DATA SHEET

MOS FIELD EFFECT TRANSISTOR **2SK2110**

N-CHANNEL MOS FET FOR HIGH-SPEED SWITCHING

The 2SK2110 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.

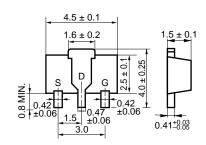
This product has a low ON resistance and superb switching characteristics and is ideal for driving the actuators, such as motors and DC/DC converters.

FEATURES

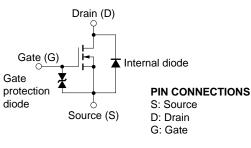
- Low ON resistance $R_{\text{DS(on)}} = 1.5 \ \Omega \text{ MAX. } @V_{\text{GS}} = 4.0 \text{ V, I}_{\text{D}} = 0.3 \text{ A}$
- High switching speed ton + toff < 100 ns

· Low parasitic capacitance

PACKAGE DIMENSIONS (in mm)



EQUIVALENT CIRCUIT



Marking: NT

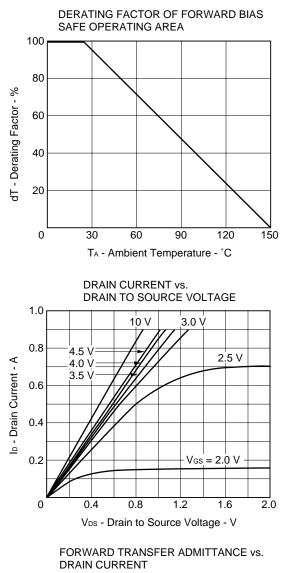
PARAMETER SYMBOL **TEST CONDITIONS** RATING UNIT Drain to Source Voltage VDSS $V_{GS} = 0$ 100 V Gate to Source Voltage VGSS $V_{DS} = 0$ ±20 V Drain Current (DC) А ±0.5 D(DC) Drain Current (Pulse) $PW \le 10 ms$, А D(pulse) ±1.0 Duty cycle \leq 50 % **Total Power Dissipation** Pτ 16 $\text{cm}^2 \times 0.7$ mm, ceramic substrate used 2.0 W °C **Channel Temperature** Tch 150 Storage Temperature Tstg -55 to +150 °C

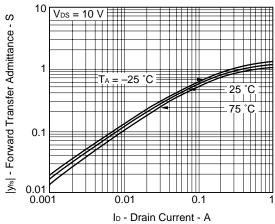
ABSOLUTE MAXIMUM RATINGS (TA = 25 °C)

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

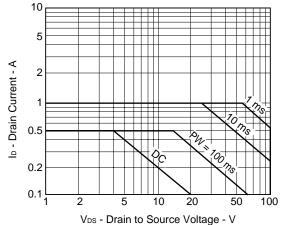
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-Off Current	IDSS	V _{DS} = 100 V, V _{GS} = 0			1.0	μA
Gate Leakage Current	Igss	$V_{GS} = \pm 20 \text{ V}, \text{ V}_{DS} = 0$			±10	μA
Gate Cut-Off Voltage	VGS(off)	V _{DS} = 10 V, I _D = 1 mA	0.8	1.5	2.0	V
Forward Transfer Admittance	y _{fs}	Vds = 10 V, Id = 0.3 A	0.4			S
Drain to Source On-State Resistance	RDS(on)1	Vgs = 4.0 V, Id =0.3 A		0.95	1.5	Ω
Drain to Source On-State Resistance	RDS(on)2	Vgs = 10 V, Id = 0.3 A		0.82	1.2	Ω
Input Capacitance	Ciss	V _{DS} = 10 V, V _{GS} = 0, f = 1.0 MHz		100		pF
Output Capacitance	Coss			38		pF
Reverse Transfer Capacitance	Crss			10		pF
Turn-On Delay Time	td(on)	Vdd = 25 V, Id = 0.3 A		2		ns
Rise Time	tr	$V_{GS(on)}$ = 10 V, R _G = 10 Ω		1.3		ns
Turn-Off Delay Time	td(off)	RL = 83 Ω		38		ns
Fall Time	tr			13		ns



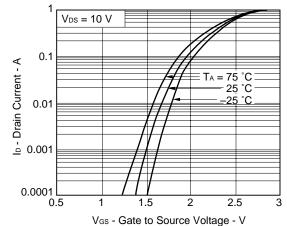




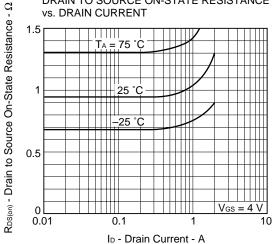
FORWARD BIAS SAFE OPERATING AREA

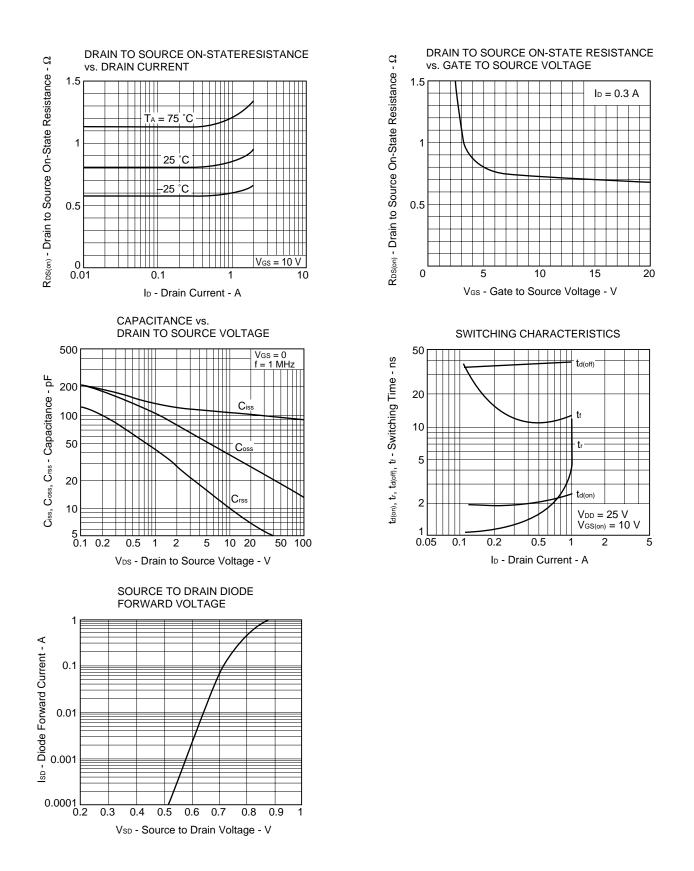


TRANSFER CHARACTERISTICS



DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT





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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Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

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Anti-radioactive design is not implemented in this product.

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