

# INK0210AP1

High Speed Switching  
Silicon N-channel MOSFET

## DESCRIPTION

INK0210AP1 is a Silicon N-channel MOSFET.

This product is most suitable for use such as portable machinery, because of low voltage drive and low on resistance.

## FEATURE

- Input impedance is high, and not necessary to consider a drive electric current.
- High drain current  $I_D=2A$
- Drive voltage 4V
- Low on Resistance.  $R_{DS(on)}=0.3\Omega$  (TYP).
- High speed switching.
- Small package for easy mounting.

## APPLICATION

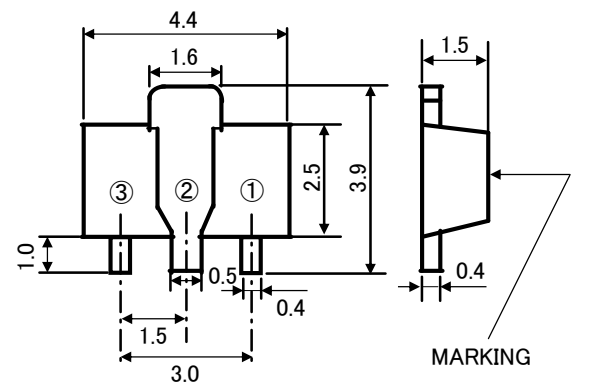
Switching

## MAXIMUM RATINGS (Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DSS</sub>	60	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Drain Current(DC)	I <sub>D</sub>	2	A
Drain Current(Pulse) ※1	I <sub>DP</sub>	4	A
Total Power Dissipation	P <sub>D</sub>	500	mW
Channel Temperature	T <sub>ch</sub>	+150	°C
Storage Temperature	T <sub>stg</sub>	-55~+150	°C

※1: Pw ≤ 10 μs, Duty cycle ≤ 1%

## OUTLINE DRAWING



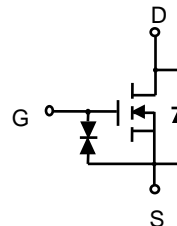
### TERMINAL CONNECTOR

- ①: GATE
- ②: DRAIN
- ③: SOURCE

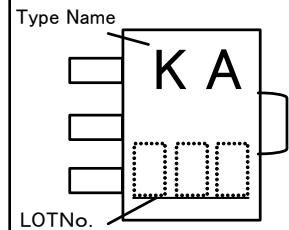
JEITA: SC-62

JEDEC: SOT-89

## EQUIVALENT CIRCUIT



## MARKING



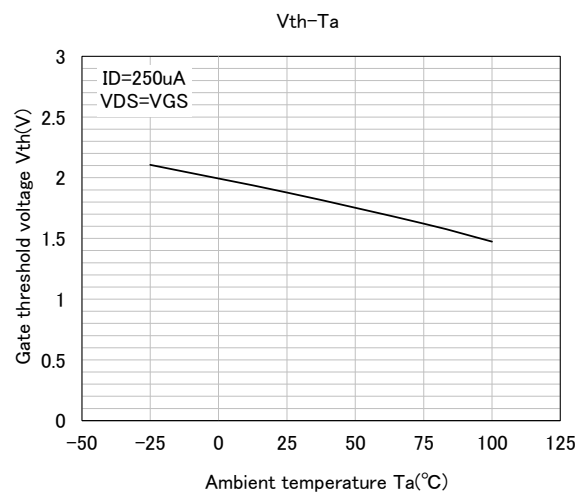
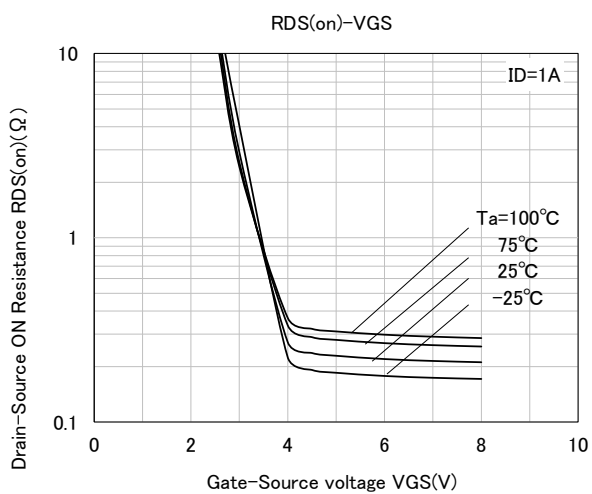
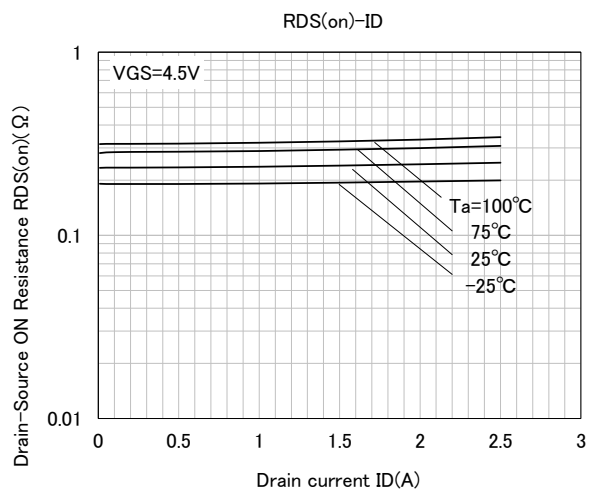
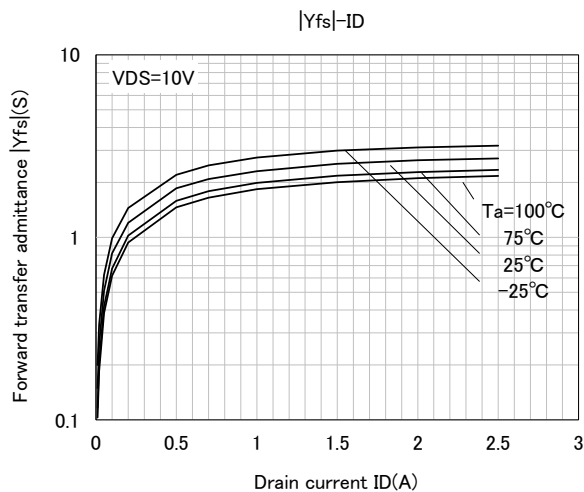
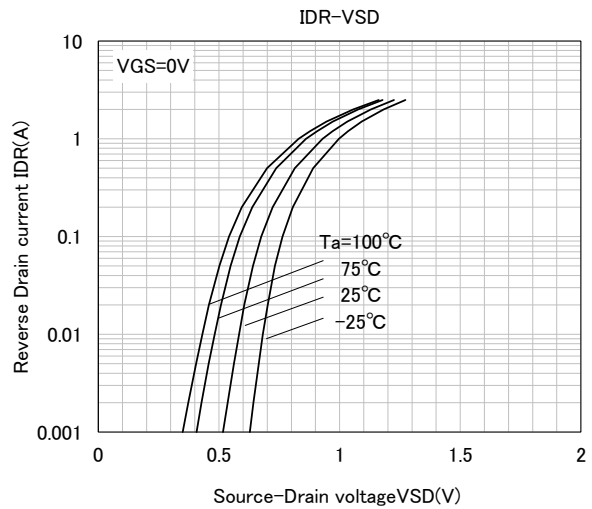
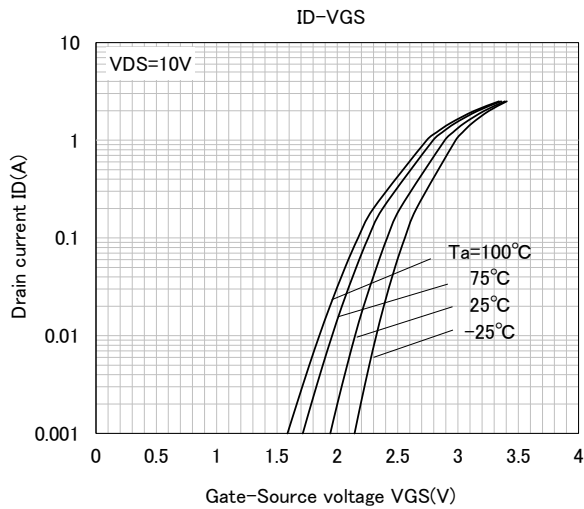
## ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Condition	Limit			Unit
			MIN	TYP	MAX	
Drain-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =100 μA, V <sub>GS</sub> =0V	60	-	-	V
Gate-Source Leak current	I <sub>GS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±10	μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V	-	-	1	μA
Gate Threshold Voltage	V <sub>th</sub>	I <sub>D</sub> =250 μA, V <sub>DS</sub> =V <sub>GS</sub>	1.0	-	2.5	V
Forward Transfer Admittance	Y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1A	-	2.0	-	S
Static Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	I <sub>D</sub> =0.5A, V <sub>GS</sub> =5.0V	-	0.30	-	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz	-	220	-	pF
Output Capacitance	C <sub>oss</sub>		-	28	-	
Switching Time	t <sub>on</sub>	V <sub>DD</sub> =30V, I <sub>D</sub> =1A	-	16	-	ns
	t <sub>off</sub>	V <sub>GS</sub> =0~5V	-	25	-	

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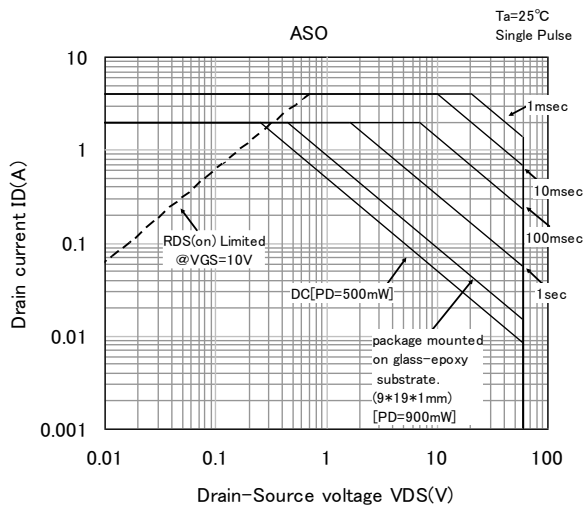
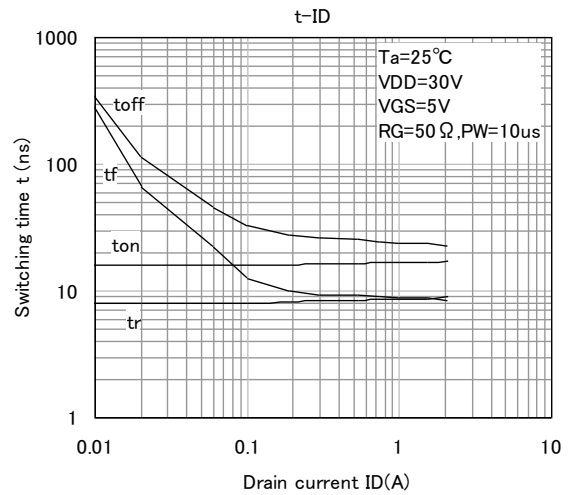
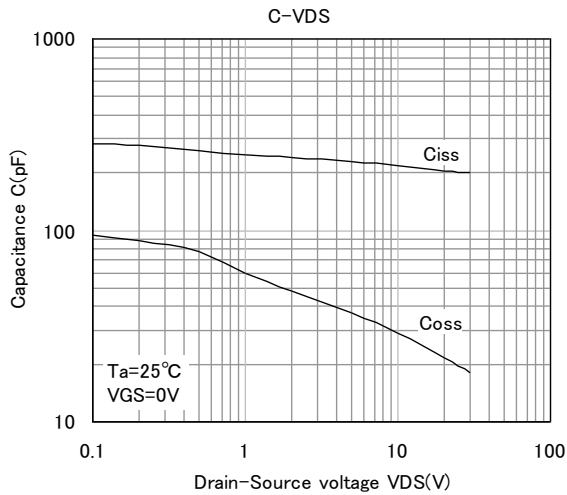
## TYPICAL CHARACTERISTICS



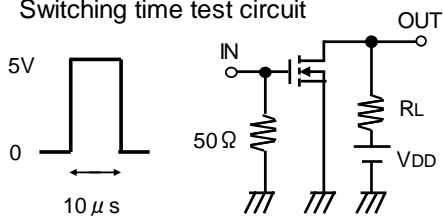
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## TYPICAL CHARACTERISTICS



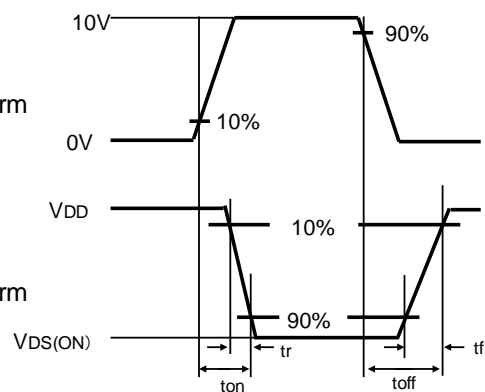
### Switching time test circuit



$V_{DD}=30\text{V}$   
Duty  $\leq 1\%$   
Input: tr, tf < 10ns  
Common source  
 $T_a=25^\circ\text{C}$

Input  
Waveform

Output  
Waveform



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**Keep safety first in your circuit designs!**

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