

# INK0302FC1

High Speed Switching  
Silicon N-channel MOSFET

## DESCRIPTION

INK0302FC1 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  $I_D=3.2A$
- Drive voltage 2.5V
- Low on Resistance.  $R_{DS(ON)}=70m\Omega$  typ(@ $V_{GS}=4.5V$ )  
 $R_{DS(ON)}=105m\Omega$  typ(@ $V_{GS}=2.5V$ ).
- High speed switching.

## APPLICATION

High speed switching, Analog switching

### MAXIMUM RATINGS ( $T_a=25^\circ C$ )

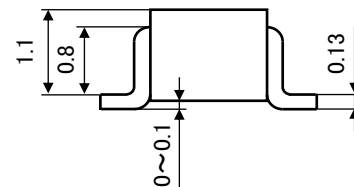
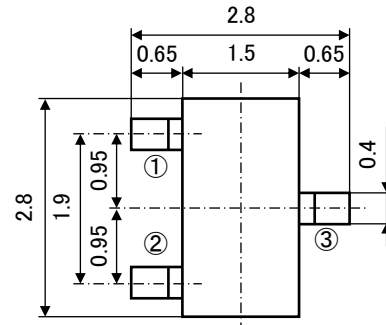
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 10$	V
Drain Current(DC)(※1)	$I_D$	3.2	A
Drain Current(Pulse) (※2)	$I_{DP}$	7.0	A
Total Power Dissipation (※1)	$P_D$	0.9	W
Channel Temperature	$T_{ch}$	+150	$^\circ C$
Storage Temperature	$T_{stg}$	-55~+150	$^\circ C$

※1 package mounted on glass-epoxy substrate.  
(39mm × 39mm × 1.6mm, Cu pad 1500mm<sup>2</sup>)

※2  $P_w \leq 10ms$ , Duty cycle  $\leq 1\%$

## OUTLINE DRAWING

Unit: mm



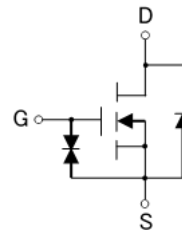
TERMINAL CONNECTOR

- ①: GATE
- ②: SOURCE
- ③: DRAIN

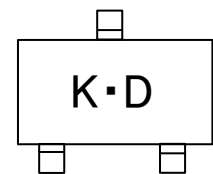
JEITA: SC-59

JEDEC: Similar to TO-236

## EQUIVALENT CIRCUIT



## MARKING



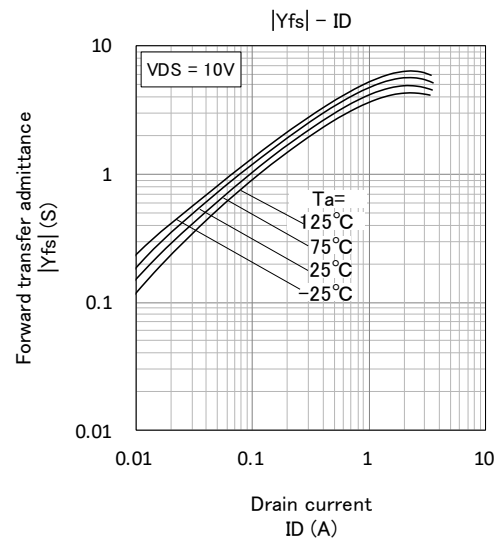
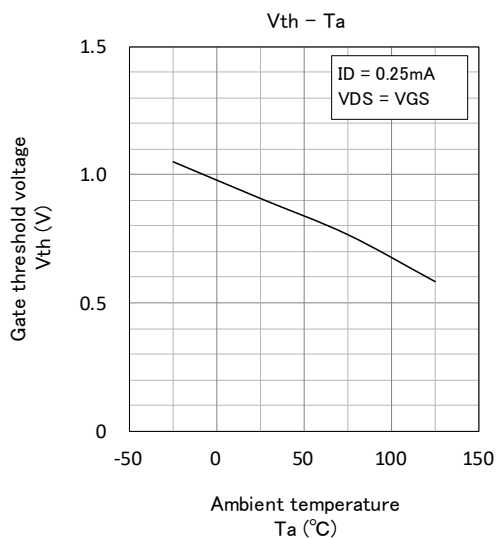
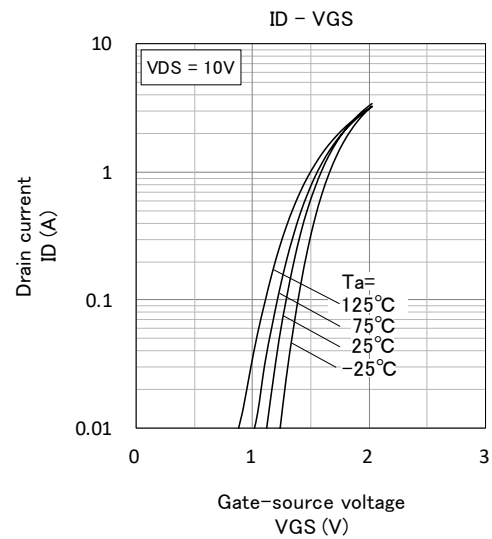
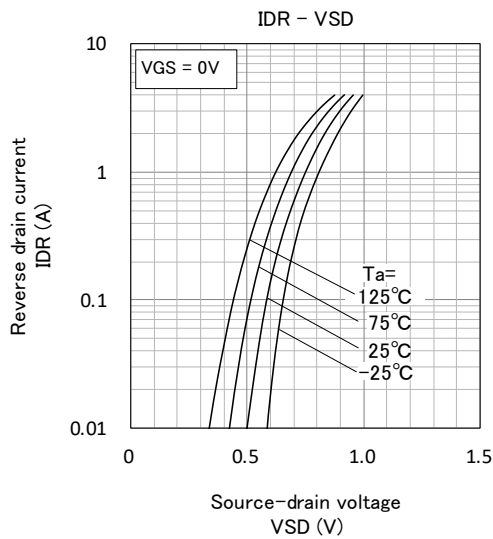
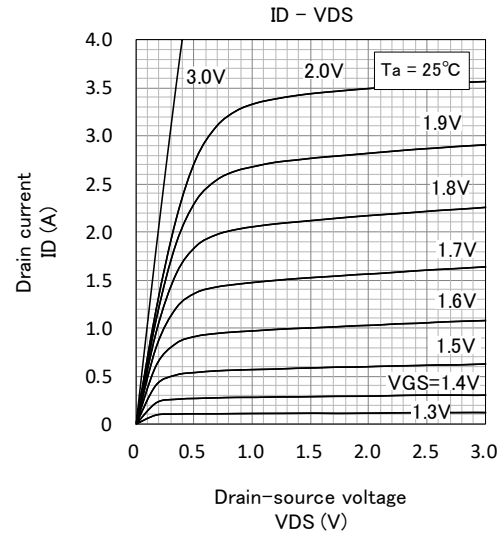
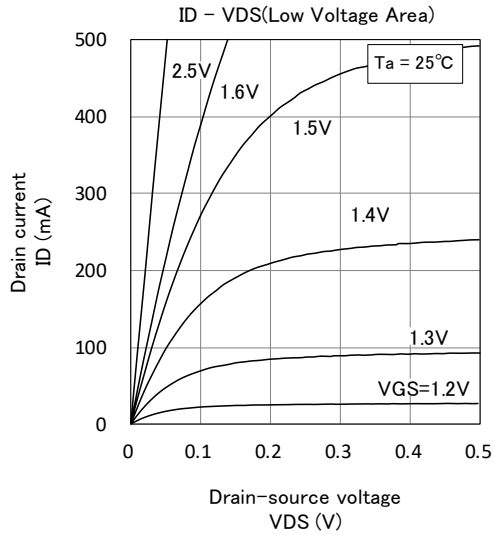
## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )

Parameter	Symbol	Test Condition	Limit			Unit
			MIN	TYP	MAX	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=100\mu A, V_{GS}=0V$	30	-	-	V
Gate-Source Leak Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	$\pm 1.0$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$	-	-	1.0	$\mu A$
Gate Threshold Voltage	$V_{th}$	$I_D=250\mu A, V_{DS}=V_{GS}$	0.4	-	1.2	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$I_D=3.2A, V_{GS}=4.5V$	-	70	87	$m\Omega$
		$I_D=3.2A, V_{GS}=2.5V$	-	105	135	
Input Capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0V, f=1MHz$	-	320	-	pF
Output Capacitance	$C_{oss}$		-	55	-	
Reverse Transfer Capacitance	$C_{rss}$		-	40	-	
Switching Time	$t_{on}$	$V_{DD}=20V, I_D=200mA, V_{GS}=5V$	-	15	-	ns
	$t_{off}$		-	60	-	

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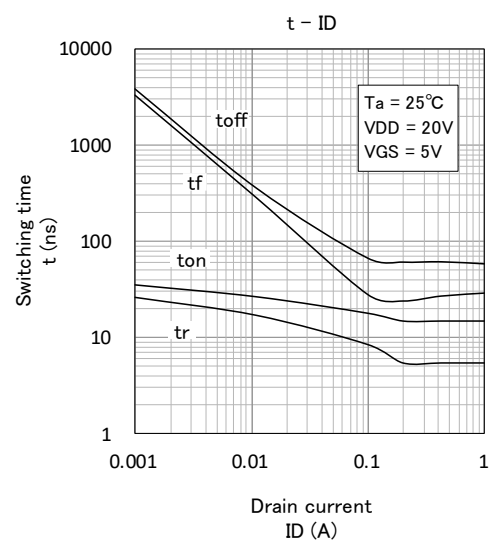
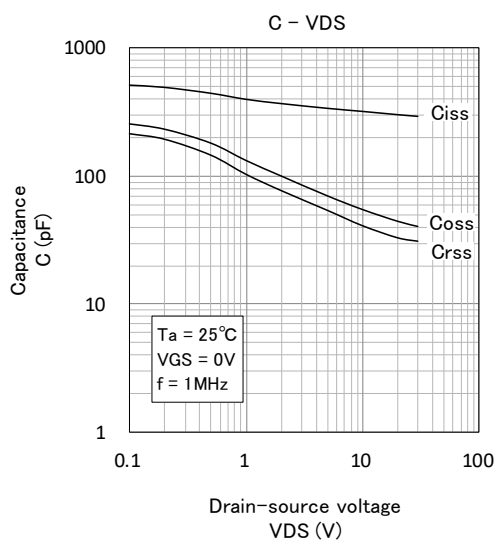
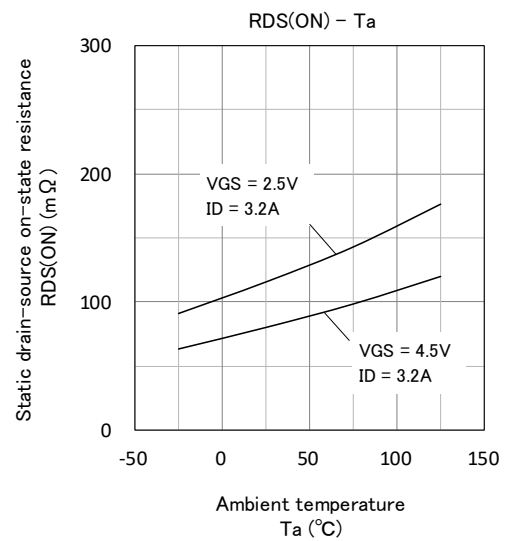
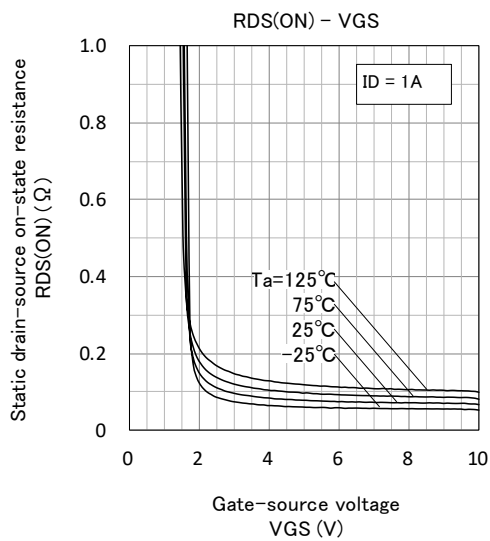
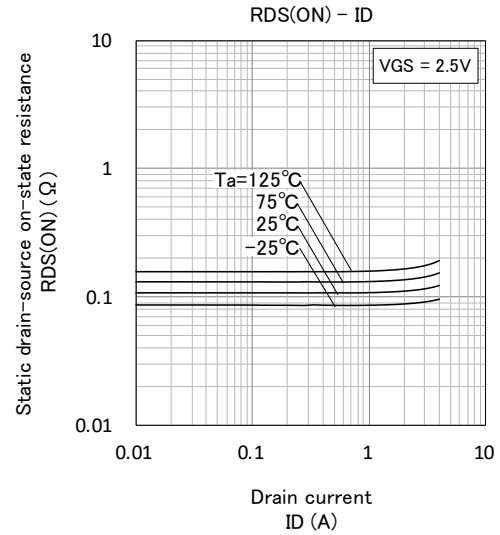
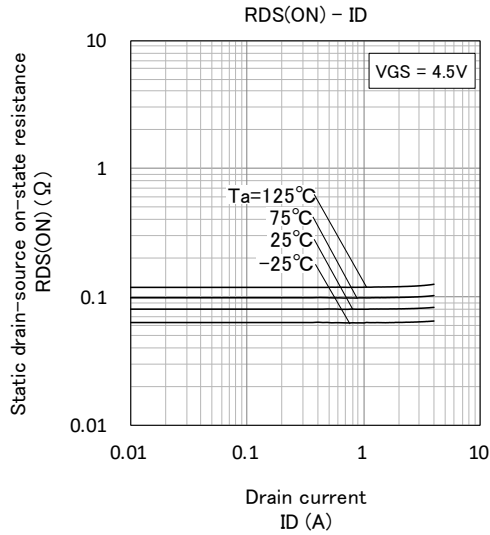
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## TYPICAL CHARACTERISTICS



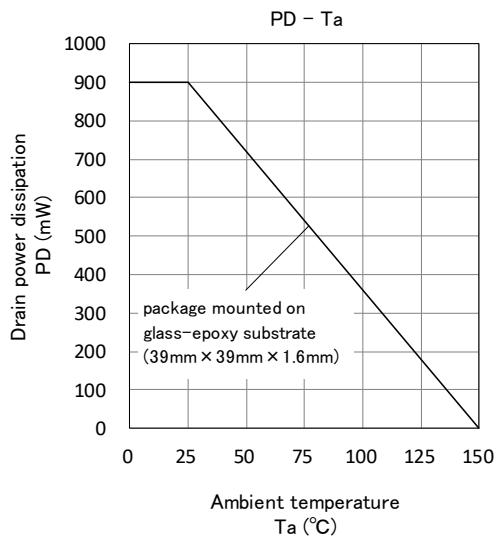
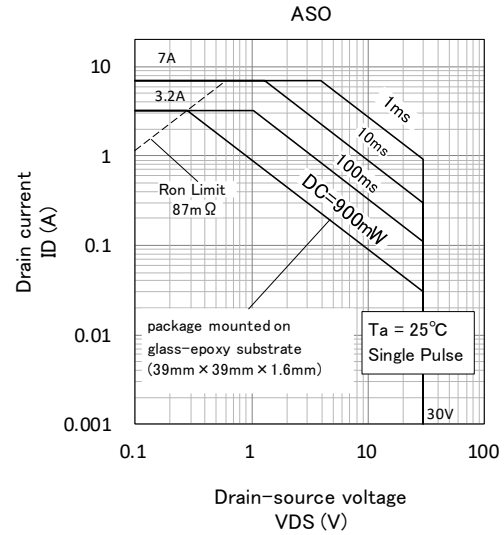
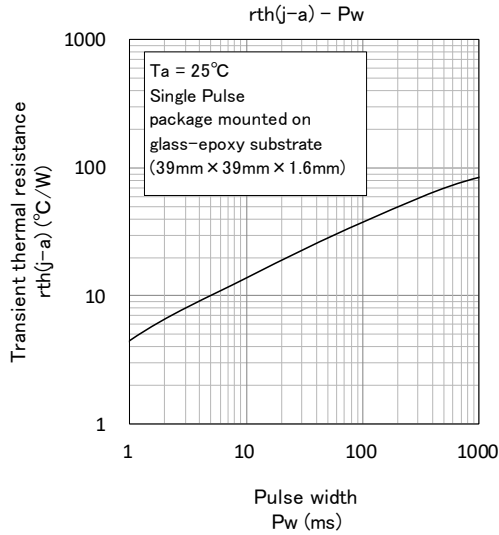
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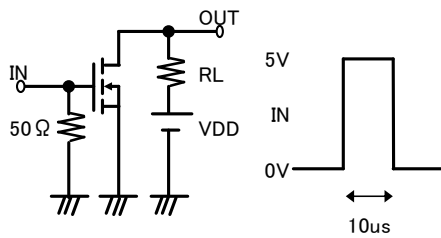


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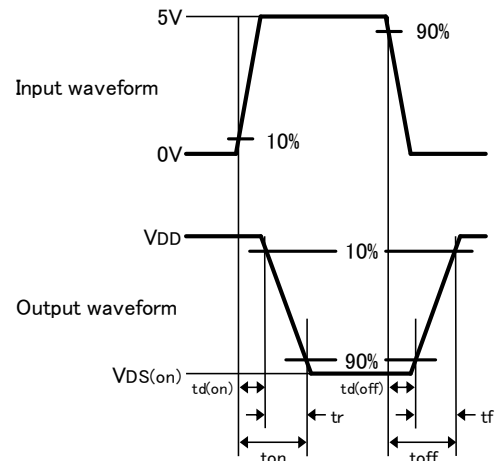
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### Switching time test condition



Duty  $\leq 1\%$   
Input:  $t_r, t_f < 10\text{ns}$   
VDD = 20V  
Common source  
 $T_a = 25^\circ\text{C}$



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

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