

P-CHANNEL MOS FIELD EFFECT TRANSISTOR
FOR HIGH SPEED SWITCHING

DESCRIPTION

The 2SJ559 is a switching device which can be driven directly by a 2.5 V power source.

The 2SJ559 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.
- Low gate cut-off voltage.

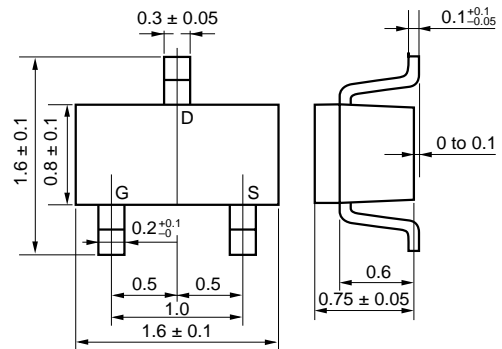
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage	V _{DSS}	-30	V
Gate to Source Voltage	V _{GSS}	± 20	V
Drain Current (DC)	I _{D(DC)}	± 0.1	A
Drain Current (pulse)	I _{D(pulse)}	± 0.4	A
Total Power Dissipation	P _T	200	mW
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

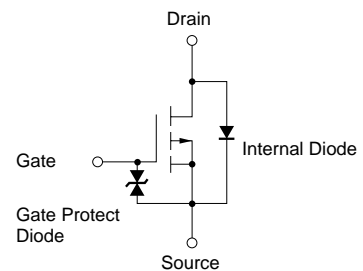
- Notes** 1. $PW \leq 10 \mu s$, Duty Cycle $\leq 1 \%$
2. Mounted on ceramic substrate of $3.0\text{cm}^2 \times 0.64 \text{ mm}$

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.

PACKAGE DRAWING (Unit : mm)



EQUIVALENT CIRCUIT



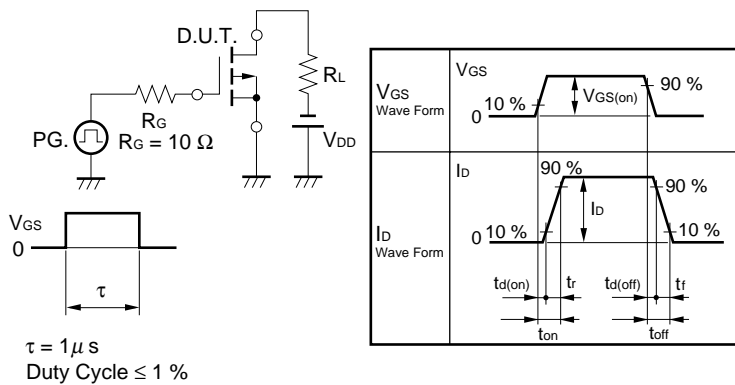
Marking : C1

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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

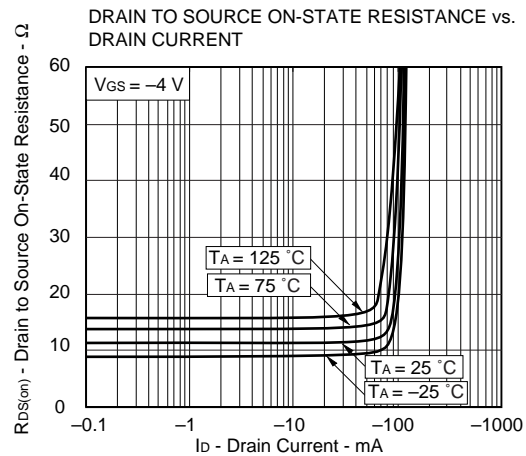
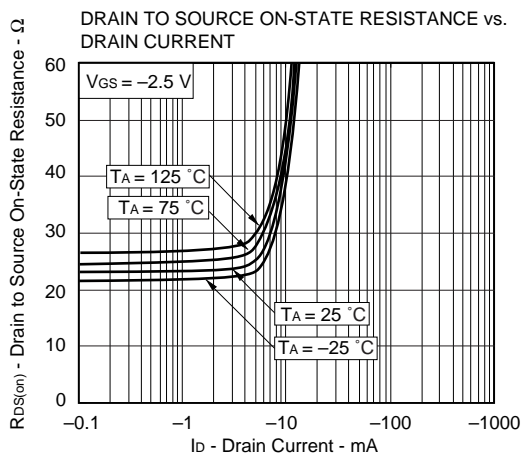
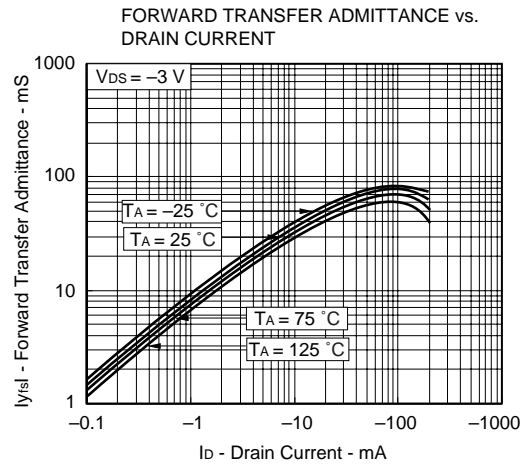
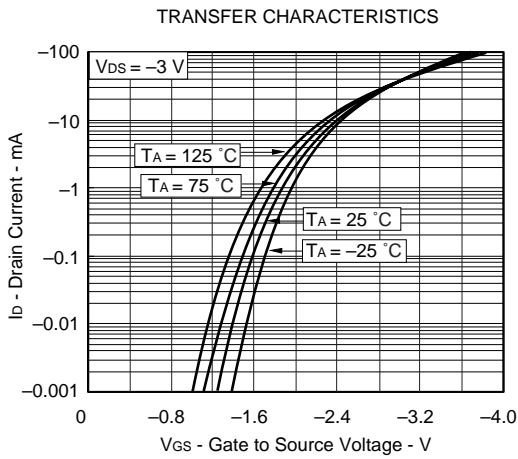
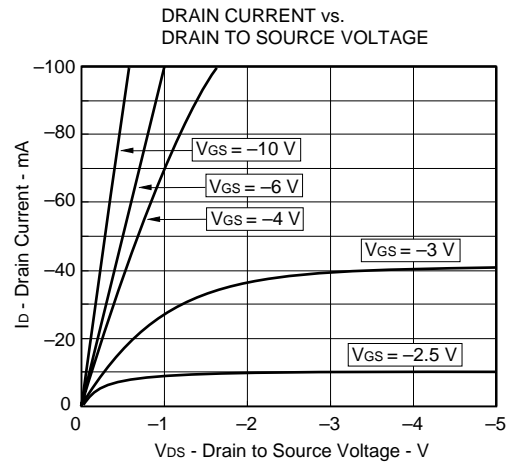
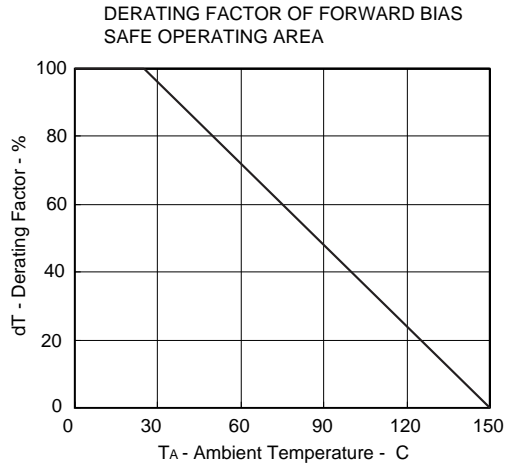
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

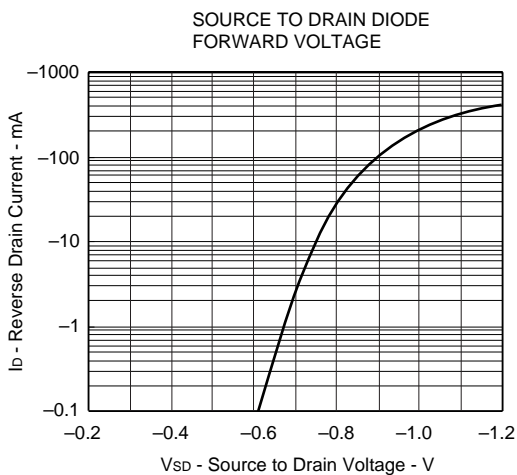
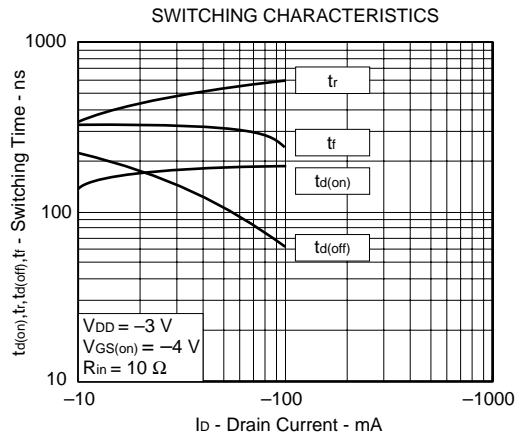
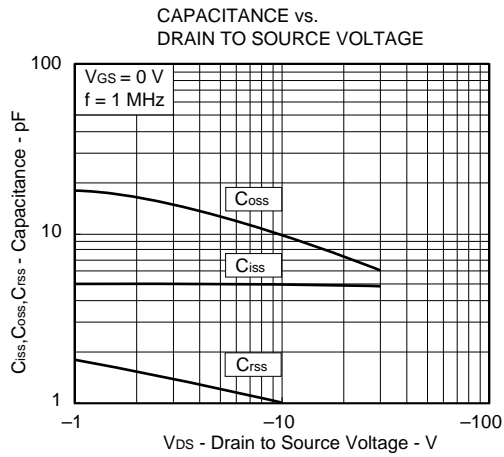
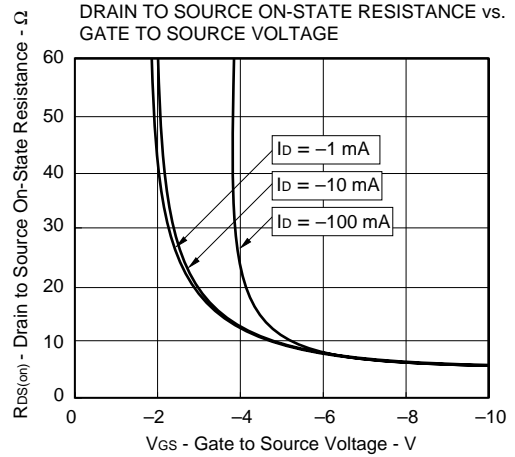
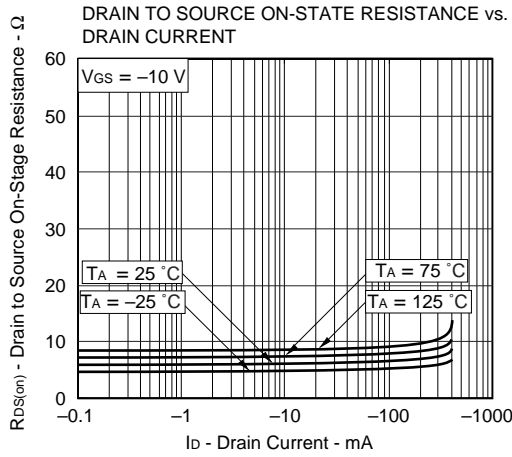
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-off Current	I _{DSS}	V _{DS} = -30 V, V _{GS} = 0 V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ± 20 V, V _{DS} = 0 V			± 10	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = -3 V, I _D = -10 μA	-1.0	-1.4	-1.7	V
Forward Transfer Admittance	y _{fs}	V _{DS} = -3 V, I _D = -10 mA	20			mS
Drain to Source On-state Resistance	R _{DS(on)1}	V _{GS} = -2.5 V, I _D = -1 mA		23	60	Ω
	R _{DS(on)2}	V _{GS} = -4 V, I _D = -10 mA		11	23	Ω
	R _{DS(on)3}	V _{GS} = -10 V, I _D = -10 mA		6	13	Ω
Input Capacitance	C _{iSS}	V _{DS} = -3 V V _{GS} = 0 V f = 1 MHz		5		pF
Output Capacitance	C _{oSS}			15		pF
Reverse Transfer Capacitance	C _{rSS}			1.3		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = -3 V I _D = -10 mA		140		ns
Rise Time	t _r			330		ns
Turn-off Delay Time	t _{d(off)}	V _{GS(on)} = -4 V		220		ns
Fall Time	t _f	R _G = 10 Ω, R _L = 300 Ω		320		ns

TEST CIRCUIT SWITCHING TIME



TYPICAL CHARACTERISTICS (TA = 25°C)





[MEMO]

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