

P-CHANNEL MOSFET FOR SWITCHING

The 2SJ209, P-channel vertical type MOSFET, is a switching device which can be driven directly by the output of ICs having a 5 V power source.

The 2SJ209 has low on-state resistance and excellent switching characteristics, it is suitable for driving actuators such as motors, relays, and solenoids.

FEATURES

- Directly driven by ICs having a 5 V power supply.
- 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
2SJ209	SC-59 (Mini Mold)

Marking: H17

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

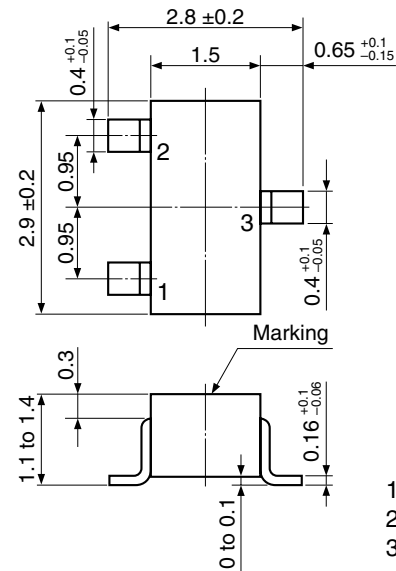
Drain to Source Voltage (V _{GS} = 0 V)	V _{DSS}	-100	V
Gate to Source Voltage (V _{DS} = 0 V)	V _{GSS}	±16	V
Drain Current (DC)	I _{D(DC)}	±100	mA
Drain Current (pulse) ^{Note}	I _{D(pulse)}	±200	mA
Total Power Dissipation	P _T	200	mW
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

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.

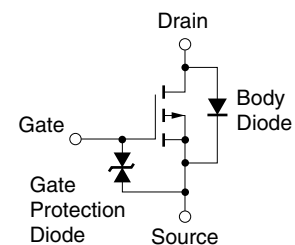
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PACKAGE DRAWING (Unit: mm)



1. Source
2. Gate
3. Drain

EQUIVALENT CIRCUIT

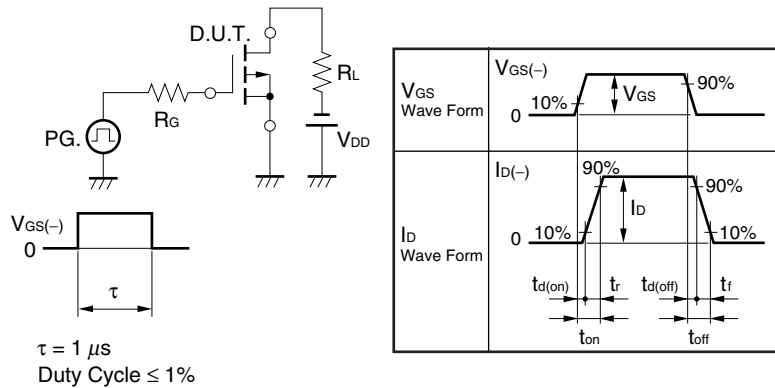


ELECTRICAL CHARACTERISTICS (Ta = 25°C)

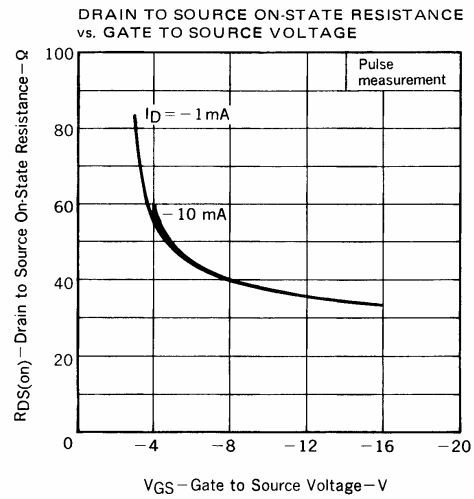
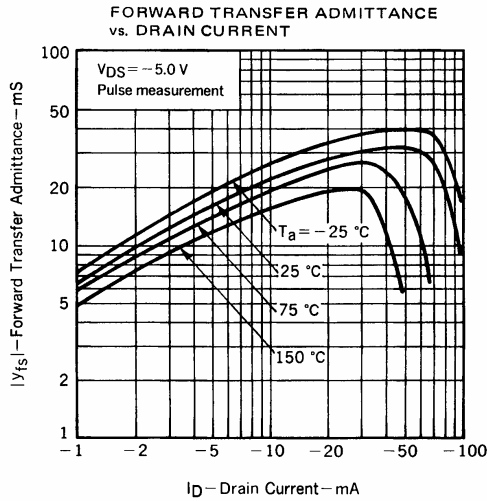
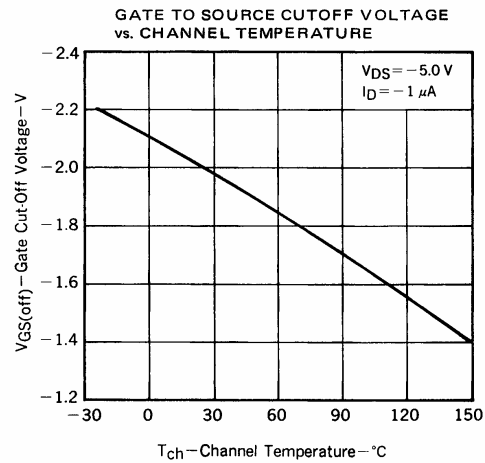
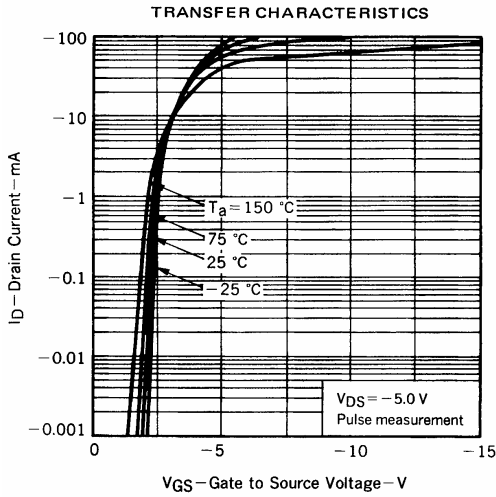
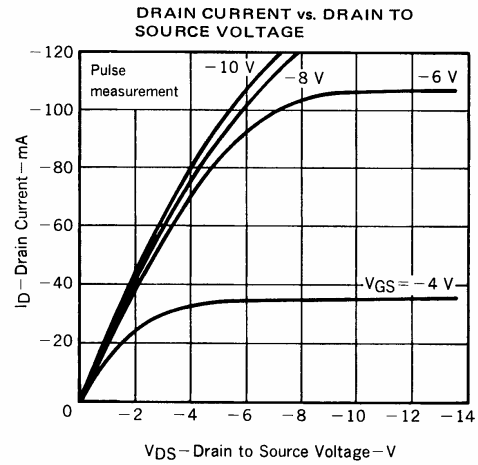
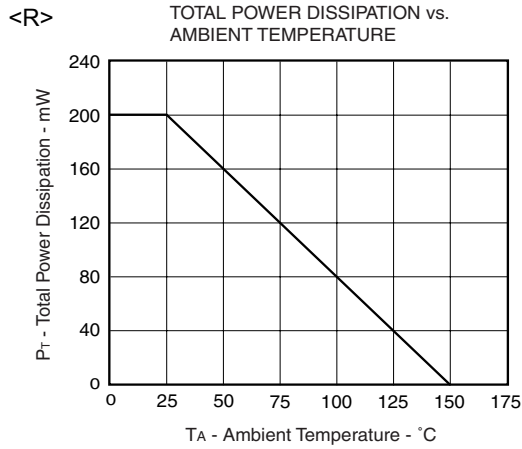
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -100V, V_{GS} = 0V$			-1.0	μA
Gate Leakage Current	I_{GSS}	$V_{GS} = \mp 16V, V_{DS} = 0V$			∓ 10	μA
Gate Cut-off Voltage	$V_{GS(off)}$	$V_{DS} = -5.0V, I_D = -1.0\mu A$	-1.5	-2.0	-2.5	V
Forward Transfer Admittance Note	$ y_{fs} $	$V_{DS} = -5.0V, I_D = -10mA$	15	22		mS
Drain to Source On-state Resistance Note	$R_{DS(on)1}$	$V_{GS} = -4.0V, I_D = -10mA$		60	100	Ω
	$R_{DS(on)2}$	$V_{GS} = -10V, I_D = -10mA$		37	60	Ω
Input Capacitance	C_{iss}	$V_{DS} = -5.0V$		17		pF
Output Capacitance	C_{oss}	$V_{GS} = 0V$		9		pF
Reverse Transfer Capacitance	C_{rss}	$f = 1MHz$		1		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{GS} = -4.0V, R_G = 10\Omega$		45		ns
Rise Time	t_r	$V_{DD} = -5.0V$		75		ns
Turn-off Delay Time	$t_{d(off)}$	$I_D = -10mA$		25		ns
Fall Time	t_f			80		ns

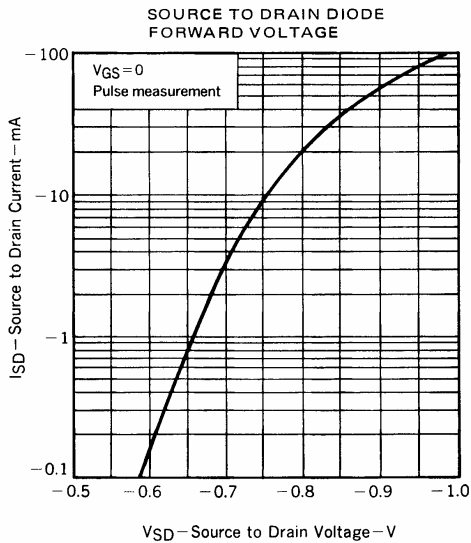
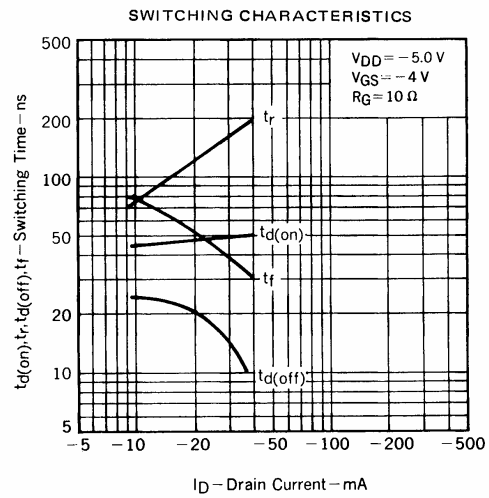
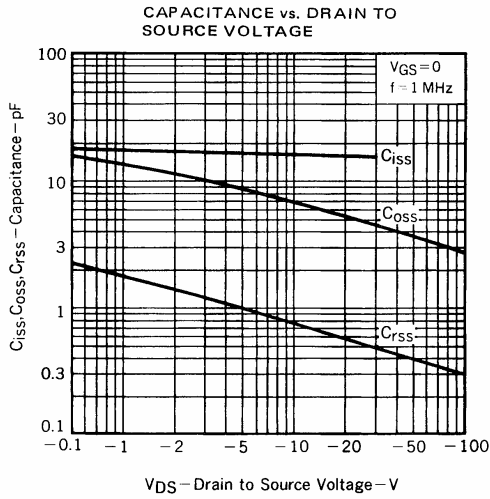
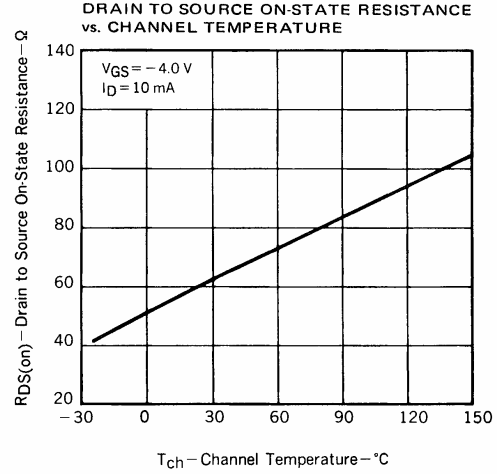
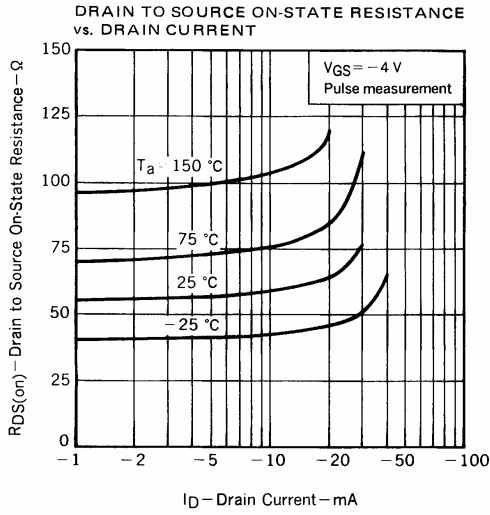
<R> **Note** Pulsed

TEST CIRCUIT SWITCHING TIME



TYPICAL CHARACTERISTICS (T_A = 25°C)





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