

MOS FIELD EFFECT TRANSISTOR

2SK3503

N-CHANNEL MOS FIELD EFFECT TRANSISTOR

FOR HIGH SPEED SWITCHING

DESCRIPTION

The 2SK3503 is an N-channel vertical MOS FET. Because it can be driven by a voltage as low as 1.5 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

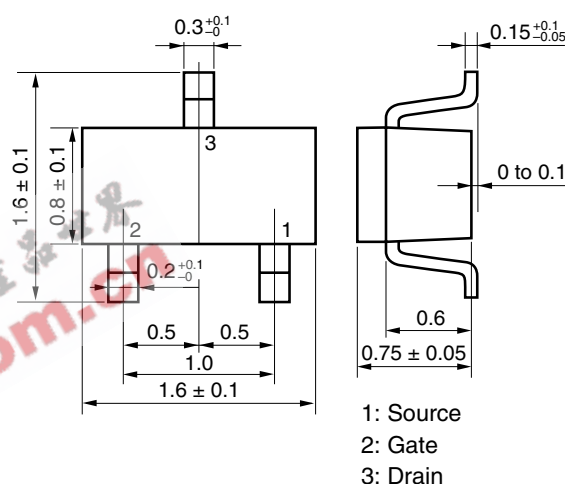
- Automatic mounting supported
- Gate can be driven by a 1.5 V power source
- Because of its high input impedance, there's no need to consider a drive current
- Since bias resistance can be omitted, the number of components required can be reduced

ORDERING INFORMATION

PART NUMBER	PACKAGE
2SK3503	SC-75 (USM)

Marking: E1

★ PACKAGE DRAWING (Unit: mm)

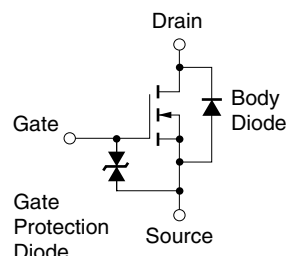


ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage (V _{GS} = 0 V)	V _{DSS}	16	V
Gate to Source Voltage (V _{DS} = 0 V)	V _{GSS}	±7.0	V
Drain Current (DC) (T _C = 25°C)	I _{D(DC)}	±0.1	A
Drain Current (pulse) ^{Note1}	I _{D(pulse)}	±0.4	A
Total Power Dissipation (T _C = 25°C) ^{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 3.0 cm² × 0.64 mm

EQUIVALENT CIRCUIT



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.

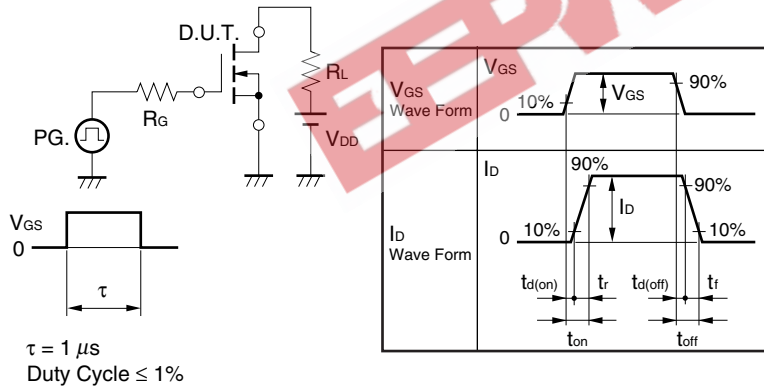
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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

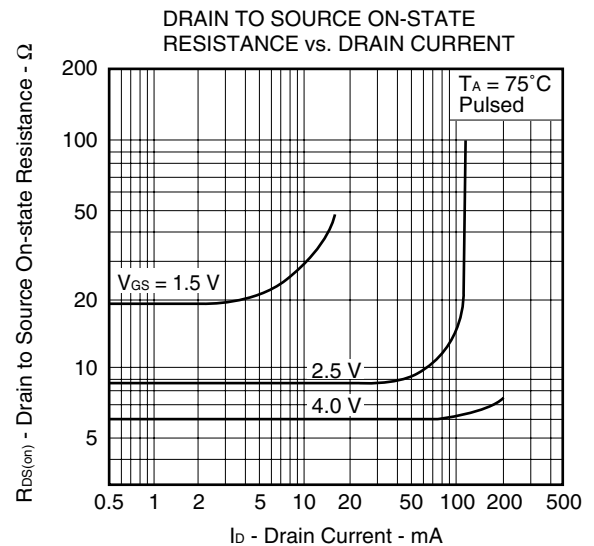
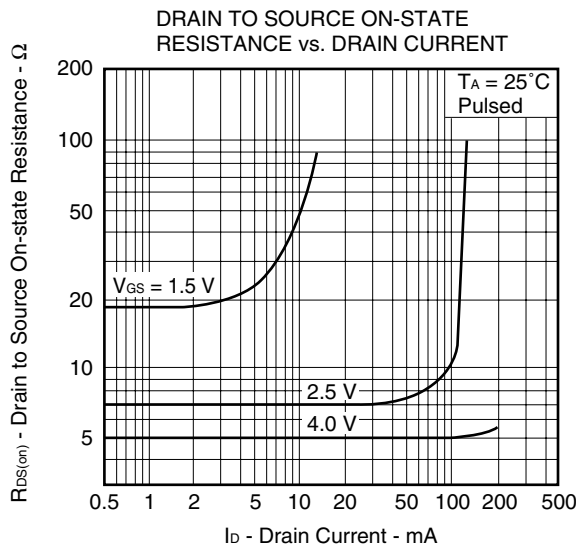
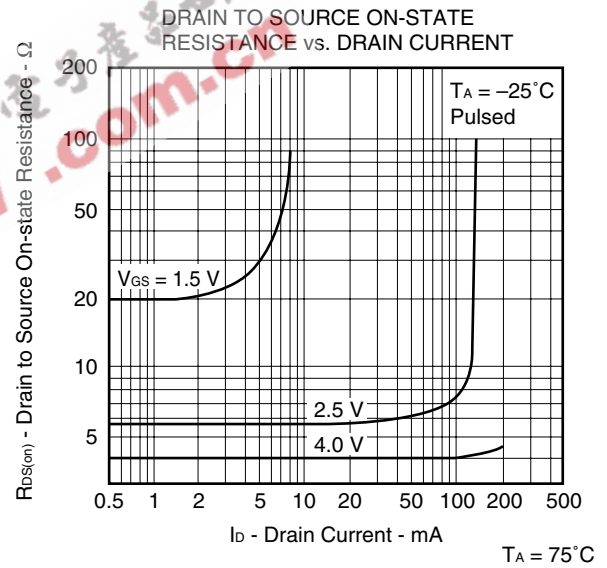
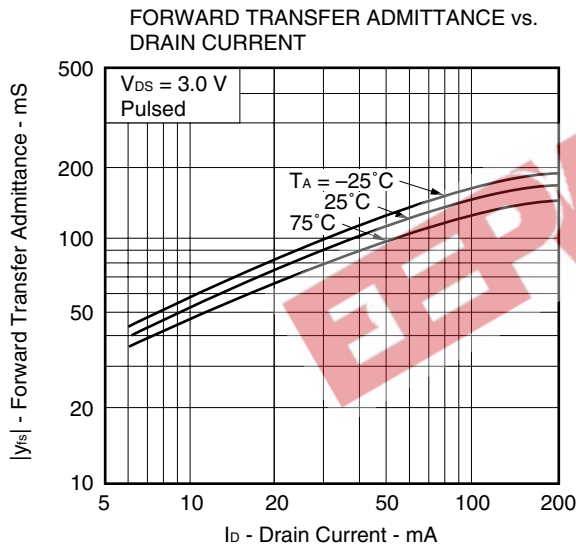
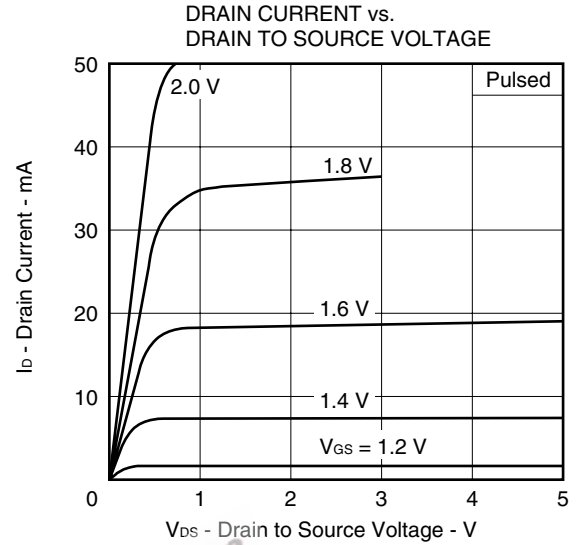
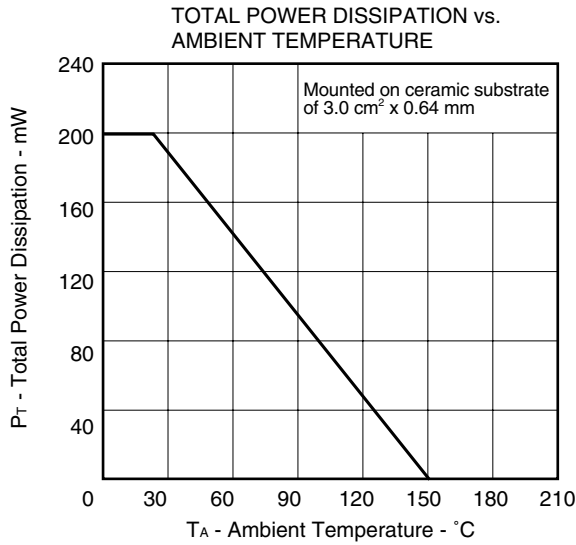
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16 V, V _{GS} = 0 V			1.0	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±7.0 V, V _{DS} = 0 V			±3.0	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 3.0 V, I _D = 10 μA	0.5	0.8	1.1	V
Forward Transfer 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} = 1.5 V, I _D = 1.0 mA		20	50	Ω
	R _{DS(on)2}	V _{GS} = 2.5 V, I _D = 10 mA		7.0	15	Ω
	R _{DS(on)3}	V _{GS} = 4.0 V, I _D = 10 mA		5.0	12	Ω
Input Capacitance	C _{iss}	V _{GS} = 0 V		10		pF
Output Capacitance	C _{oss}	V _{DS} = 3.0 V		13		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		3.0		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 3.0 V, I _D = 10 mA		15		ns
Rise Time	t _r	V _{GS} = 3.0 V		70		ns
Turn-off Delay Time	t _{d(off)}	R _G = 10 Ω		100		ns
Fall Time	t _f			110		ns

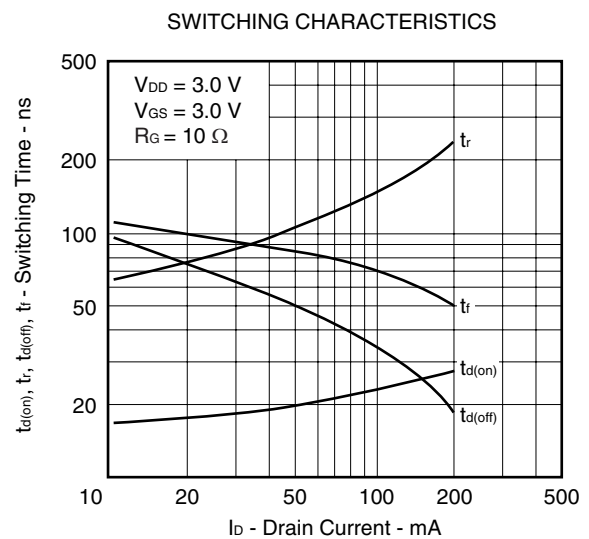
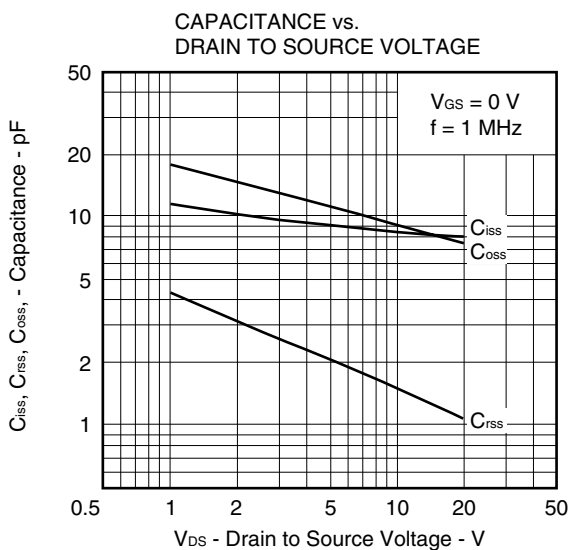
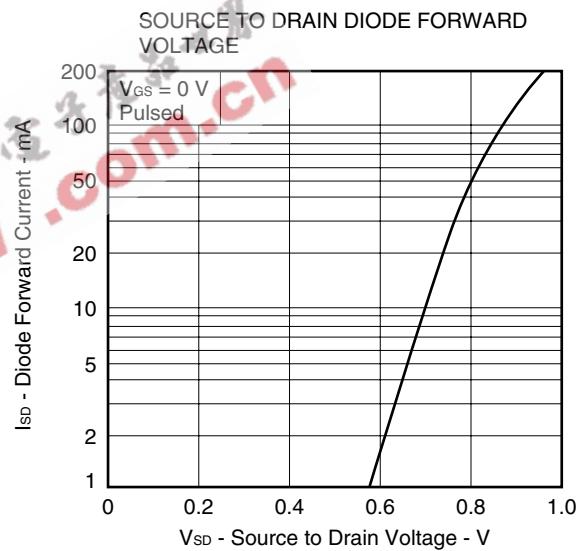
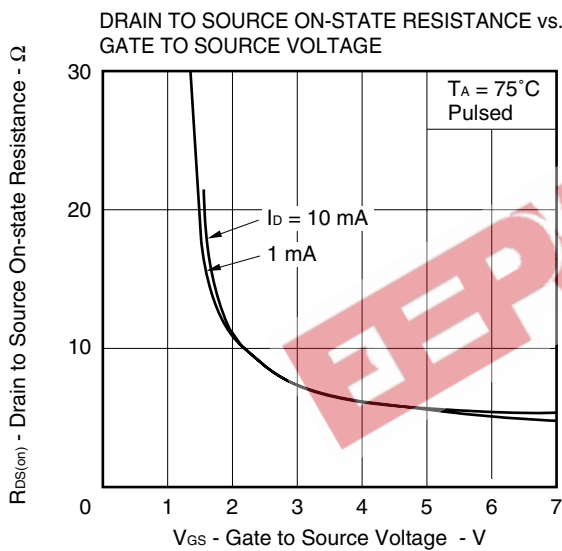
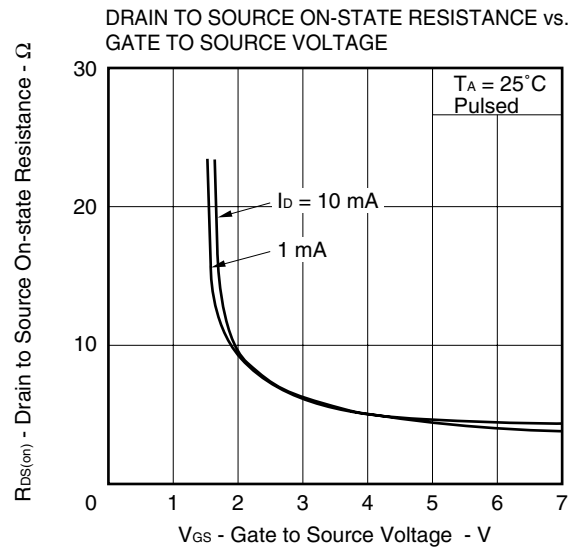
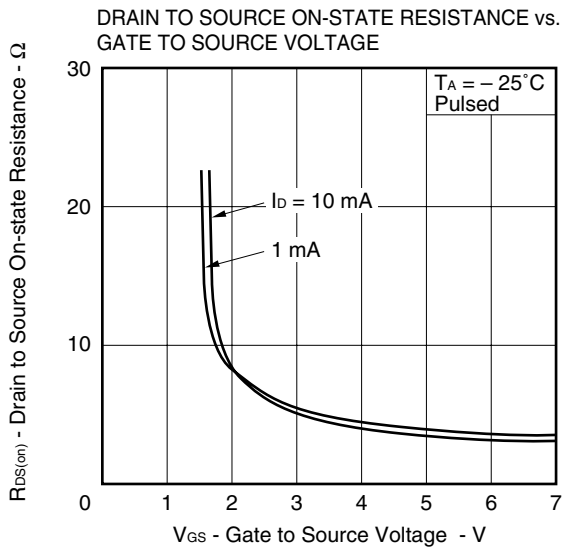
Note Pulsed

TEST CIRCUIT SWITCHING TIME



TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)





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