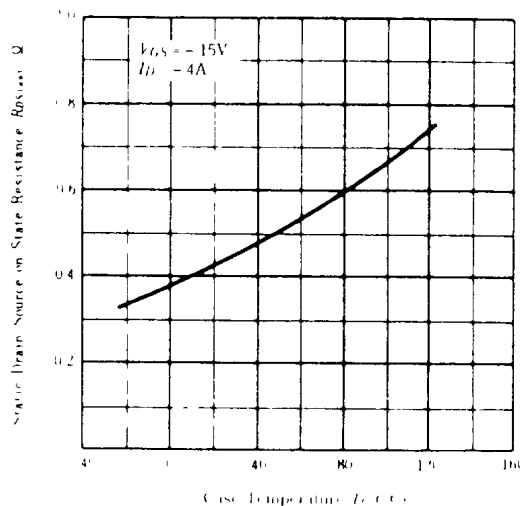
DRAIN - SOURCE SATURATION VOLTAGE VS GATE-SOURCE VOLTAGE



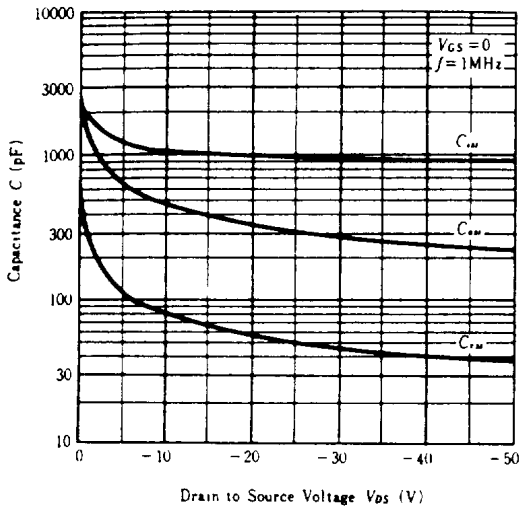
FORWARD TRANSFER ADMITTANCE VS DRAIN CURRENT



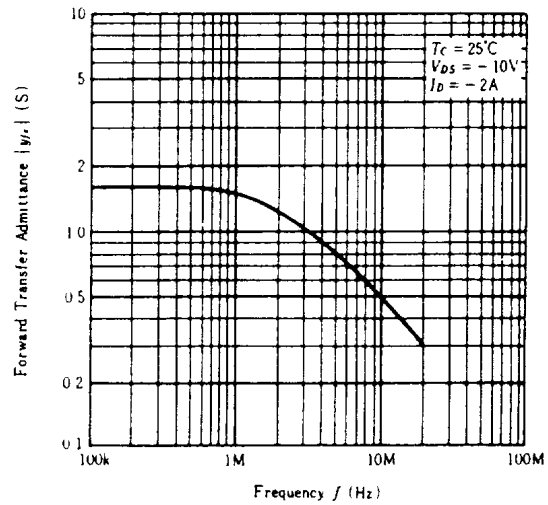
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS TEMPERATURE



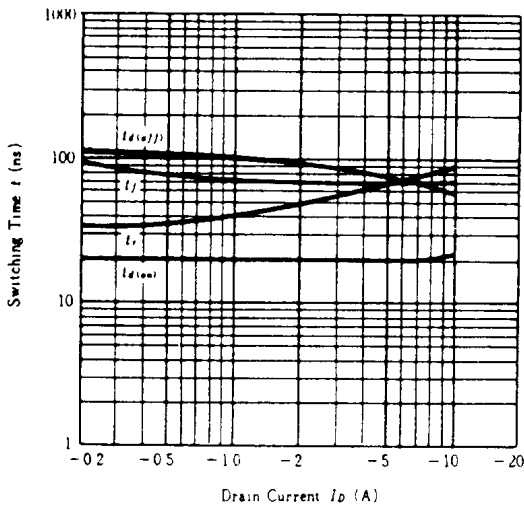
TYPICAL CAPACITANCE VS DRAIN-SOURCE VOLTAGE



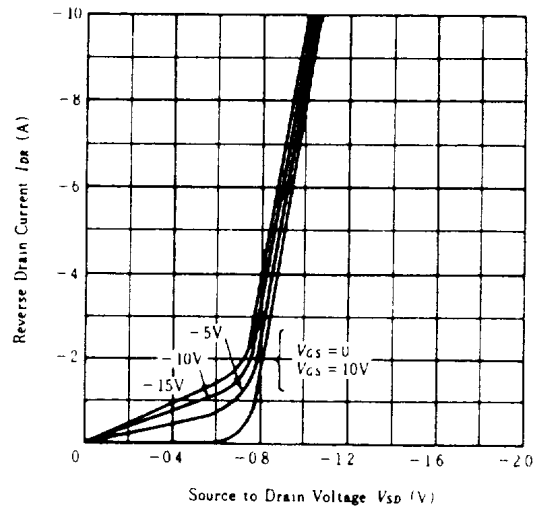
FORWARD TRANSFER ADMITTANCE VS FREQUENCY



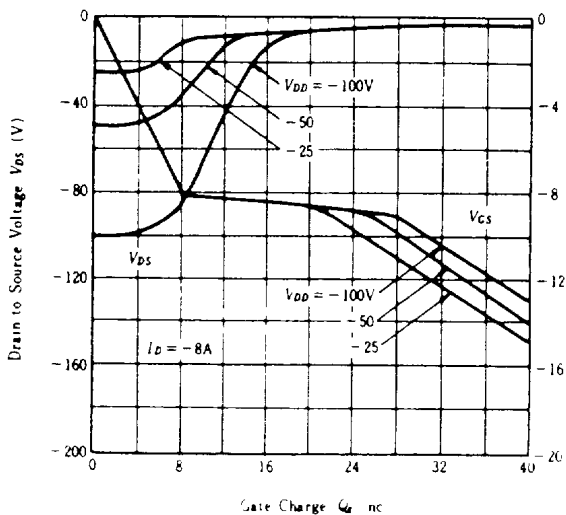
SWITCHING CHARACTERISTICS



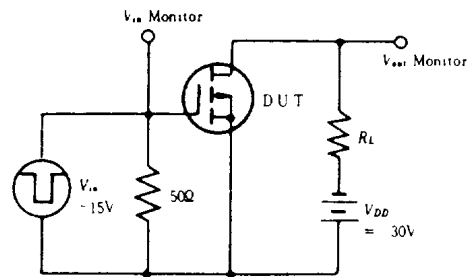
MAXIMUM BODY-DRAIN DIODE FORWARD VOLTAGE



DYNAMIC INPUT CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

