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P1 98.2

### P-CHANNEL MOS FIELD EFFECT TRANSISTOR FOR HIGH SPEED SWITCHING

#### DESCRIPTION

The 2SJ461 is a switching device which can be driven directly by a 2.5 V power source.

The MOS FET has excellent switching characteristics and is suitable for use as a high-speed switching device in digital circuits.

#### FEATURES

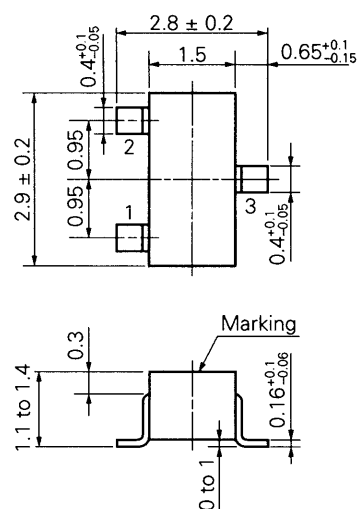
- Can be driven by a 2.5 V power source.
- Not necessary to consider driving current because of its high input impedance.
- Possible to reduce the number of parts by omitting the bias resistor.

#### ABSOLUTE MAXIMUM RATINGS ( $T_A = +25\text{ }^{\circ}\text{C}$ )

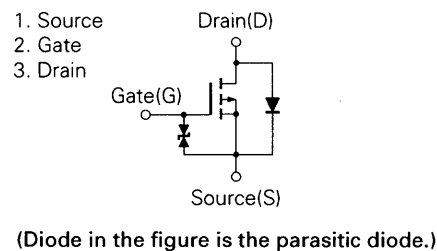
Drain to Source Voltage	$V_{DS}$	-50	V
Gate to Source Voltage	$V_{GS}$	$\pm 7.0$	V
Drain Current (DC)	$I_{D(DC)}$	$\pm 0.1$	A
Drain Current (pulse)	$I_{D(pulse)}$	$\pm 0.2^*$	A
Total Power Dissipation	$P_T$	200	mW
Channel Temperature	$T_{CH}$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$

\*PW  $\leq 10$  ms, Duty cycle  $\leq 1\%$

#### PACKAGE DRAWINGS (in millimeter)



#### EQUIVALENT CIRCUIT



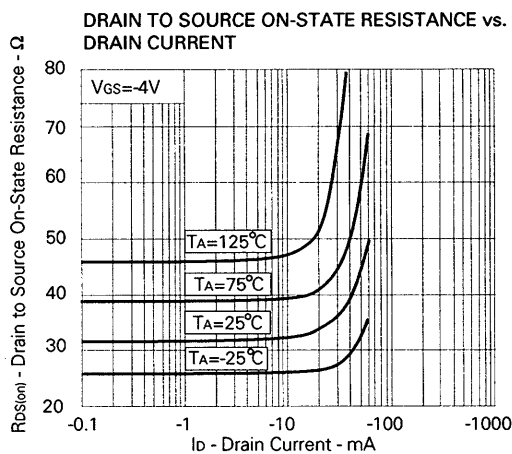
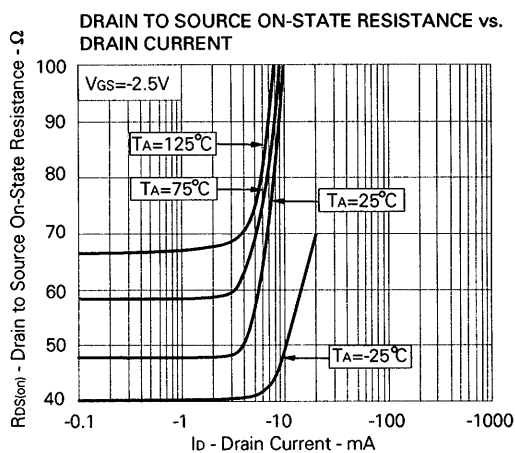
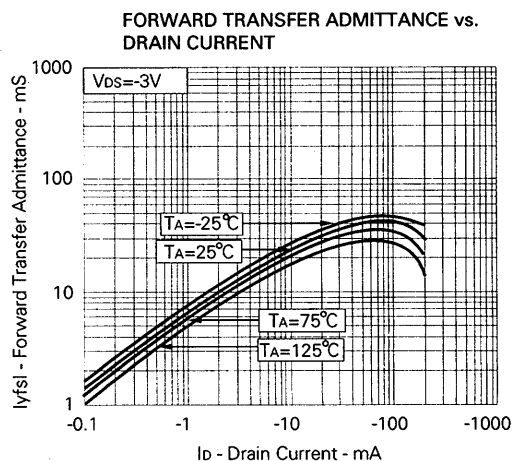
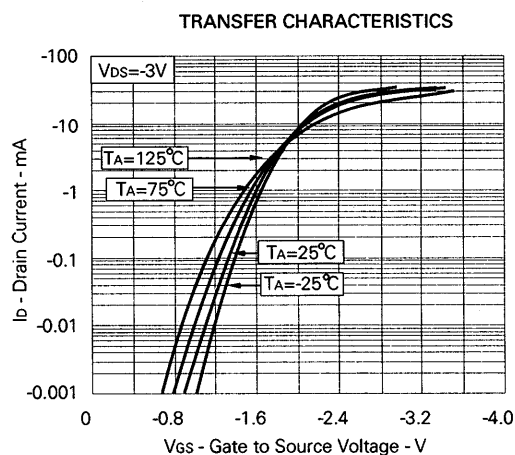
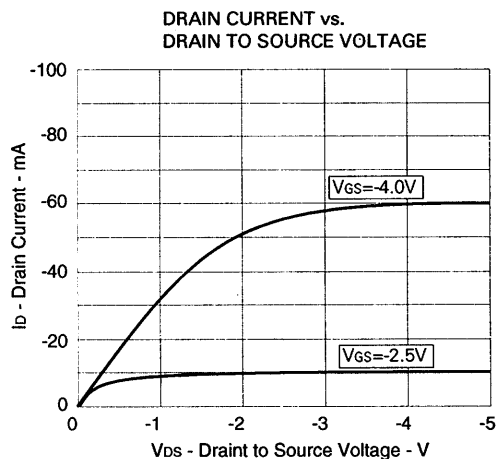
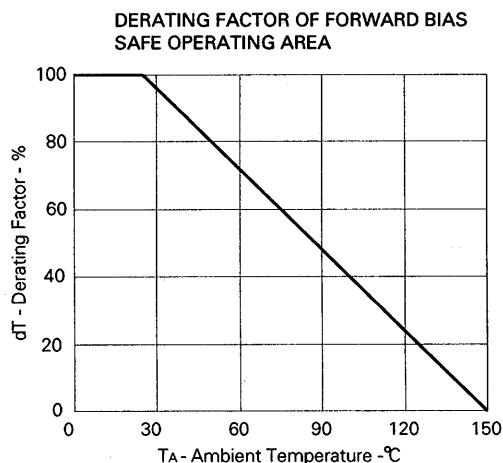
Marking : H19

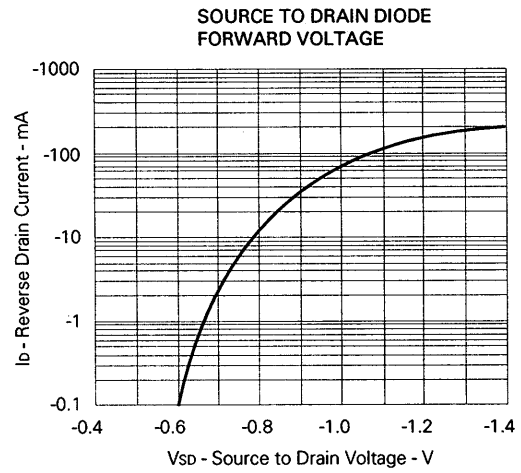
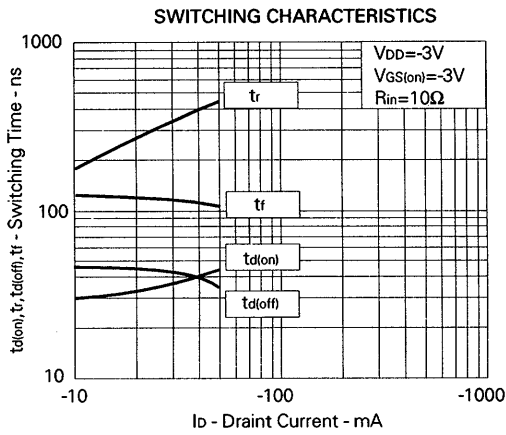
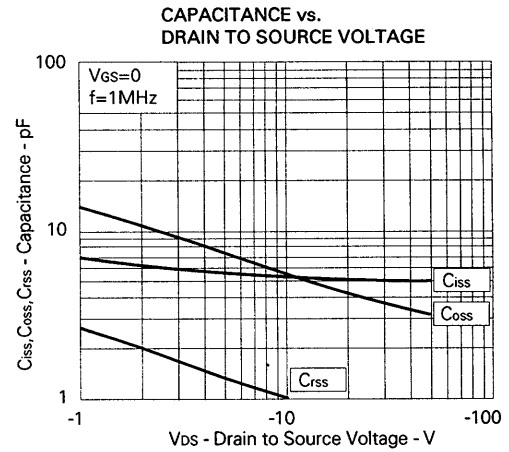
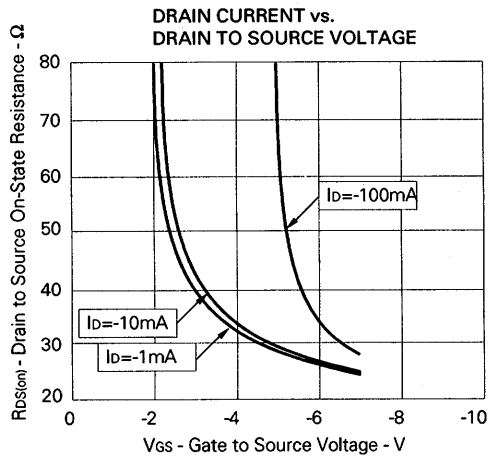
The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device is actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = +25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	I <sub>DSS</sub>			-1.0	μA	V <sub>DS</sub> = -50 V, V <sub>GS</sub> = 0
Gate Leakage Current	I <sub>GSS</sub>			±3.0	μA	V <sub>GS</sub> = ±7.0 V, V <sub>DS</sub> = 0
Gate Cut-off Voltage	V <sub>GS(off)</sub>	-0.7	-0.9	-1.3	V	V <sub>DS</sub> = -3.0 V, I <sub>D</sub> = -1.0 μA
Forward Transfer Admittance	y <sub>fs</sub>	12			mS	V <sub>DS</sub> = -3.0 V, I <sub>D</sub> = -10 mA
Drain to Source On-State Resistance	R <sub>DS(on)1</sub>		46	100	Ω	V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -3 mA
Drain to Source On-State Resistance	R <sub>DS(on)2</sub>		31	50	Ω	V <sub>GS</sub> = -4.0 V, I <sub>D</sub> = -10 mA
Input Capacitance	C <sub>iss</sub>		6		pF	V <sub>DS</sub> = -3.0 V, V <sub>GS</sub> = 0 f = 1.0 MHz
Output Capacitance	C <sub>oss</sub>		9		pF	
Reverse Transfer Capacitance	C <sub>rss</sub>		1.6		pF	
Turn-On Delay Time	t <sub>d(on)</sub>		32		ns	V <sub>DD</sub> = -3.0 V, I <sub>D</sub> = -20 mA V <sub>GS(on)</sub> = -3.0 V, R <sub>G</sub> = 10 Ω R <sub>L</sub> = 200 Ω
Rise Time	t <sub>r</sub>		270		ns	
Turn-Off Delay Time	t <sub>d(off)</sub>		45		ns	
Fall Time	t <sub>f</sub>		130		ns	

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





## 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	C10535EJ7V0IF00
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679EJAV0SG00

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Anti-radioactive design is not implemented in this product.