

355-896/902

2SJ118, 2SJ119

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 ($T_o=25^\circ\text{C}$)

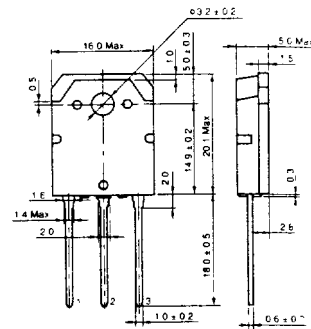
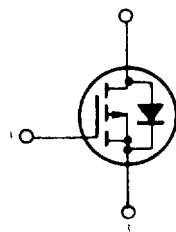
Item	Symbol	2SJ118	2SJ119	Unit
Drain-Source Voltage	V_{DS}	-140	-160	V
Gate-Source Voltage	V_{GS}	± 20		V
Drain Current	I_D	-8		A
Drain Peak Current	$I_{D(\text{peak})}$	-12		A
Body-Drain Diode Reverse Drain Current	I_{DR}	-8		A
Channel Dissipation	P_{ch}^*	100		W
Channel Temperature	T_{ch}	150		$^\circ\text{C}$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

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

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

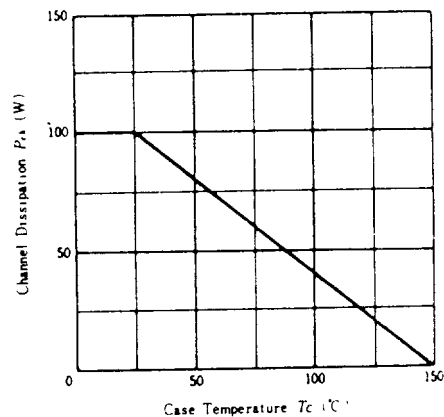
Item		Symbol	Test Condition	min	typ	max	Unit
Drain-Source Breakdown Voltage	2SJ118	$V_{(BR)DSS}$	$I_D = -10\text{mA}, V_{GS} = 0$	-140	—	—	V
	2SJ119			-160	—	—	V
Gate Source Leak Current		I_{GSS}	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$	—	—	± 1	μA
Zero Gate Voltage Drain Current	2SJ118	I_{DSS}	$V_{DS} = -120\text{V}, V_{GS} = 0$	—	—	-1	mA
	2SJ119		$V_{DS} = -140\text{V}, V_{GS} = 0$	—	—	—	—
Gate-Source Cutoff Voltage		$V_{GS(off)}$	$I_D = -1\text{mA}, V_{DS} = -10\text{V}$	-20	—	-50	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} $	$I_D = -4\text{A}, V_{DS} = -10\text{V}^*$	10	18	—	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_{ris}		—	80	—	pF
Turn-on Delay Time		t_{don}	$I_D = -2\text{A}, V_{GS} = -15\text{V}, R_L = 15\Omega$	—	20	—	ns
Rise Time		t_r		—	50	—	ns
Turn-off Delay Time		t_{doff}		—	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

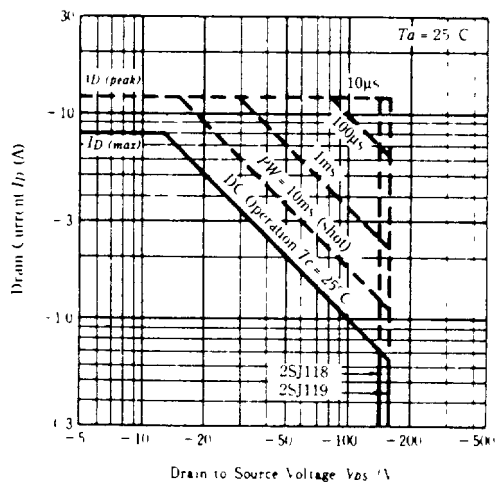


1 Gate
2 Drain (Flange)
3 Source
(Dimensions in mm)
(TO-3P)

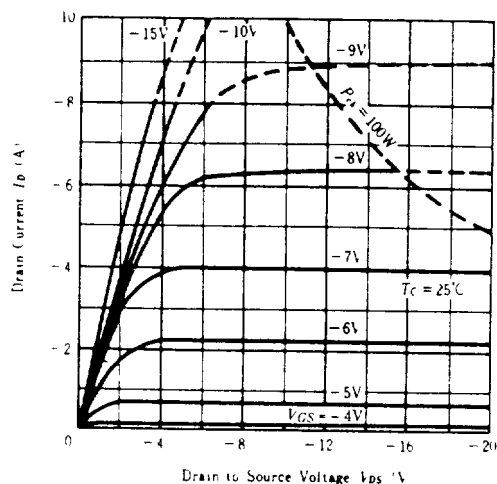
POWER VS TEMPERATURE DERATING



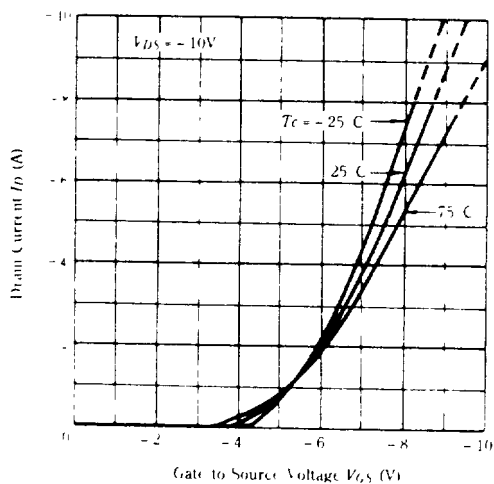
MAXIMUM SAFE OPERATION AREA



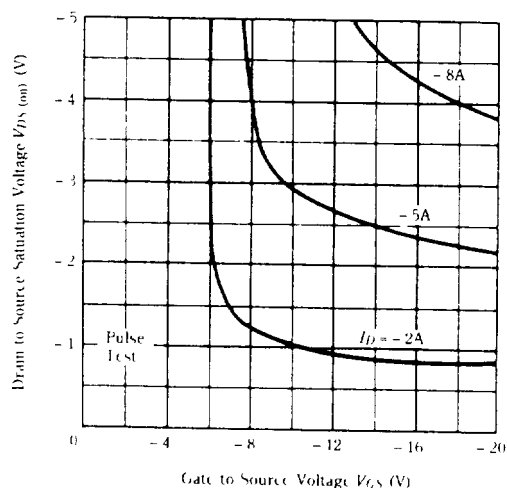
TYPICAL OUTPUT CHARACTERISTICS



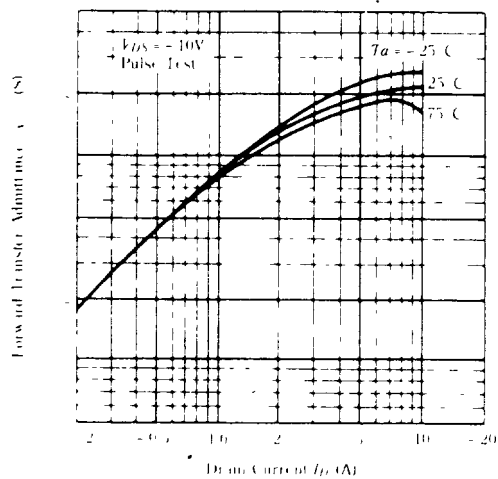
TYPICAL TRANSFER CHARACTERISTICS



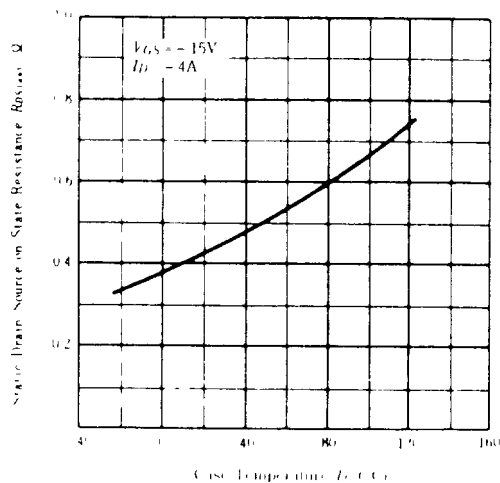
DRAIN - SOURCE SATURATION VOLTAGE VS GATE-SOURCE VOLTAGE

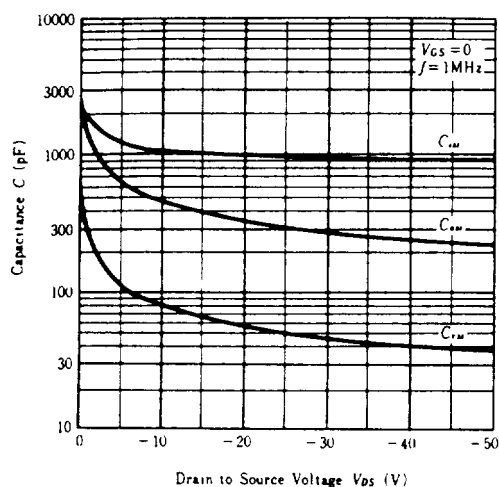
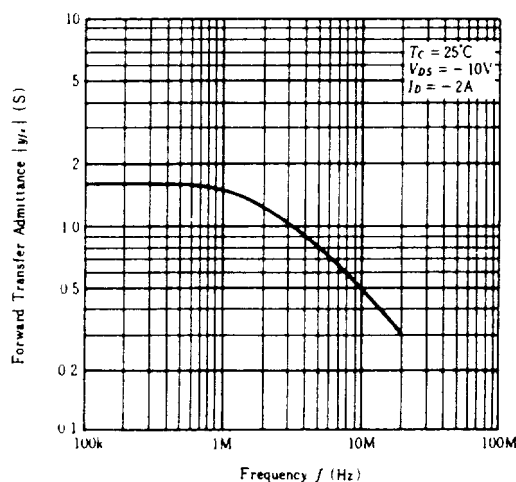


FORWARD TRANSFER ADMITTANCE VS DRAIN CURRENT

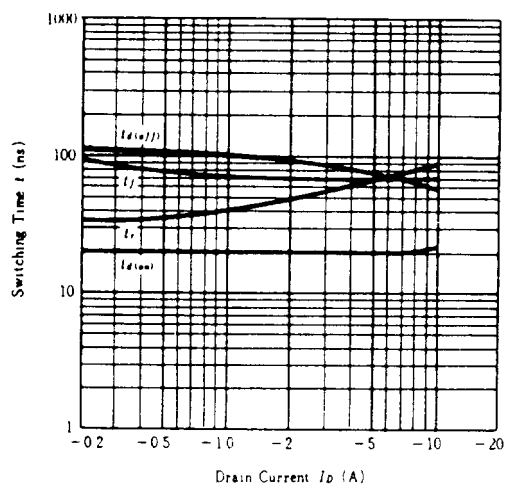
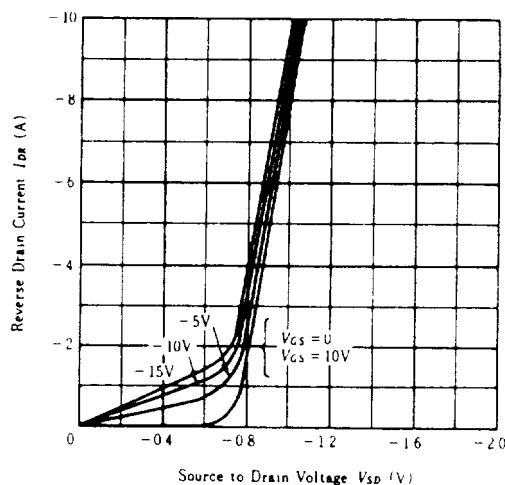


STATIC DRAIN-SOURCE ON STATE RESISTANCE VS TEMPERATURE

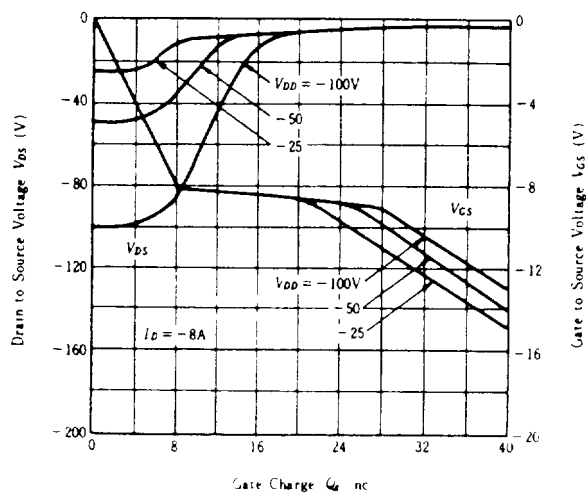


TYPICAL CAPACITANCE VS
DRAIN-SOURCE VOLTAGEFORWARD TRANSFER ADMITTANCE
VS FREQUENCY

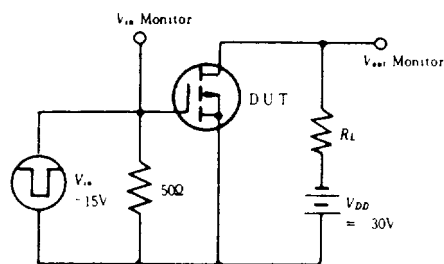
SWITCHING CHARACTERISTICS

MAXIMUM BODY-DRAIN DIODE
FORWARD VOLTAGE

DYNAMIC INPUT CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

