

MOS FIELD EFFECT TRANSISTOR

2SK2112

N-CHANNEL MOS FET FOR HIGH-SPEED SWITCHING

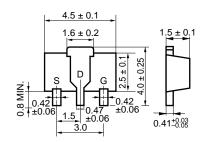
The 2SK2112 is a N-channel MOS FET of a vertical type and is a switching element that can be directly driven by the output of an IC operating at 5 V.

This product has a low ON resistance and superb switching characteristics and is ideal for driving the actuators, such as motors and DC/DC converters.

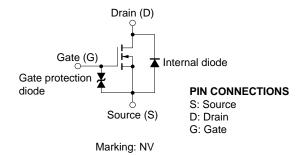
FEATURES

- Low ON resistance $R_{DS(on)} = 1.2 \Omega$ MAX. $@V_{GS} = 4.0 \text{ V}, \text{ ID} = 0.5 \text{ A}$
- High switching speed ton + toff < 100 ns
- · Low parasitic capacitance

PACKAGE DIMENSIONS (in mm)



EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS (TA = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	RATING	UNIT
Drain to Source Voltage	Voss	V _G S = 0	100	V
Gate to Source Voltage	Vgss	V _{DS} = 0	±20	V
Drain Current (DC)	I _{D(DC)}		±1.0	Α
Drain Current (Pulse)	ID(pulse)	PW ≤ 10 ms,	±2.0	Α
		Duty cycle ≤ 50 %		
Total Power Dissipation	Рт	16 cm $^2 \times 0.7$ mm, ceramic substrate used	2.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

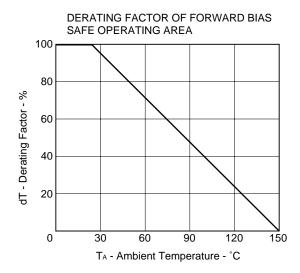


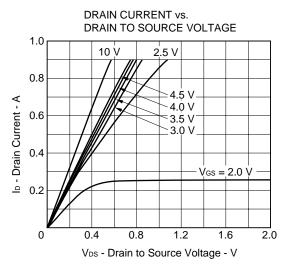
ELECTRICAL CHARACTERISTICS (TA = 25 °C)

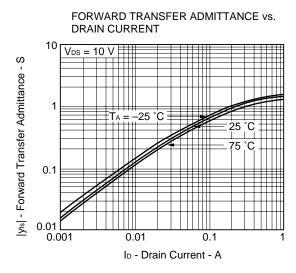
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-Off Current	Ioss	V _{DS} = 100 V, V _{GS} = 0			1.0	μΑ
Gate Leakage Current	Igss	Vgs = ±20 V, Vps = 0			±10	μΑ
Gate Cut-Off Voltage	V _{GS(off)}	V _{DS} = 10 V, I _D = 1 mA	0.8	1.5	2.0	V
Forward Transfer Admittance	yfs	V _{DS} = 10 V, I _D = 0.5 A	0.4			S
Drain to Source On-State Resistance	RDS(on)1	Vgs = 4.0 V, ID =0.5 A		0.58	1.2	Ω
Drain to Source On-State Resistance	RDS(on)2	Vgs = 10 V, ID = 0.5 A		0.50	0.8	Ω
Input Capacitance	Ciss	V _{DS} = 10 V, V _{GS} = 0, f = 1.0 MHz		178		pF
Output Capacitance	Coss			59		pF
Reverse Transfer Capacitance	Crss			16		pF
Turn-On Delay Time	td(on)	V _{DD} = 25 V, I _D = 0.5 A		2.9		ns
Rise Time	tr	$V_{GS(on)}$ = 10 V, R_G = 10 Ω		1.7		ns
Turn-Off Delay Time	td(off)	R _L = 50 Ω		60		ns
Fall Time	t _f			15		ns

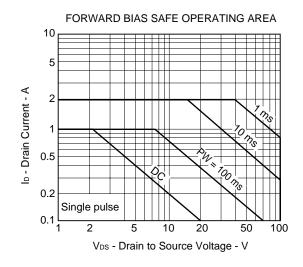
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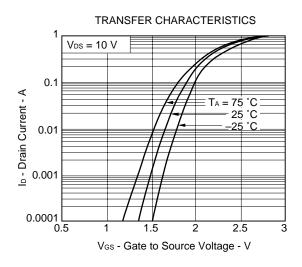
TYPICAL CHARACTERISTICS (TA = 25 °C)

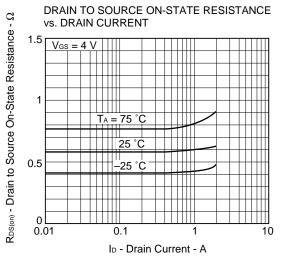




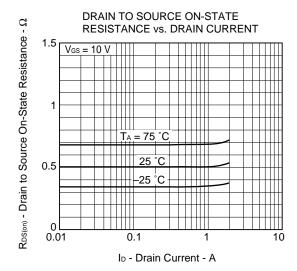


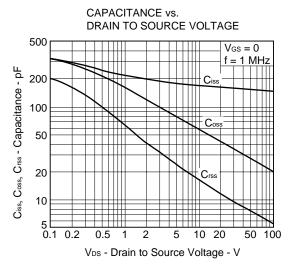


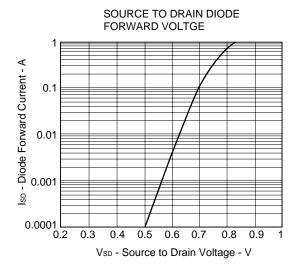


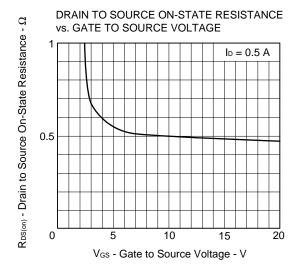


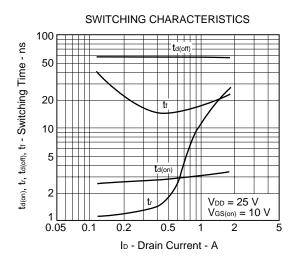














REFERENCE

Document Name	Document No.		
NEC semiconductor device reliability/quality control system	TEI-1202		
Quality grade on NEC semiconductor devices	IEI-1209		
Semiconductor device mounting technology manual	C10535E		
Guide to quality assurance for semiconductor devices	MEI-1202		
Semiconductor selection guide	X10679E		

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Anti-radioactive design is not implemented in this product.

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