New Jersey Semi-Conductor Products, Inc.

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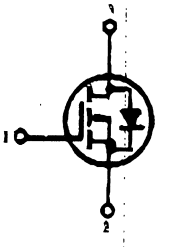
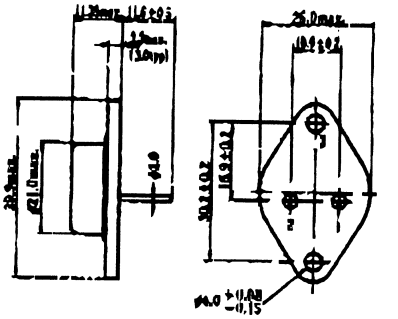
2SJ116

SILICON P-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING,
HIGH FREQUENCY POWER AMPLIFIER
Complementary Pair with 2SK298, 2SK312





1. Gate
2. Source
3. Drain (Case)

(Dimensions in mm)

(JEDEC TO-3)

■ FEATURES

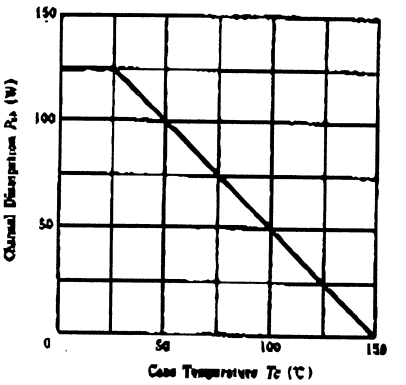
- Low On-Resistance.
- High Speed Switching.
- High Cutoff Frequency.
- No Secondary Breakdown.
- Suitable for Switching Regulator, DC-DC Converter, RF Amplifiers, and Ultrasonic Power Oscillators.

■ ABSOLUTE MAXIMUM RATINGS (T_c=25 °C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	−400	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	−8	A
Drain Peak Current	$I_{D(peak)}$	−15	A
Body-Drain Diode Reverse Drain Current	I_{DR}	−8	A
Channel Dissipation	P_{ch}*	125	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	−55 ~ +150	°C

*Value at T_c=25 °C

POWER VS. TEMPERATURE DERATING



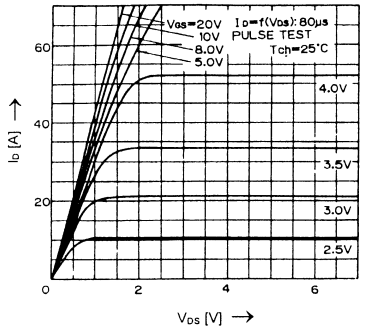
■ ELECTRICAL CHARACTERISTICS (T_a=25 °C)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=−10mA, V_{GS}=0	−400	—	—	V
Gate-Source Leak Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0	—	—	±1	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=−320V, V_{GS}=0	—	—	−1	mA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	I_D=−1mA, V_{DS}=−10V	−0.2	—	−5.0	V
Static Drain-Source On State Resistance	$R_{DS(on)}$	I_D=−4A, V_{GS}=−15V*	—	1.75	2.25	Ω
Drain-Source Saturation Voltage	$V_{DS(on)}$	I_D=−4A, V_{GS}=−15V*	—	−7.0	−9.0	V
Forward Transfer Admittance	$\|Y_{fs}\|$	I_D=−4A, V_{DS}=−20V*	1.0	1.6	—	S
Input Capacitance	C_{iss}	V_{DS}=−10V, V_{GS}=0, f=1MHz	—	1400	—	pF
Output Capacitance	C_{oss}		—	330	—	pF
Reverse Transfer Capacitance	C_{rss}		—	26	—	pF
Turn-on Delay Time	$t_{d(on)}$	I_D=−2A, V_{out}=−16V, R_L=15Ω	—	15	—	ns
Rise Time	t_r		—	45	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	160	—	ns
Fall Time	t_f		—	80	—	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=100A/μs	—	400	—	ns

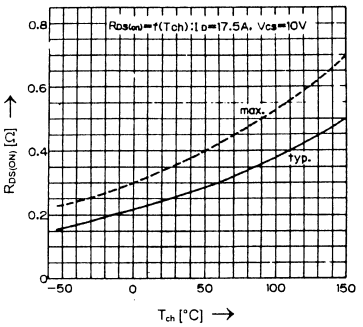
*Pulse Test

Characteristics

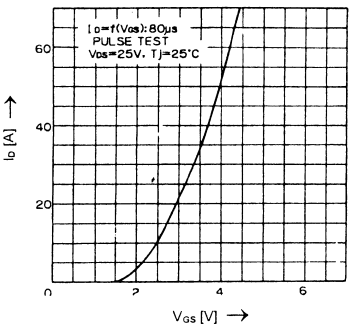
Typical Output Characteristics



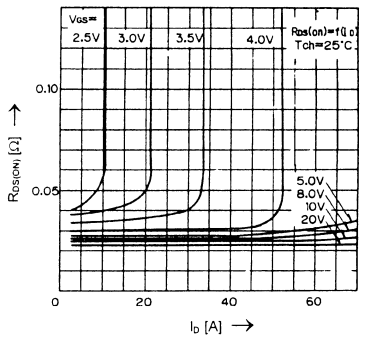
Drain-Source-On-State Resistance vs. T_{ch}



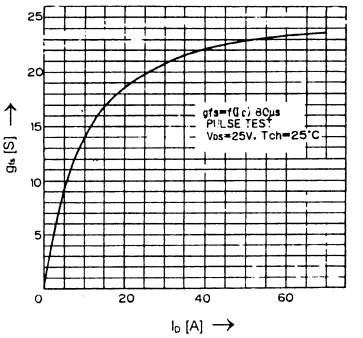
Typical Transfer Characteristics



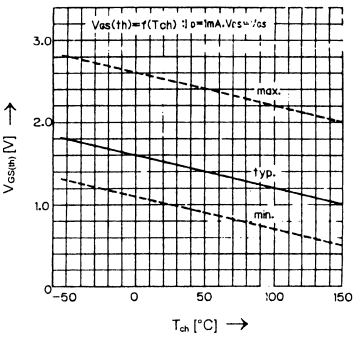
Typical Drain-Source-On-State-Resistance vs. I_D



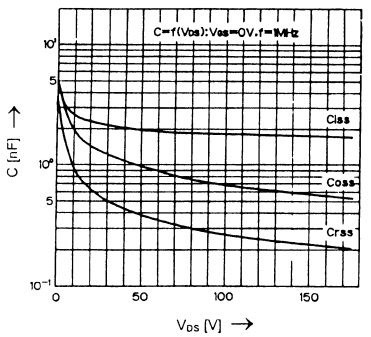
Typical Forward Transconductance vs. I_D



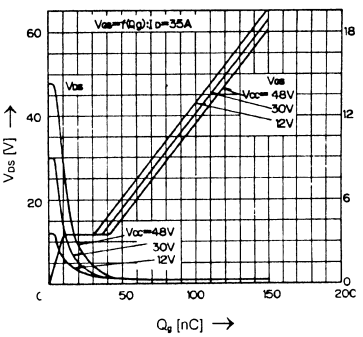
Gate Threshold Voltage vs. T_{ch}



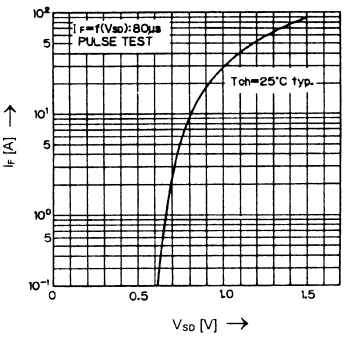
Typical Capacitance vs. V_{DS}



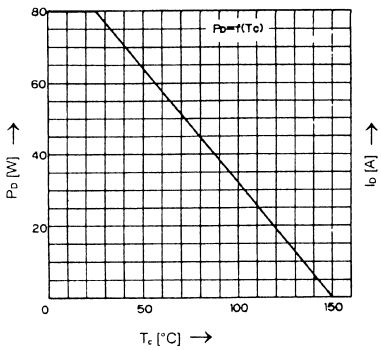
Typical Input Charge



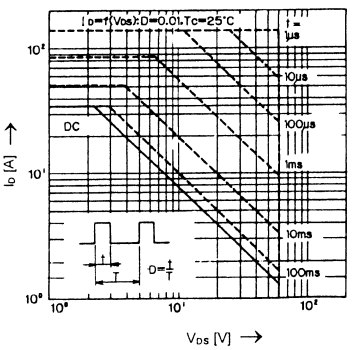
Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs. T_C



Safe operation area



Transient Thermal impedance