

PRELIMINARY

Notice : This is not a final specification
Some parametric are subject to change.

INK0512AC1

High Speed Switching
Silicon N-channel MOSFET

DESCRIPTION

INK0512AC1 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 $I_D=4.6A$
- Drive voltage 4.0V
- Low on Resistance. $R_{DS(ON)}=34m\Omega$ typ(@ $V_{GS}=10V$)
 $R_{DS(ON)}=54m\Omega$ typ(@ $V_{GS}=4.0V$).
- High speed switching.

APPLICATION

High speed switching, Analog switching

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current(DC)(※1)	I_D	4.6	A
Drain Current(Pulse) (※2)	I_{DP}	12	A
Total Power Dissipation (※1)	P_D	0.9	W
Junction Temperature	T_j	+150	$^\circ C$
Storage Temperature	T_{stg}	-55~+150	$^\circ C$

※1 package mounted on glass-epoxy substrate.

(39mm × 39mm × 1.6mm, Cu pad 1500mm²)

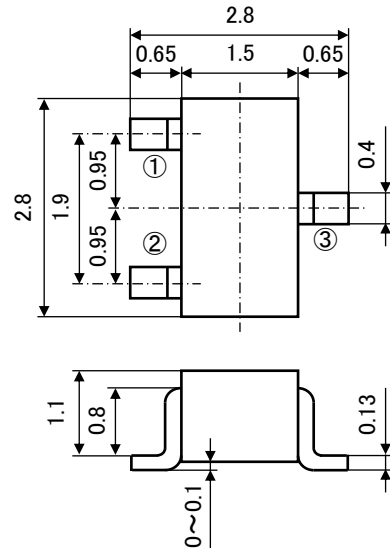
※2 $P_w \leq 10ms$, Duty cycle $\leq 1\%$

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

Parameter	Symbol	Test Condition	Limit			Unit
			MIN	TYP	MAX	
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$I_D=250\mu A$, $V_{GS}=0V$	30	-	-	V
Gate-Source Leak Current	I_{GSS}	$V_{GS}=\pm 20V$, $V_{DS}=0V$	-	-	± 1.0	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V$, $V_{GS}=0V$	-	-	1.0	μA
Gate Threshold Voltage	V_{th}	$I_D=250\mu A$, $V_{DS}=V_{GS}$	1.0	-	2.5	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$I_D=4.6A$, $V_{GS}=10V$	-	34	45	$m\Omega$
		$I_D=4.6A$, $V_{GS}=4.0V$	-	54	70	
Input Capacitance	C_{iss}	$V_{DS}=10V$, $V_{GS}=0V$, $f=1MHz$	-	430	-	pF
Output Capacitance	C_{oss}		-	95	-	
Reverse Transfer Capacitance	C_{rss}		-	70	-	
Switching Time	t_{on}	$V_{DD}=20V$, $I_D=200mA$, $V_{GS}=5V$	-	30	-	ns
	t_{off}		-	90	-	

OUTLINE DRAWING

Unit: mm

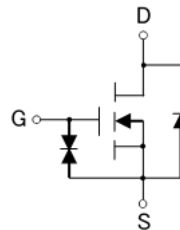


TERMINAL CONNECTOR

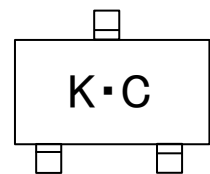
- ①: GATE
- ②: SOURCE
- ③: DRAIN

JEITA: SC-59
JEDEC: Similar to TO-236

EQUIVALENT CIRCUIT



MARKING



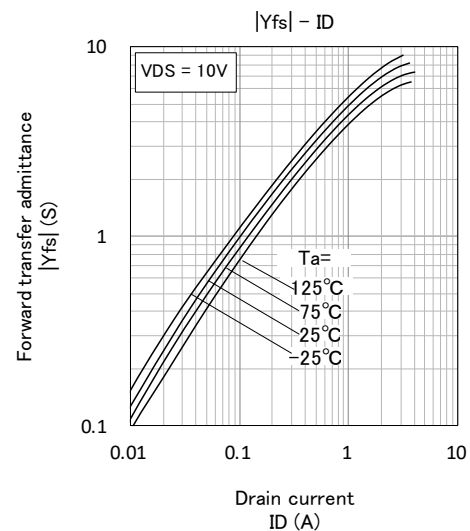
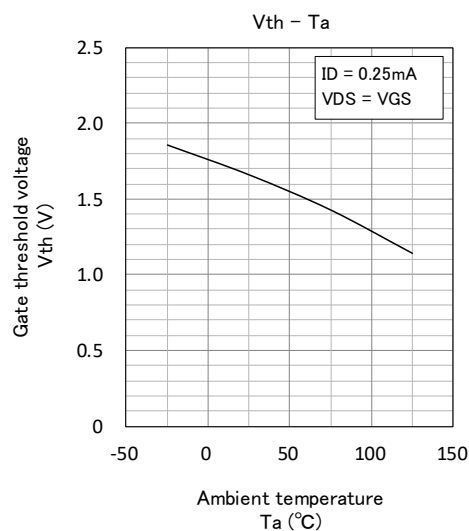
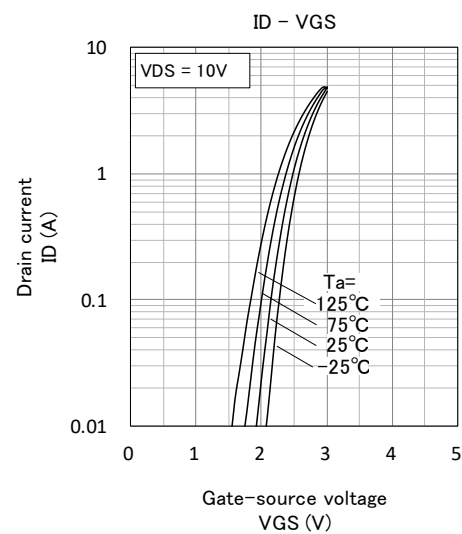
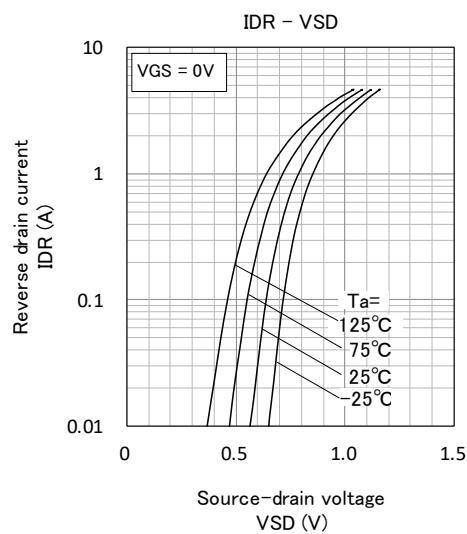
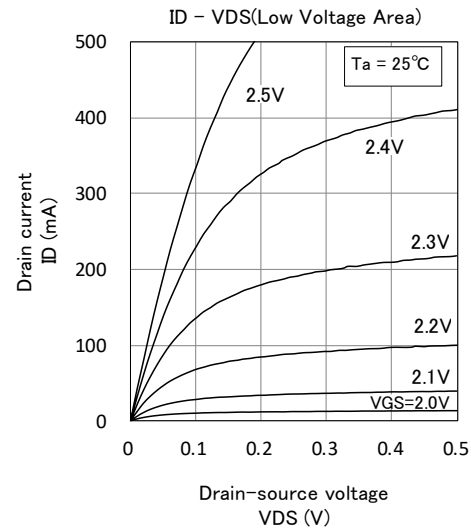
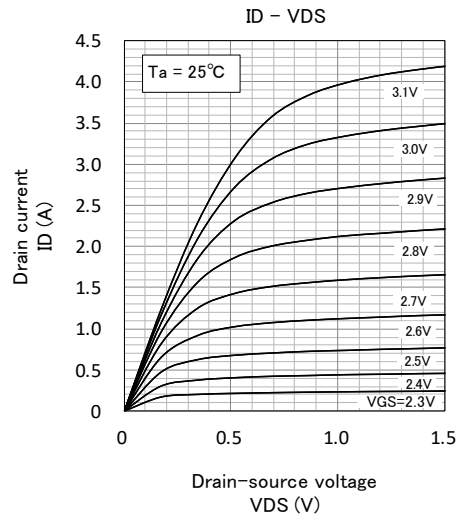
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TYPICAL CHARACTERISTICS

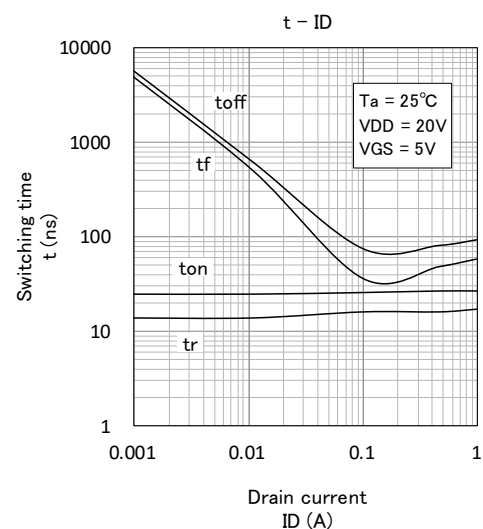
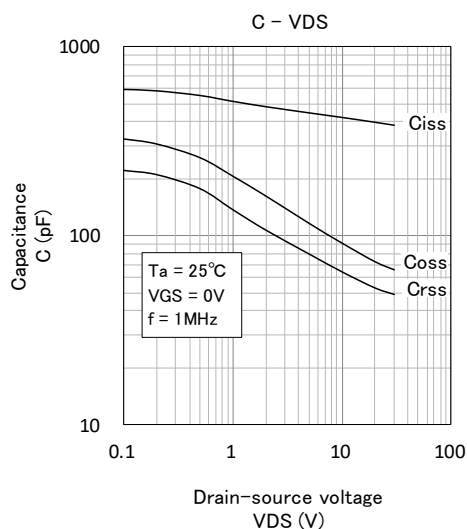
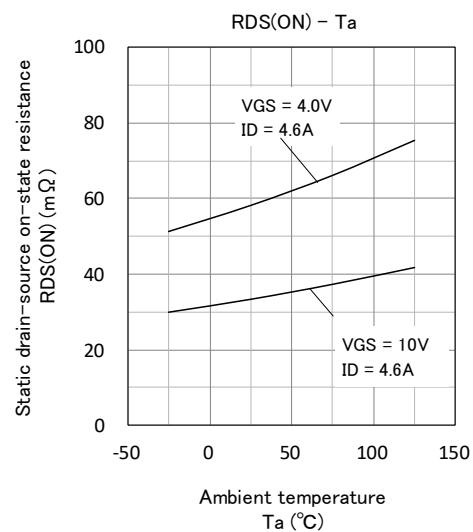
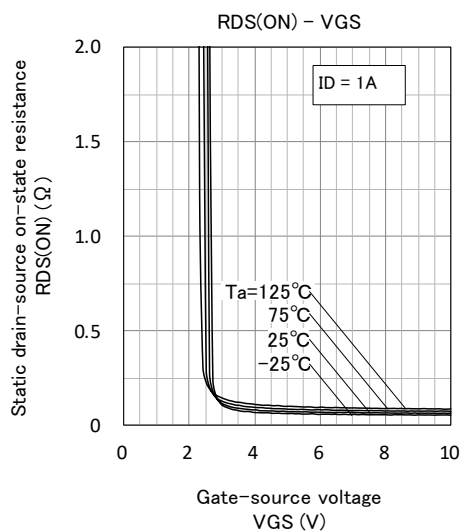
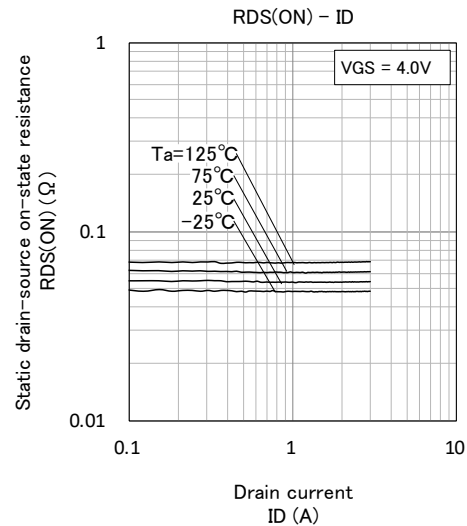
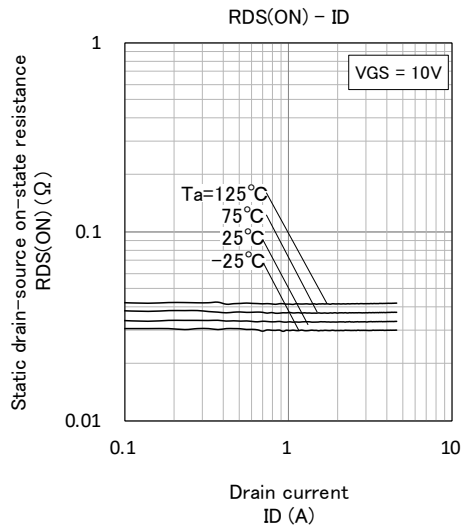


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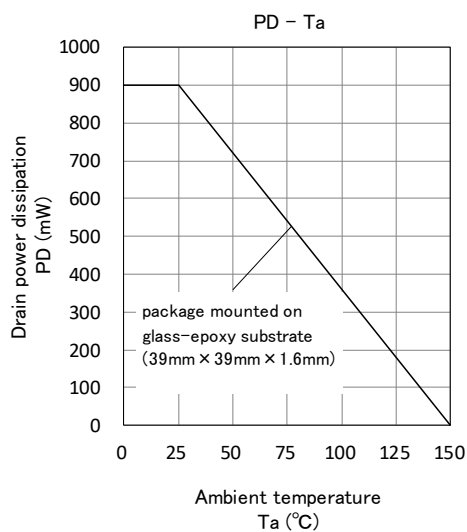
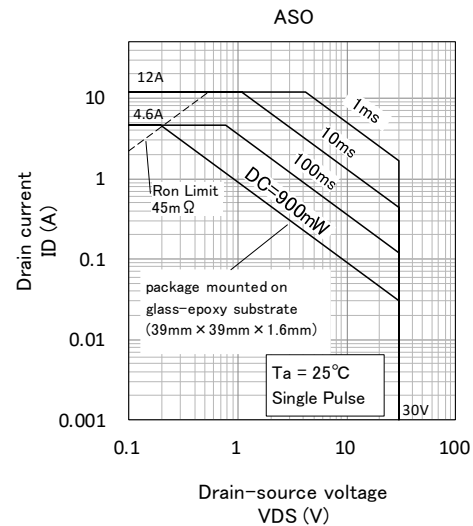
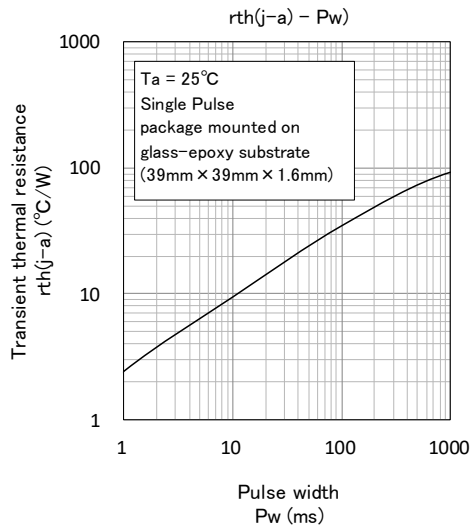


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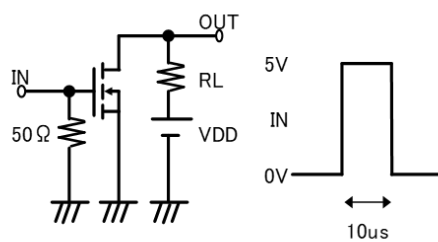
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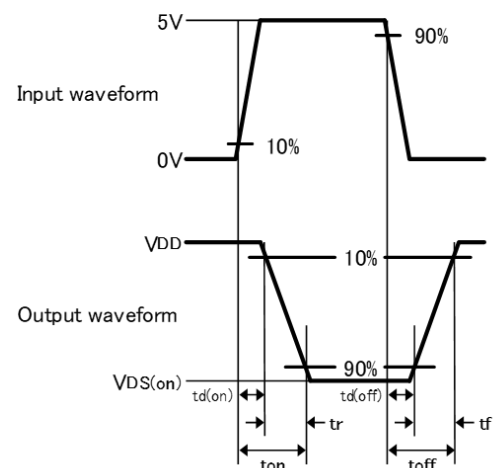
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Switching time test condition



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



Keep safety first in your circuit designs!

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