

MOS FIELD EFFECT TRANSISTOR

2SJ559

P-CHANNEL MOS FIELD EFFECT TRANSISTOR

FOR HIGH SPEED SWITCHING

DESCRIPTION

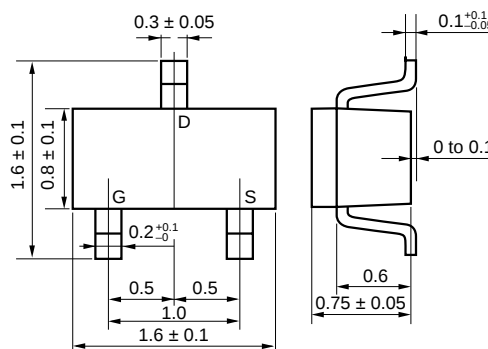
The 2SJ559 is a switching device which can be driven directly by a 2.5 V power source.

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.

PACKAGE DRAWING (Unit : mm)



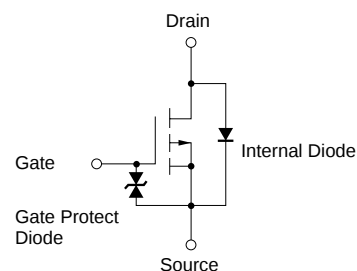
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

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) ^{Note1}	I _D (pulse)	± 0.4	A
Total Power Dissipation ^{Note2}	P _T	200	mW
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Notes 1. PW ≤ 10 μs, Duty Cycle ≤ 1 %

2. Mounted on ceramic substrate of 3.0cm² × 0.64 mm

EQUIVALENT CIRCUIT



Marking : C1

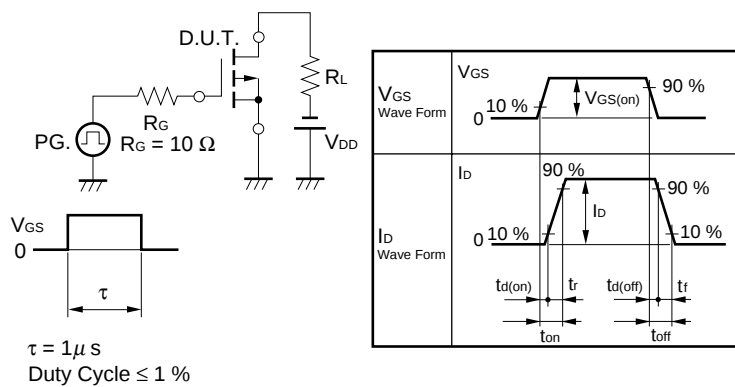
Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

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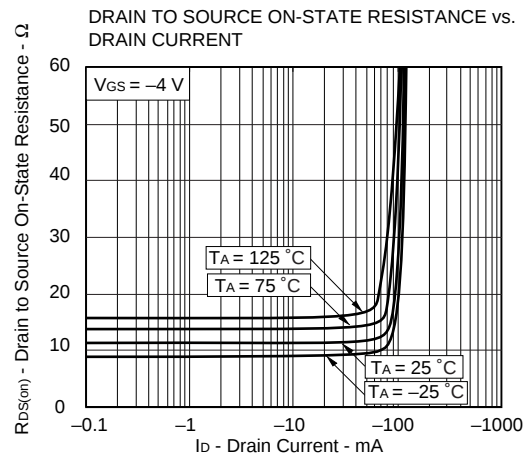
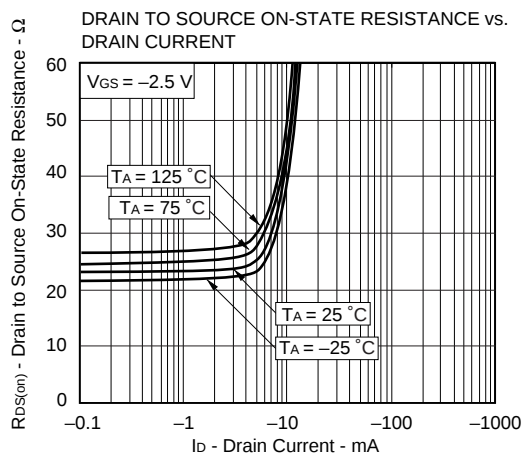
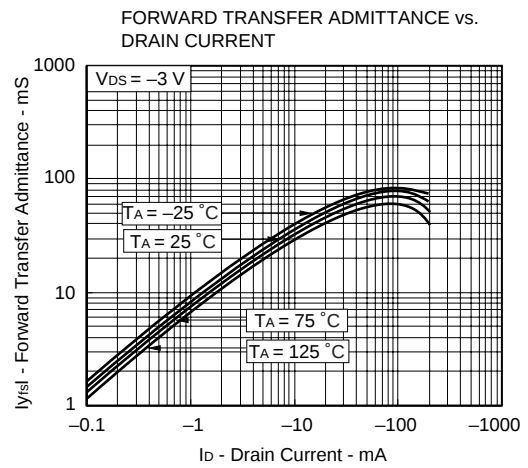
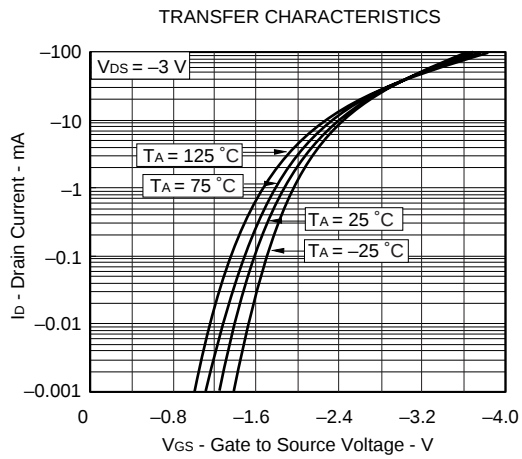
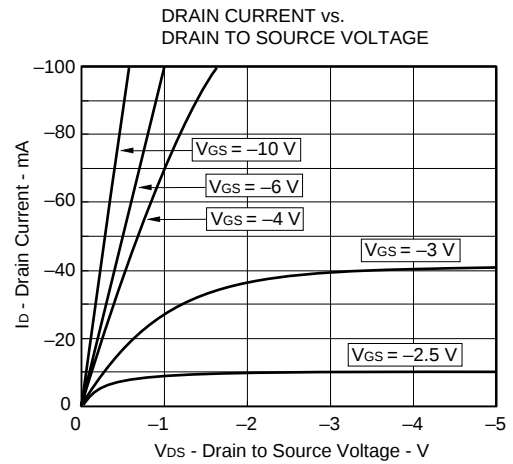
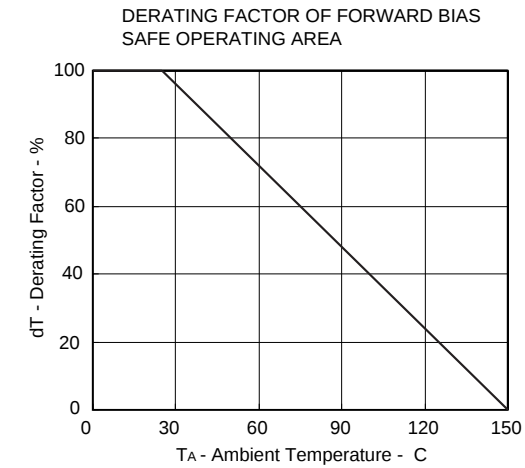
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

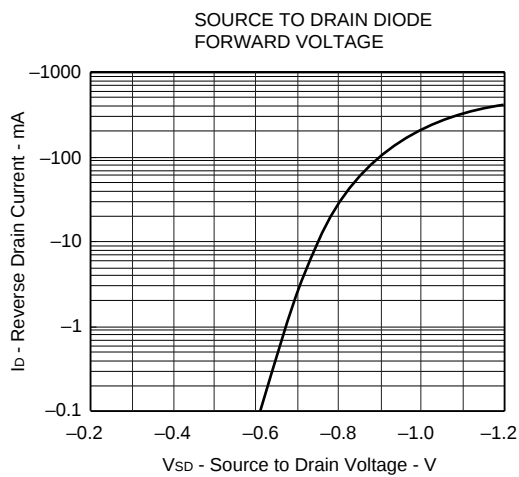
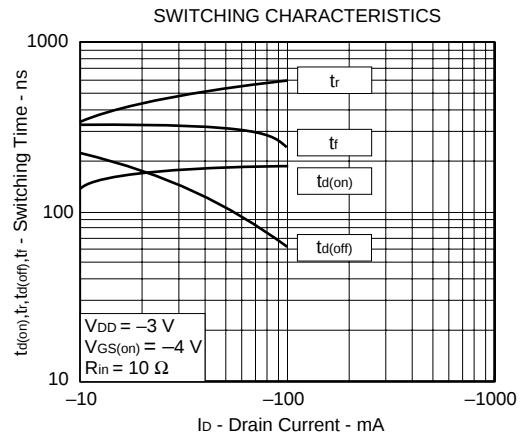
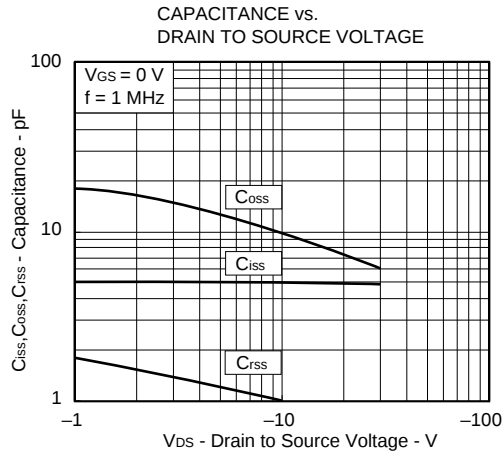
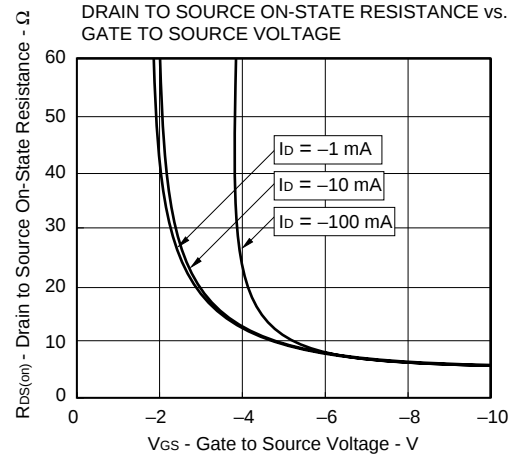
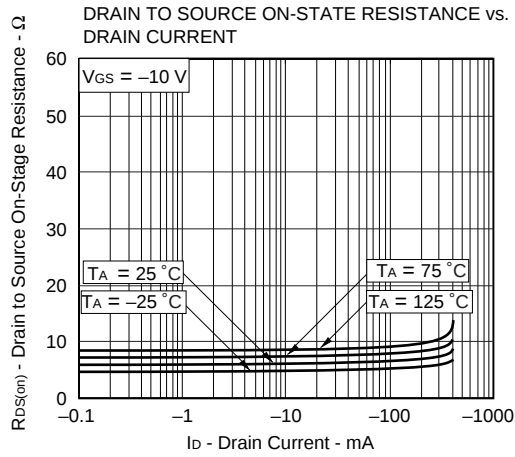
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-off Current	I _{DSS}	V _{DS} = -30 V, V _{GS} = 0 V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ± 20 V, V _{DS} = 0 V			± 10	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = -3 V, I _D = -10 μA	-1.0	-1.4	-1.7	V
Forward Transfer Admittance	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		5		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V		15		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		1.3		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = -3 V		140		ns
Rise Time	t _r	I _D = -10 mA		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 ($T_A = 25^\circ\text{C}$)





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