

N-CHANNEL MOS FIELD EFFECT TRANSISTOR
FOR HIGH SPEED SWITCHING

DESCRIPTION

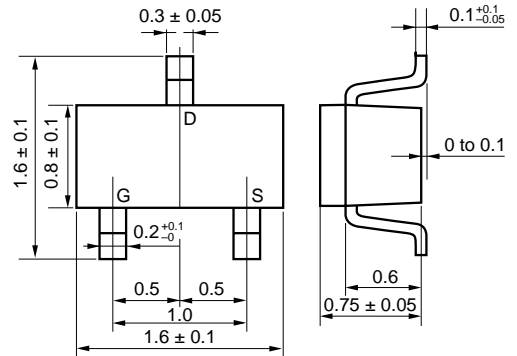
The 2SK3107 is a switching device which can be driven directly by a 2.5-V power source.

The 2SK3107 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)



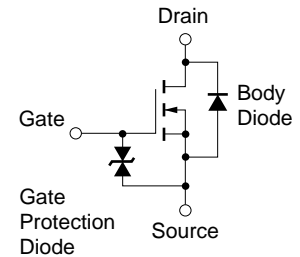
ORDERING INFORMATION

PART NUMBER	PACKAGE
2SK3107	SC-75(USM)

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

EQUIVALENT CIRCUIT



Marking: D1

- Notes 1. PW ≤ 10 μs, Duty Cycle ≤ 1 %
2. Mounted on ceramic substrate of 3.0 cm² x 0.64 mm

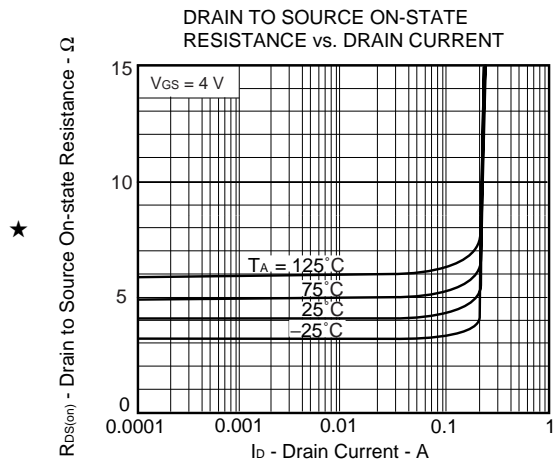
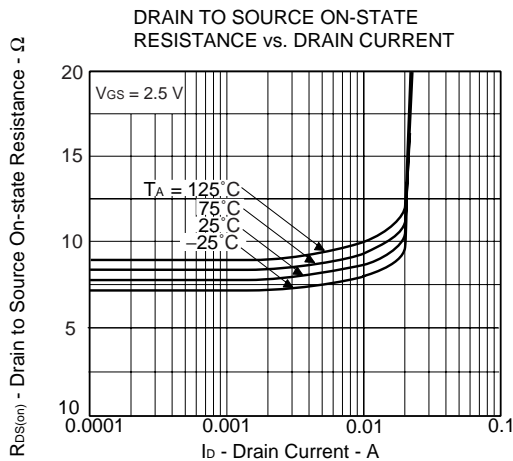
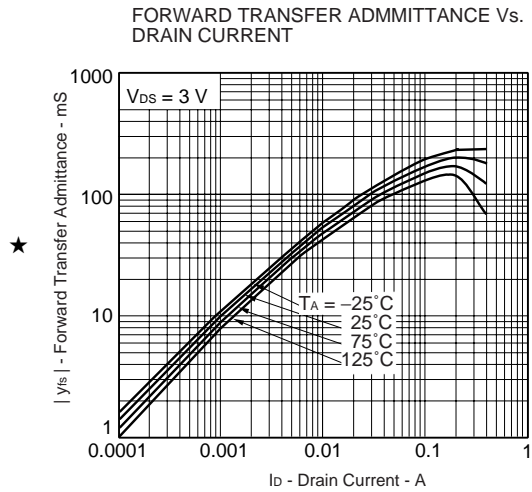
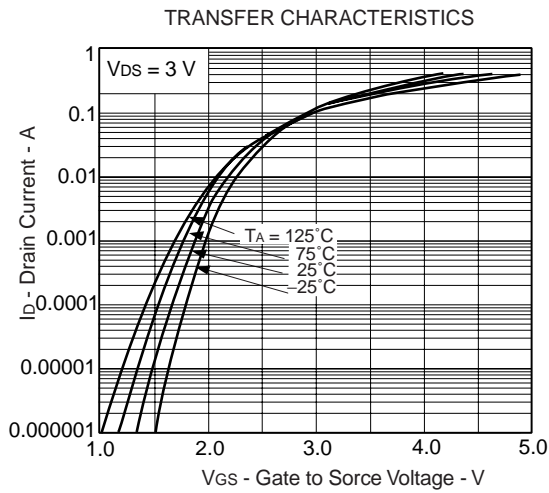
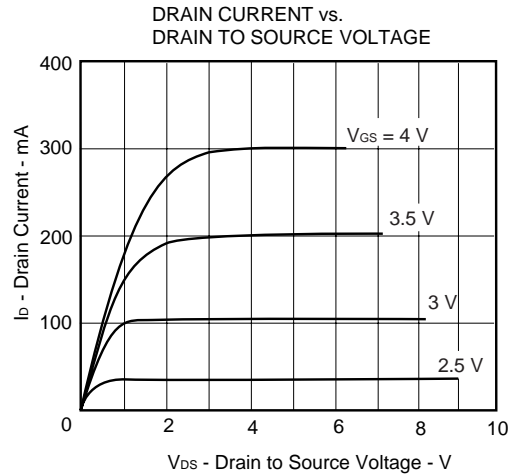
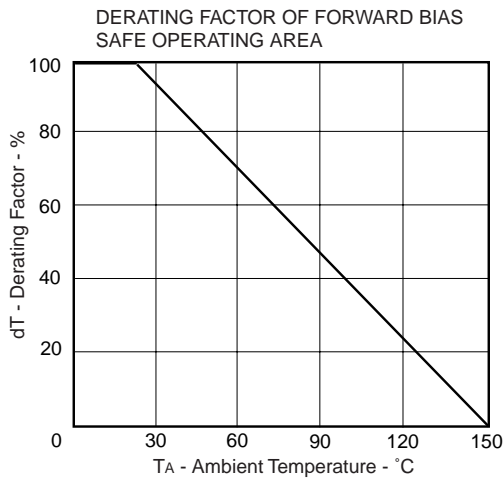
Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

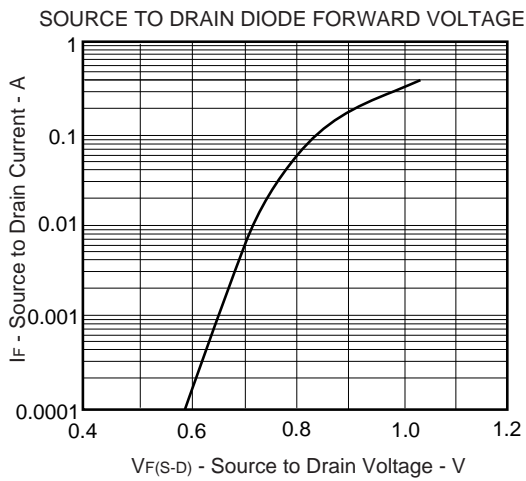
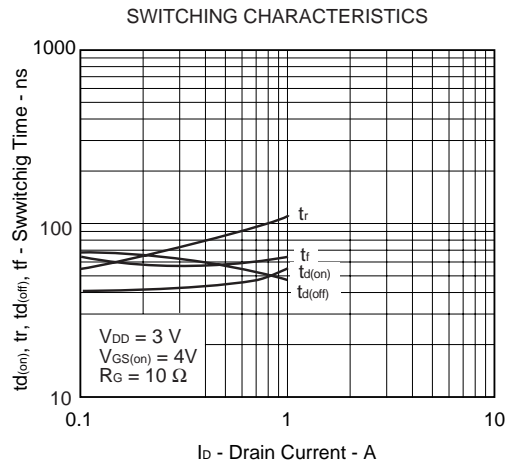
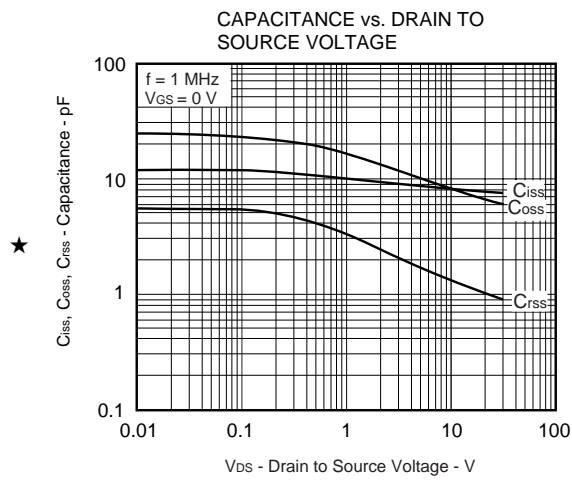
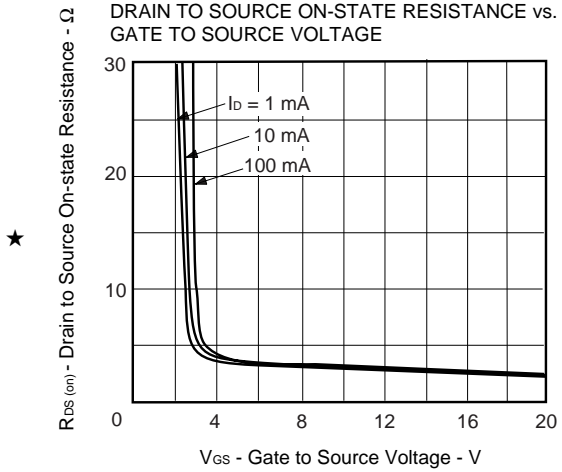
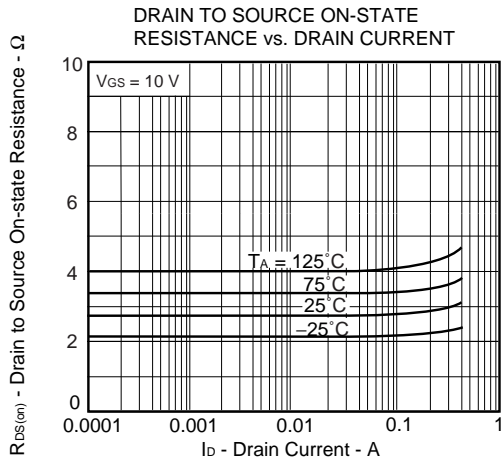
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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

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	1.8	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		8	15	Ω
	R _{DS(on)2}	V _{GS} = 4 V, I _D = 10 mA		4	8	Ω
	R _{DS(on)3}	V _{GS} = 10 V, I _D = 10 mA		3	5	Ω
Input Capacitance	C _{iSS}	V _{DS} = 3 V		9		pF
Output Capacitance	C _{oSS}	V _{GS} = 0 V		12		pF
Reverse Transfer Capacitance	C _{rSS}	f = 1 MHz		2.1		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 3 V		40		ns
Rise Time	t _r	I _D = 10 mA		55		ns
Turn-off Delay Time	t _{d(off)}	V _{GS(on)} = 4 V		68		ns
Fall Time	t _f	R _G = 10 Ω, R _L = 300 Ω		64		ns

TYPICAL CHARACTERISTICS (T_A = 25 °C)





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