

2SJ101, 2SJ102

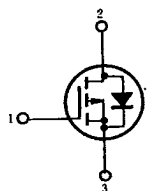
SILICON P-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING, HIGH FREQUENCY POWER AMPLIFIER

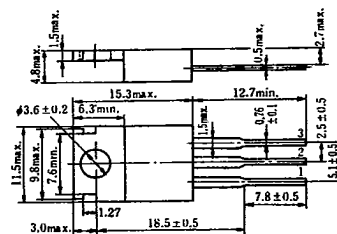
Complementary pair with 2SK345, 2SK346

■ Features

- Low On-Resistance.
- High Speed Switching.
- No Secondary Breakdown.
- Good Complementary Characteristics.
- Suitable for PWM Amplifier, Switching Regulator, and DC-DC Converter.



1. Gate
2. Drain
(Flange)
3. Source
(Dimensions in mm)

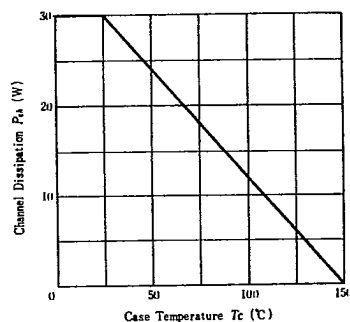


■ ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Item	Symbol	Rating		Unit
		2SJ101	2SJ102	
Drain-Source Voltage	V_{DS}	-40	-60	V
Gate-Source Voltage	V_{GS}	± 20		V
Drain Current	I_D	-5		A
Drain Peak Current	$I_{D(pk)}$	-10		A
Body-Drain Diode Reverse Drain Current	I_{DR}	-5		A
Channel Dissipation	P_{ch}^*	30		W
Channel Temperature	T_{ch}	150		$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim +150$		$^\circ\text{C}$

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

POWER VS. TEMPERATURE DERATING



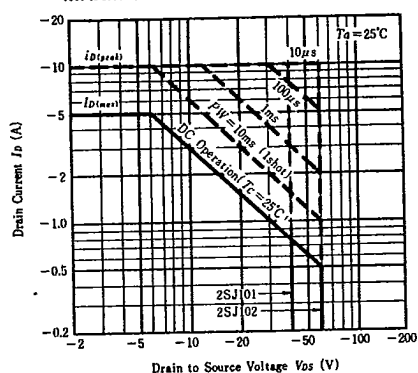
■ ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$I_D=-10\text{mA}, V_{GS}=0$	-40	—	—	V
			-60	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS}=\pm 20\text{V}, V_{DS}=0$	—	—	± 1	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30\text{V}, V_{GS}=0$	—	—	-1	mA
		$V_{DS}=-50\text{V}, V_{GS}=0$	—	—	—	—
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	$R_{D(on)}$	$I_D=-3\text{A}, V_{GS}=-15\text{V}^*$	—	0.3	0.4	Ω
Drain-Source Saturation Voltage	$V_{DS(on)}$	$I_D=-3\text{A}, V_{GS}=-15\text{V}^*$	—	-0.9	-1.2	V
Forward Transfer Admittance	$ y_f $	$I_D=-3\text{A}, V_{DS}=-10\text{V}^*$	0.5	1.0	—	S
Input Capacitance	C_{iss}	$V_{DS}=-10\text{V}, V_{GS}=0, f=1\text{MHz}$	—	660	—	pF
Output Capacitance	C_{oss}		—	550	—	pF
Reverse Transfer Capacitance	C_{rss}		—	140	—	pF
Turn-on Time	t_{don}	$I_D=-2\text{A}, V_{GS}=-15\text{V}$ $R_L=15\Omega$	—	15	—	ns
Rise Time	t_r		—	45	—	ns
Turn-off Time	t_{doff}		—	45	—	ns
Fall Time	t_f		—	55	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F=-3\text{A}, V_{GS}=0$	—	-0.9	—	V
Body-Drain Diode Reverse Recovery Time	t_n	$I_F=-3\text{A}, V_{GS}=0$ $di_F/dt=50\text{A}/\mu\text{s}$	—	140	—	ns

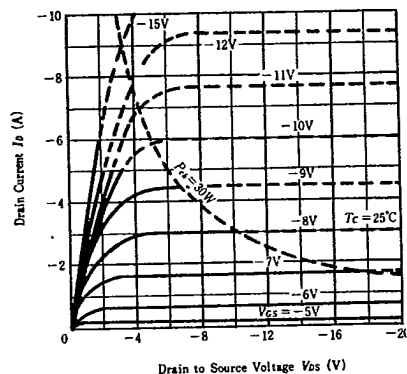
*Pulse Test

2SJ101, 2SJ102

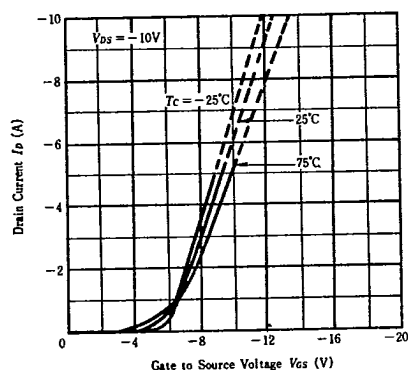
MAXIMUM SAFE OPERATION AREA



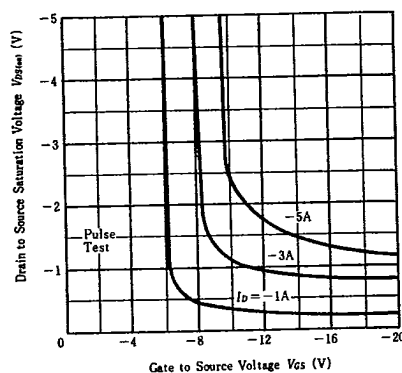
TYPICAL OUTPUT CHARACTERISTICS



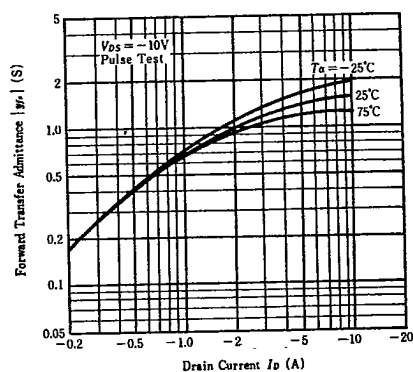
TYPICAL TRANSFER CHARACTERISTICS



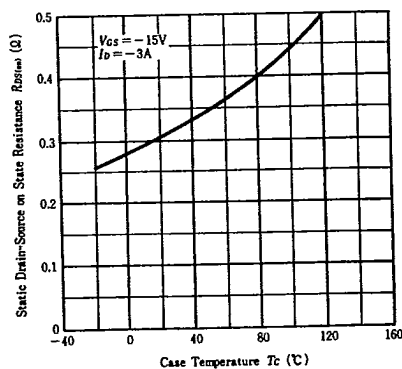
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE

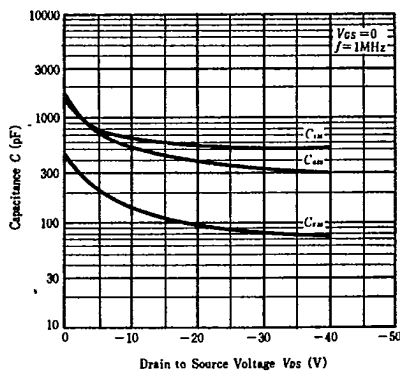
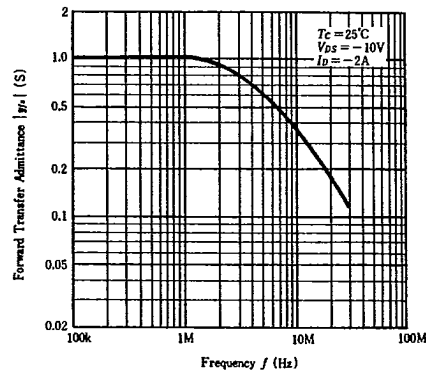


FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT

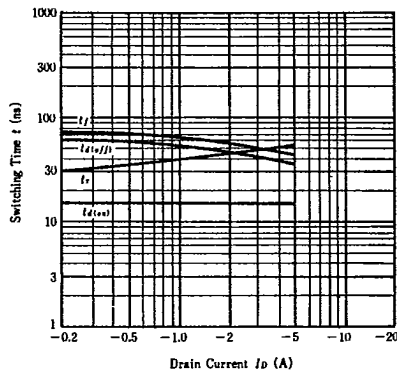
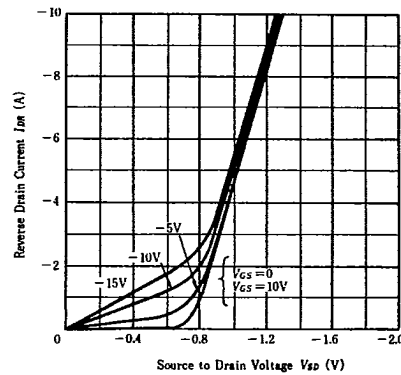


STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE

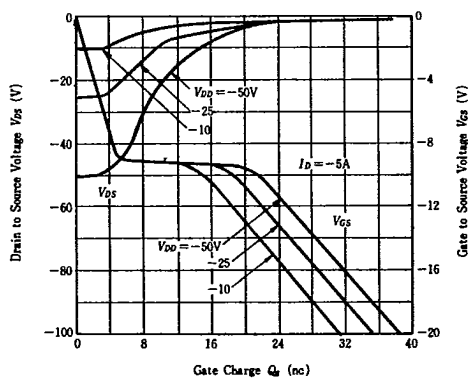


TYPICAL CAPACITANCE VS.
DRAIN-SOURCE VOLTAGEFORWARD TRANSFER ADMITTANCE
VS. FREQUENCY

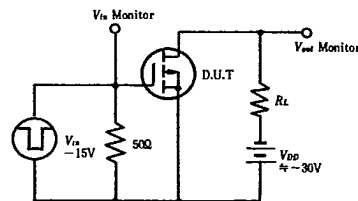
SWITCHING CHARACTERISTICS

MAXIMUM BODY-DRAIN DIODE
FORWARD VOLTAGE

DYNAMIC INPUT CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

