DATA SHEET

MOS FIELD EFFECT TRANSISTOR **2SJ411**

P-CHANNEL SIGNAL MOS FET FOR SWITCHING

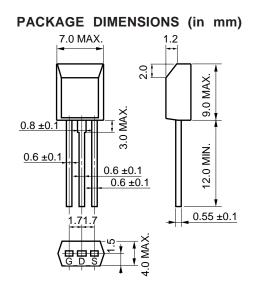
The 2SJ411 is a P-channel MOS FET of a vertical type and is a switching element that can be directly driven by the output of an IC operating at 5 V.

This product has a low ON resistance and superb switching characteristics and is ideal for power control switches and DC/DC converters.

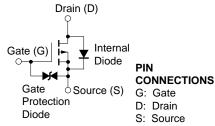
FEATURES

EC

- Radial taping supported
- Can be directly driven by 5-V IC
- Low ON resistance $R_{DS(on)} = 0.24 \Omega$ MAX. @Vgs = -4 V, ID = -2.5 A $R_{DS(on)} = 0.11 \Omega$ MAX. @Vgs = -10 V, ID = -2.5 A



EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS (TA = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	RATING	UNIT
Drain to Source Voltage	VDSS	V _{GS} = 0	-30	V
Gate to Source Voltage	Vgss	V _{DS} = 0	-20/+10	V
Drain Current (DC)	ID(DC)		±5.0	А
Drain Current (Pulse)	D(pulse)	$PW \le 10 \ \mu s$ Duty cycle $\le 1 \ \%$	±20.0	A
Total Power Dissipation	Рт1	T _A = 25 °C	1.0	W
Total Power Dissipation	P _{T2}	Tc = 25 °C	6.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		–55 to +150	°C

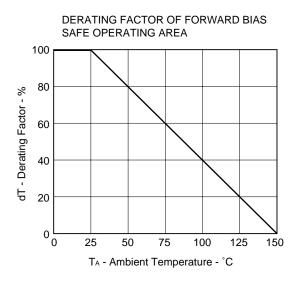
The internal diode connected between the gate and source of this product is to protect the product from static electricity. If the product is used in a circuit where the rated voltage of the product may be exceeded, connect a protection circuit.

The information in this document is subject to change without notice.

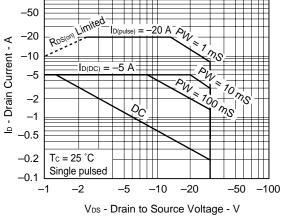
ELECTRICAL CHARACTERISTICS (TA = 25 °C)

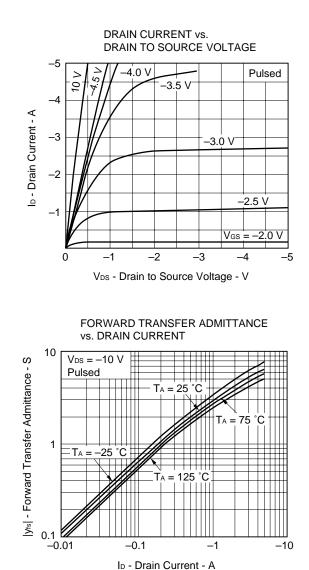
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-Off Current	IDSS	$V_{DS} = -30 V, V_{GS} = 0$			-10	μΑ
Gate Leakage Current	lgss	$V_{GS} = -16/+10 V, V_{DS} = 0$			±10	μΑ
Gate Cut-Off Voltage	VGS(off)	$V_{DS} = -10 V, I_{D} = -1 mA$	-1.0	-1.4	-2.0	V
Forward Transfer Admittance	y _{fs}	$V_{DS} = -10 \text{ V}, \text{ Id} = -2.5 \text{ A}$	3.0			S
Drain to Source On-State Resistance	RDS(on)1	$V_{GS} = -4 V$, $I_D = -2.5 A$		0.175	0.24	Ω
Drain to Source On-State Resistance	RDS(on)2	$V_{GS} = -10 \text{ V}, \text{ Id} = -2.5 \text{ A}$		0.096	0.11	Ω
Input Capacitance	Ciss	V _{DS} = -10 V, V _{GS} = 0 f = 1.0 MHz		790		pF
Output Capacitance	Coss			580		pF
Reverse Transfer Capacitance	Crss			280		pF
Turn-On Delay Time	td(on)	$V_{DD} = -15 \text{ V}, \text{ ID} = -2.5 \text{ A}$ $V_{GS(on)} = -10 \text{ V}$ $R_{G} = 10 \Omega, R_{L} = 6 \Omega$		10		ns
Rise Time	tr			110		ns
Turn-Off Delay Time	td(off)			195		ns
Fall Time	tr			185		ns
Gate Input Charge	QG	$V_{DS} = -24 V$ $V_{GS} = -10 V$ $I_D = -5.0 A, I_G = -2 mA$		29.8		nC
Gate to Source Charge	QGS			2.7		nC
Gate to Drain Charge	Qgd			11.5		nC
Internal Diode Forward Voltage	VF(S-D)	IF = 5.0 A, VGS = 0		1.0		V
Internal Diode Reverse Recovery Time	trr	IF = 5.0 A, VGs = 0 di/dt = 50 A/μs		140		ns
Internal Diode Reverse Recovery Charge	Qrr			160		nC

TYPICAL CHARACTERISTICS (TA = 25 $^{\circ}$ C)

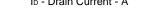


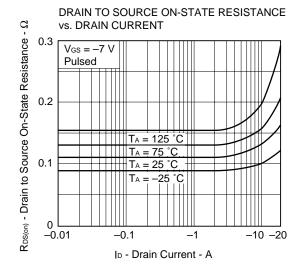
FORWARD BIAS SAFE OPERATING AREA



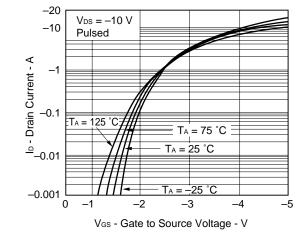


NEC

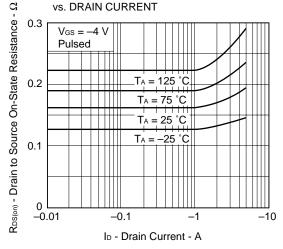




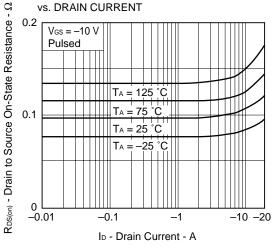
TRANSFER CHARACTERISTICS

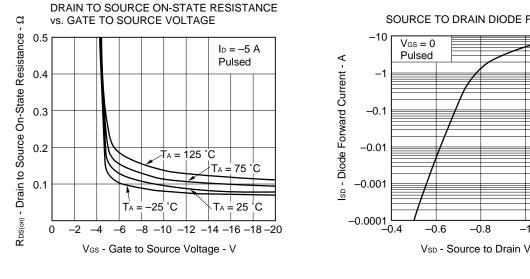


DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT

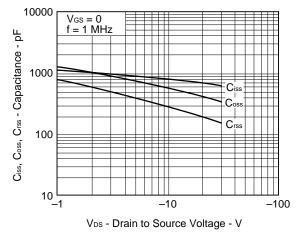


DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT





CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE

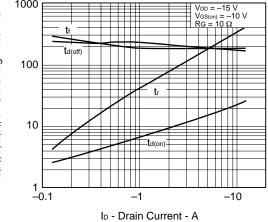




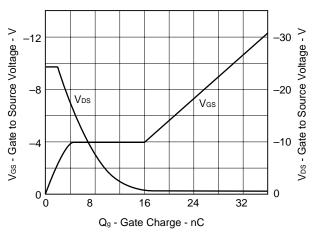
SOURCE TO DRAIN DIODE FORWARD VOLTAGE

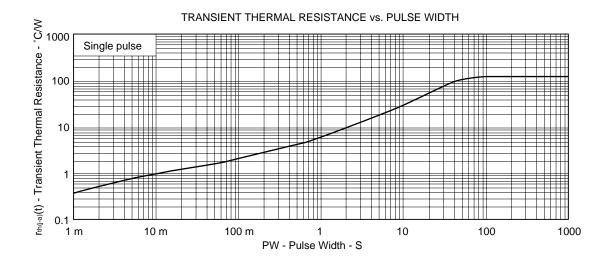
-1 -1.2 -1.4 Vsp - Source to Drain Voltage - V

SWITCHING CHARACTERISTICS









REFERENCE

Document Name	Document No.		
NEC semiconductor device reliability/quality control system	TEI-1202		
Quality grade on NEC semiconductor devices	IEI-1209		
Semiconductor device mounting technology manual	C10535E		
Guide to quality assurance for semiconductor devices	MEI-1202		
Semiconductor selection guide	X10679E		

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Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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Anti-radioactive design is not implemented in this product.

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