NEC

MOS FIELD EFFECT TRANSISTOR
2SJ461

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 2SJ461 has excellent switching characteristics and is suitable for use as a high-speed switching device in digital circuit.

FEATURES

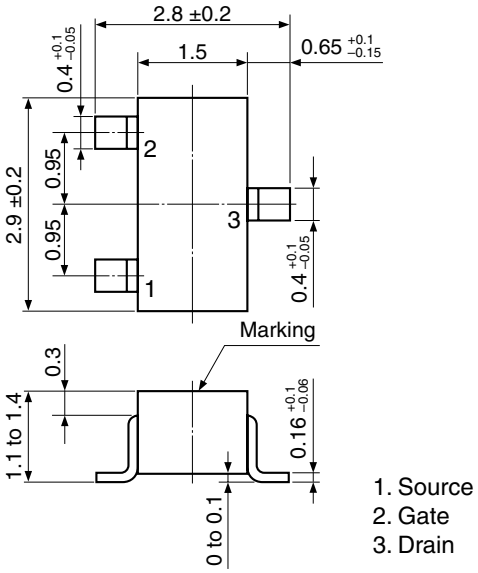
- Can be driven by a 2.5 V power source
- Not necessary to consider driving current because of its high input impedance.
- Possible to reduce the number of parts by omitting the bias resistor.

★ ORDERING INFORMATION

PART NUMBER	PACKAGE
2SJ461	SC-59 (Mini Mold)

Marking: H19

★ PACKAGE DRAWING (Unit: mm)

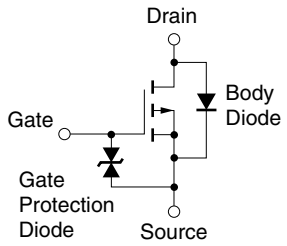


1. Source
2. Gate
3. Drain

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage (V_{GS} = 0 V)	V_{DSS}	−50	V
Gate to Source Voltage (V_{DS} = 0 V)	V_{GSS}	∓7.0	V
Drain Current (DC)	$I_{D(DC)}$	∓0.1	A
Drain Current (pulse) **Note**	$I_{D(pulse)}$	∓0.2	A
Total Power Dissipation	P_T	200	mW
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	−55 to +150	°C

EQUIVALENT CIRCUIT



★ **Note** PW ≤ 10 ms, Duty Cycle ≤ 50%

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

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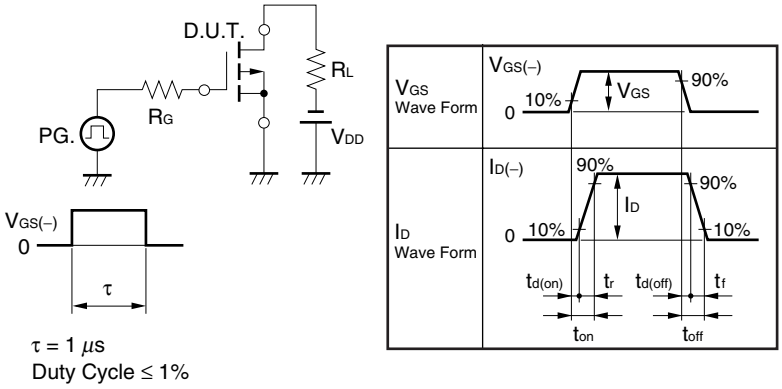
The mark ★ shows major revised points.

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

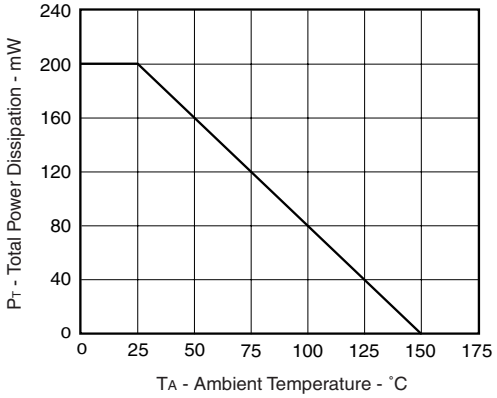
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = –50 V, V_{GS} = 0 V			–1.0	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ∓7.0 V, V_{DS} = 0 V			∓3.0	μA
Gate Cut-off Voltage	$V_{GS(off)}$	V_{DS} = –3.0 V, I_D = –1.0 μA	–0.7	–0.9	–1.3	V
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = –3.0 V, I_D = –10 mA	12			mS
Drain to Source On-state Resistance	$R_{DS(on)1}$	V_{GS} = –2.5 V, I_D = –3 mA		46	100	Ω
	$R_{DS(on)2}$	V_{GS} = –4.0 V, I_D = –10 mA		31	50	Ω
Input Capacitance	C_{iss}	V_{DS} = –3.0 V		6		pF
Output Capacitance	C_{oss}	V_{GS} = 0 V		9		pF
Reverse Transfer Capacitance	C_{rss}	f = 1.0 MHz		1.6		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = –3.0 V, I_D = –20 mA		32		ns
Rise Time	t_r	V_{GS} = –3.0 V		270		ns
Turn-off Delay Time	$t_{d(off)}$	R_G = 10 Ω, R_L = 200 Ω		45		ns
Fall Time	t_f			130		ns

★ TEST CIRCUIT SWITCHING TIME

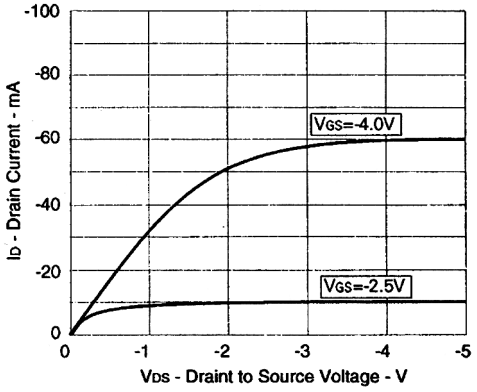


TYPICAL CHARACTERISTICS (T_A = 25°C)

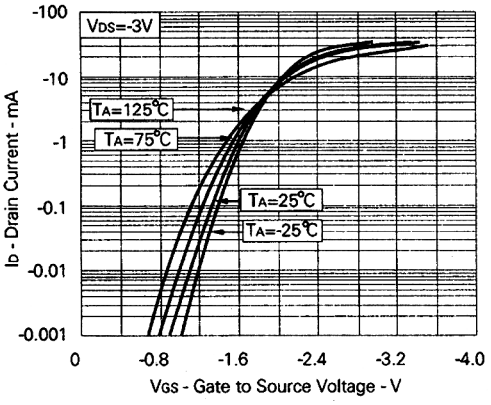
★ TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



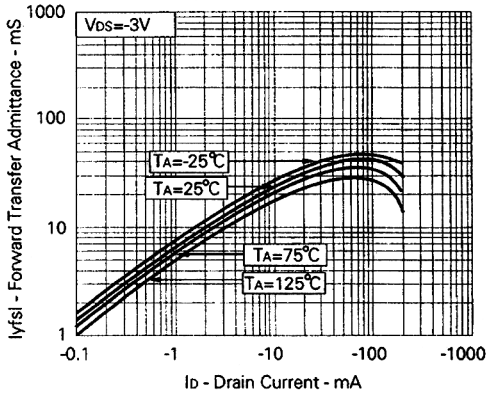
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



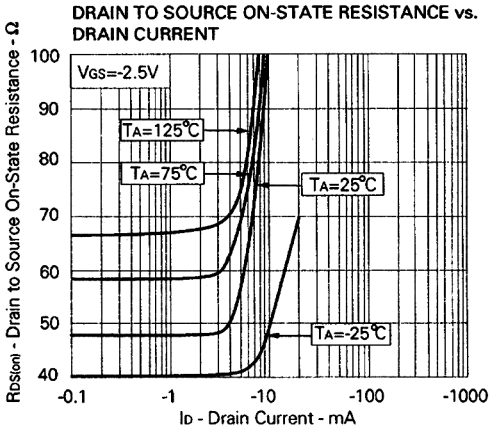
TRANSFER CHARACTERISTICS



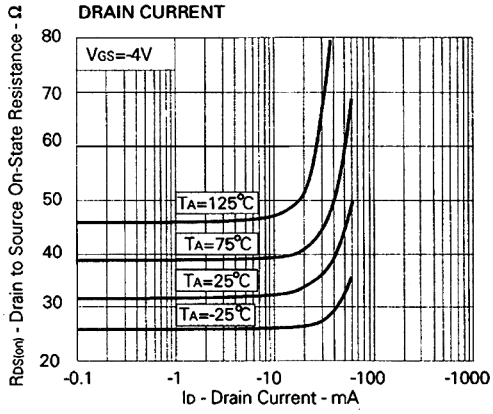
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



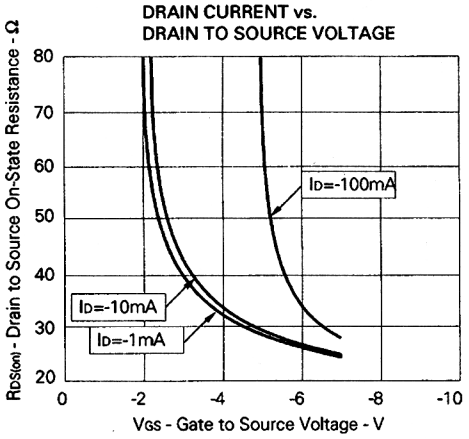
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



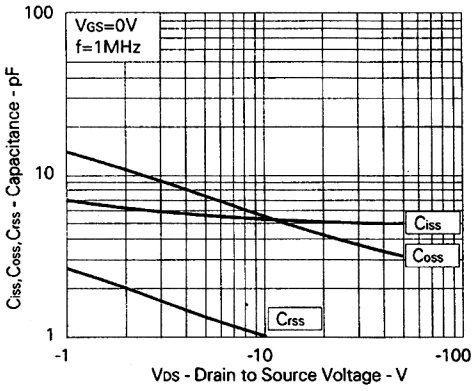
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



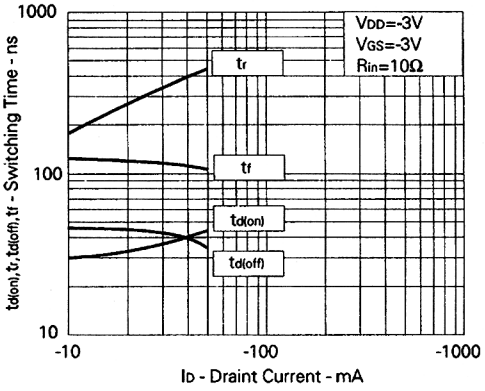
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



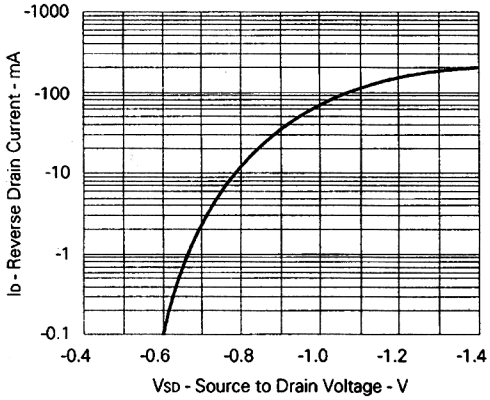
CAPACITANCE vs.
DRAIN TO SOURCE VOLTAGE



SWITCHING CHARACTERISTICS



SOURCE TO DRAIN DIODE
FORWARD VOLTAGE



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