

N-CHANNEL MOS FET FOR HIGH-SPEED SWITCHING

DESCRIPTION

The 2SK3749 is an N-channel vertical MOS FET. Because it can be driven by a voltage as low as 2.5 V and it is not necessary to consider a drive current, this FET is ideal as an actuator for low-current portable systems such as headphone stereos and video cameras.

FEATURES

- Gate can be driven by 2.5 V
- Because of its high input impedance, there's no need to consider drive current

ORDERING INFORMATION

PART NUMBER	PACKAGE
2SK3749	SC-70 (SSP)

Marking: G27

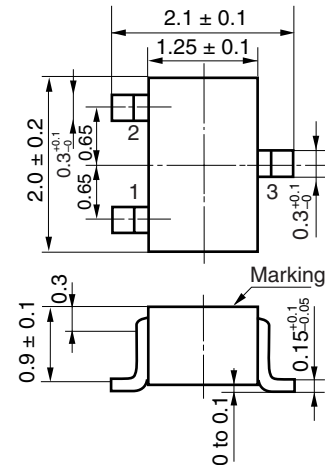
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

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)}	±100	mA
Drain Current (pulse) ^{Note}	I _{D(pulse)}	±200	mA
Total Power Dissipation	P _T	150	mW
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Note PW ≤ 10 ms, Duty Cycle ≤ 50%

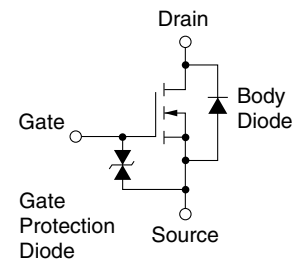
Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

PACKAGE DRAWING (Unit: mm)



- 1 : Source
2 : Gate
3 : Drain

EQUIVALENT CIRCUIT



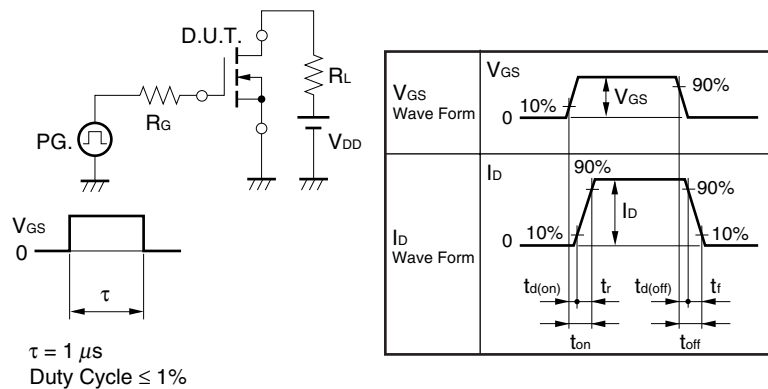
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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

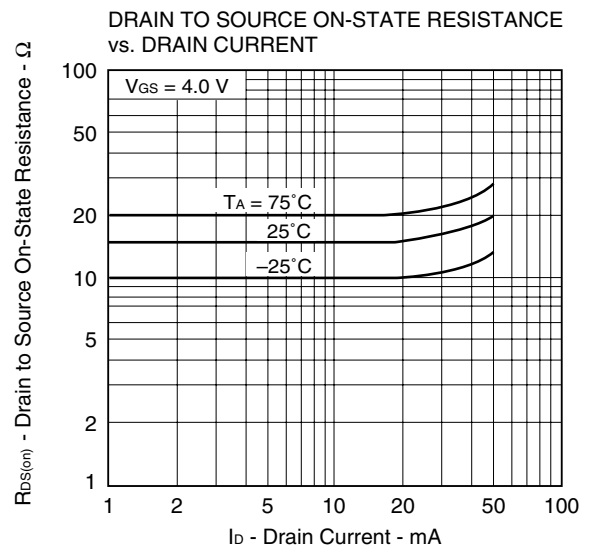
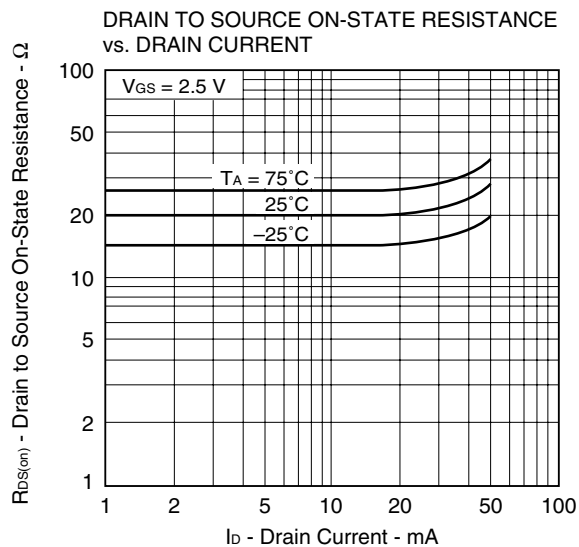
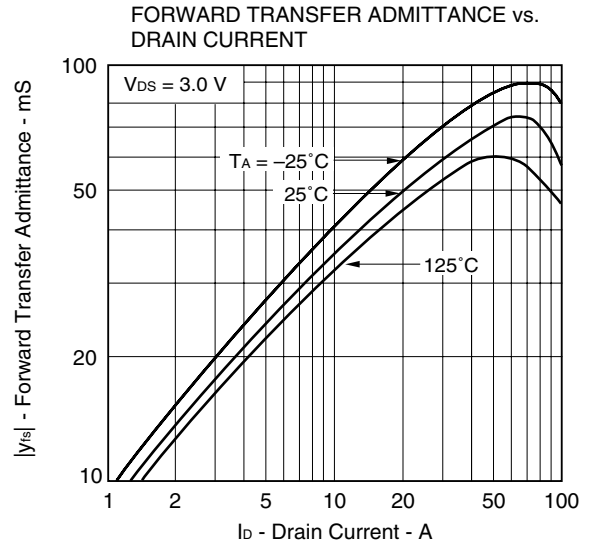
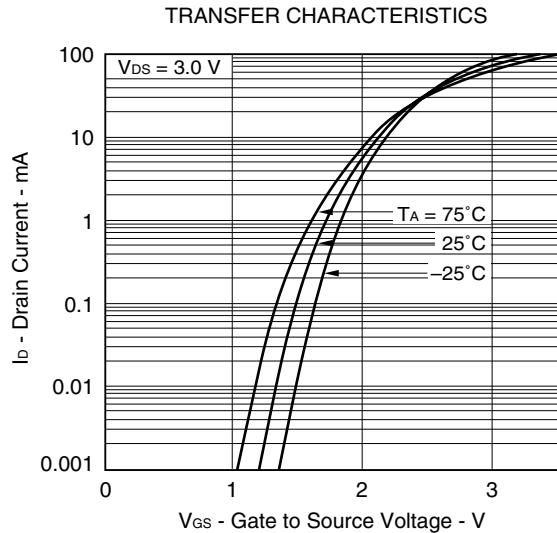
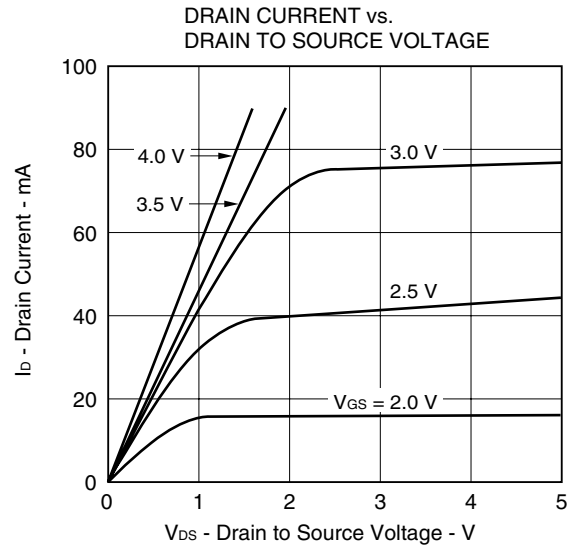
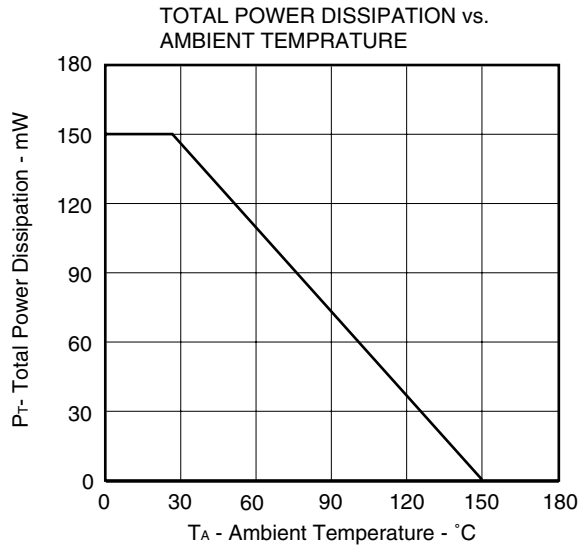
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 50 V, V _{GS} = 0 V			1.0	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±7.0 V, V _{DS} = 0 V			±5.0	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 3.0 V, I _D = 1.0 μA	0.9	1.2	1.5	V
Forward Transfer Admittance Note	y _{fs}	V _{DS} = 3.0 V, I _D = 10 mA	20			mS
Drain to Source On-state Resistance Note	R _{DS(on)1}	V _{GS} = 2.5 V, I _D = 10 mA		20	40	Ω
	R _{DS(on)2}	V _{GS} = 4.0 V, I _D = 10 mA		15	20	Ω
Input Capacitance	C _{iss}	V _{DS} = 3.0 V		6.0		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V		8.0		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		1.2		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 3.0 V, I _D = 20 mA		9.0		ns
Rise Time	t _r	V _{GS} = 3.0 V		50		ns
Turn-off Delay Time	t _{d(off)}	R _G = 10 Ω		20		ns
Fall Time	t _f			40		ns

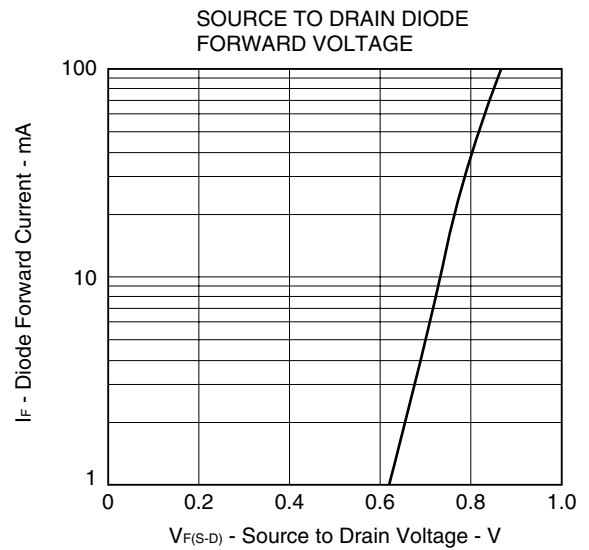
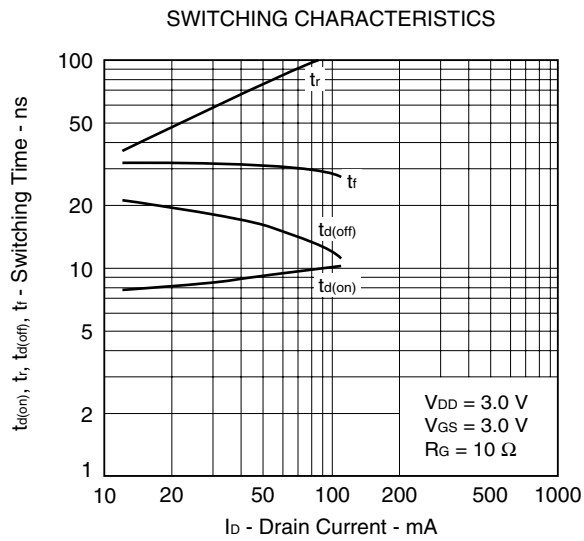
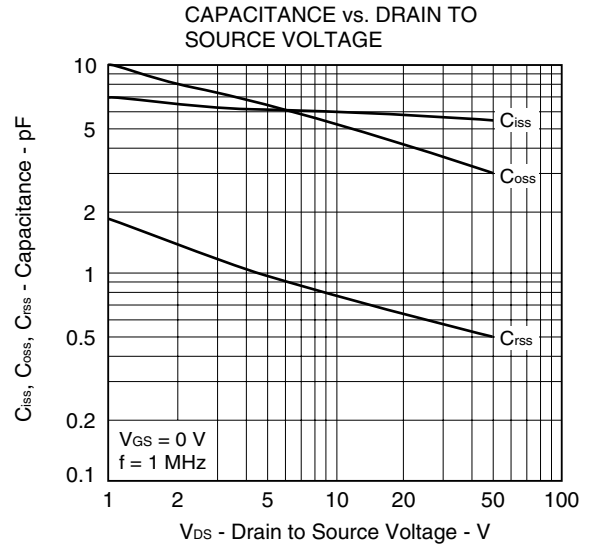
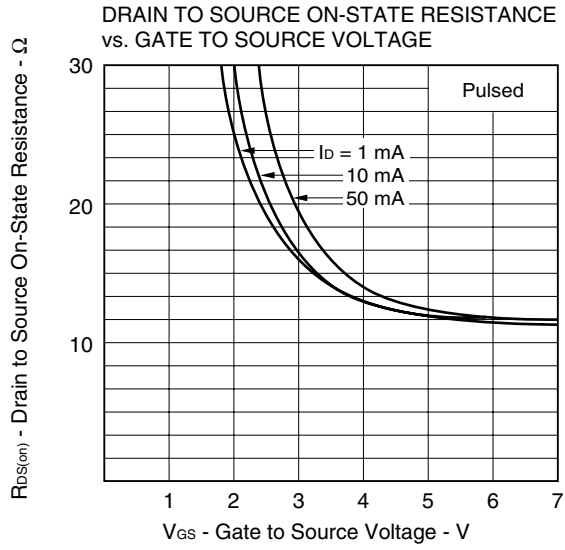
Note Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2%

TEST CIRCUIT SWITCHING TIME



TYPICAL CHARACTERISTICS (TA = 25°C)





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