INK0112AX SERIES

High speed switching
Silicon N-channel MOSFET

DESCRIPTION

INK0112AX is a Silicon N-channel MOSFET.

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

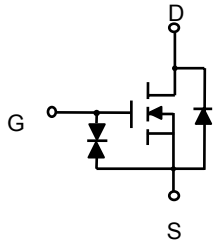
FEATURE

・Input impedance is high, and not necessary to consider a drive electric current.
・Drive voltage 4V
・Low on Resistance.
$R_{DS(ON)}$=0.4Ω (TYP) @I_D=200mA,V_{GS}=10V
$R_{DS(ON)}$=0.6Ω (TYP) @I_D=200mA,V_{GS}=4V
$R_{DS(ON)}$=1.3Ω (TYP) @I_D=100mA,V_{GS}=2.5V
・High speed switching.
・Small package for easy mounting.

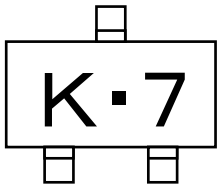
APPLICATION

High speed switching , Analog switching

EQUIVALENT CIRCUIT

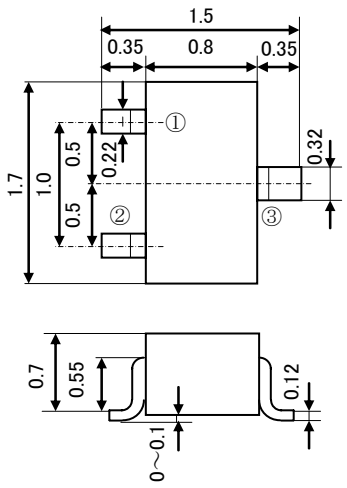


MARKING



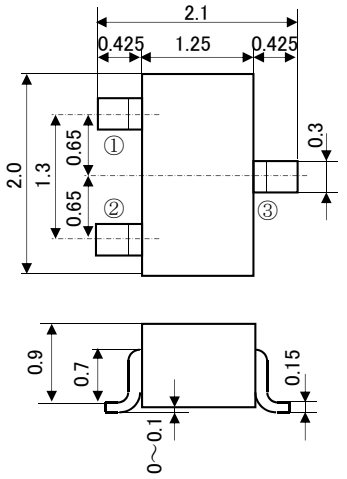
OUTLINE DRAWING (Unit : mm)

INK0112AU1



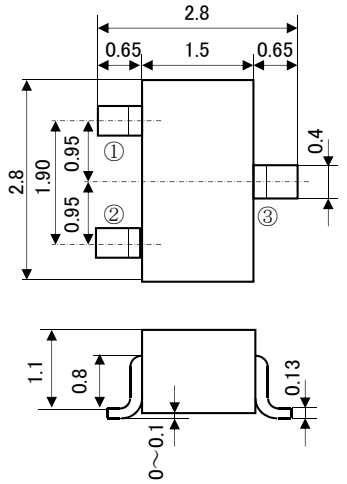
JEITA : SC-75A
JEDEC : —
TERMINAL CONNECTOR
①:GATE
②:SOURCE
③:DRAIN

INK0112AM1



JEITA : SC-70
JEDEC : —
TERMINAL CONNECTOR
①:GATE
②:SOURCE
③:DRAIN

INK0112AC1



JEITA : SC-59
JEDEC : Similar to TO-236
TERMINAL CONNECTOR
①:GATE
②:SOURCE
③:DRAIN

MAXIMUM RATING (Ta=25℃)

SYMBOL	PARAMETER	RATING			UNIT
		INK0112AU1	INK0112AM1	INK0112AC1	
V_{DSS}	Drain-source voltage	30			V
V_{GSS}	Gate-source voltage	±20			V
I_D	Drain current(DC)	500		500	mA
				680(※2)	
I_{DP}	Drain current(Pulse) ※1	800			mA
P_D	Total power dissipation	150	200	200	mW
				370(※2)	
T_{ch}	Channel temperature	+150			℃
T_{stg}	Range of Storage temperature	−55～+150			℃

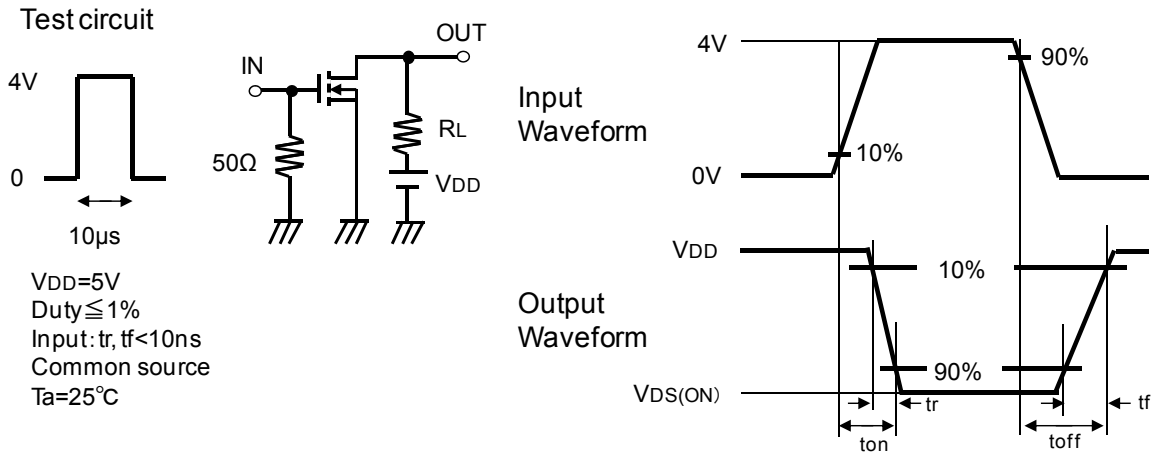
※1:PW≦10μs, Duty≦1%

※2:Package mounted on 9mm×19mm×1mm glass-epoxy substrate.

ELECTRICAL CHARACTERISTICS (Ta=25℃)

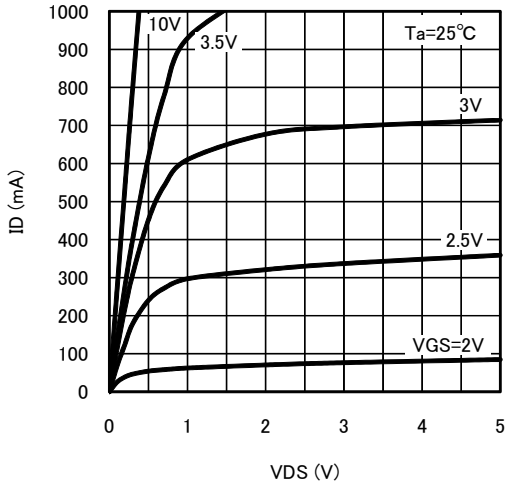
SYMBOL	PARAMETER	TEST CONCITION	LIMIT			UNIT
			MIN	TYP	MAX	
$V_{(BR)DSS}$	Drain-source breakdown voltage	I_D=100μA, V_{GS}=0V	30	−	−	V
I_{GSS}	Gate-source leak current	V_{GS}=±20V, V_{DS}=0V	−	−	±10	μA
I_{DSS}	Zero gate voltage drain current	V_{DS}=30V, V_{GS}=0V	−	−	1	μA
V_{th}	Gate threshold voltage	I_D=250μA, V_{DS}=V_{GS}	1.0	−	2.0	V
| Y_{fs} |	Forward transfer admittance	V_{DS}=5V, I_D=200mA	−	550	−	mS
$R_{DS(ON)}$	Static drain-source on-state resistance	I_D=200mA, V_{GS}=10V	−	0.4	−	Ω
		I_D=200mA, V_{GS}=4	−	0.6	−	
		I_D=100mA, V_{GS}=2.5V	−	1.3	−	
C_{iss}	Input capacitance	V_{DS}=5V, V_{GS}=0V, f=1MHz	−	40	−	pF
C_{oss}	Output capacitance		−	13	−	
t_{on}	Switching time	V_{DD}=5V, I_D=200mA V_{GS}=0～4V	−	30	−	ns
t_{off}			−	28	−	

Switching time test condition

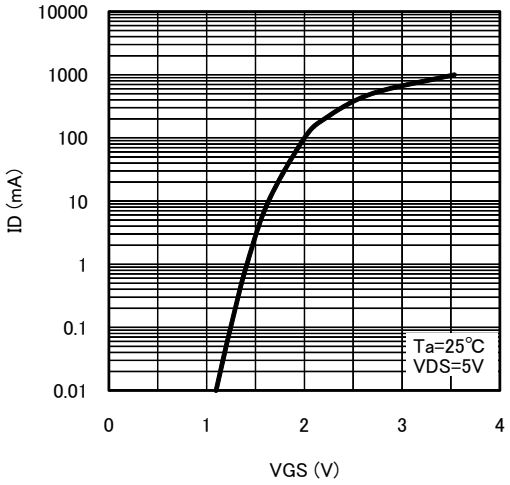


TYPICAL CHARACTERISTICS

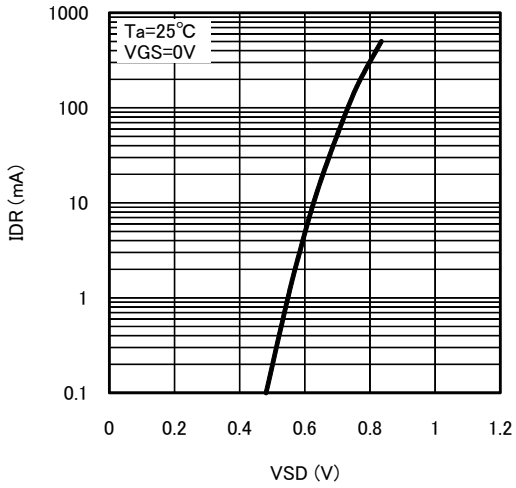
ID-VDS



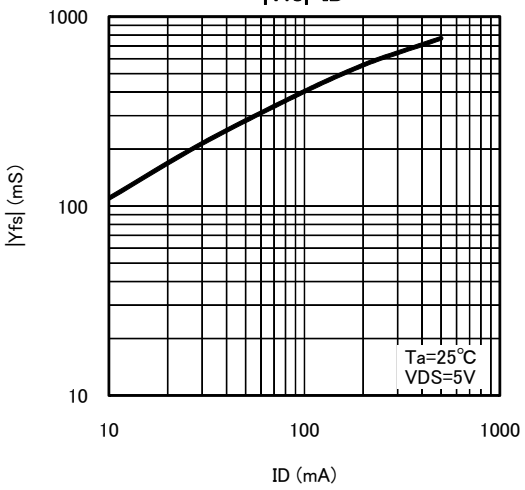
ID-VGS



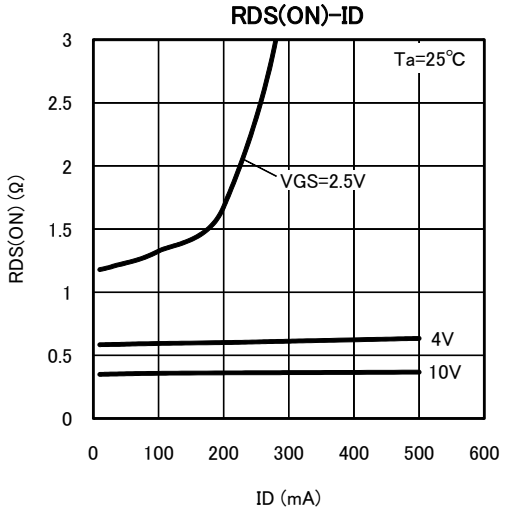
IDR-VSD



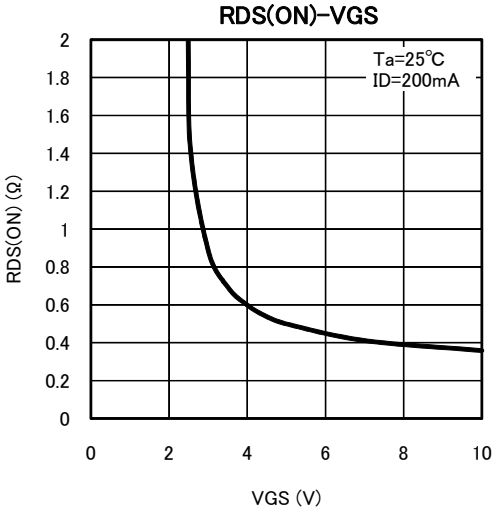
|Yfs|-ID

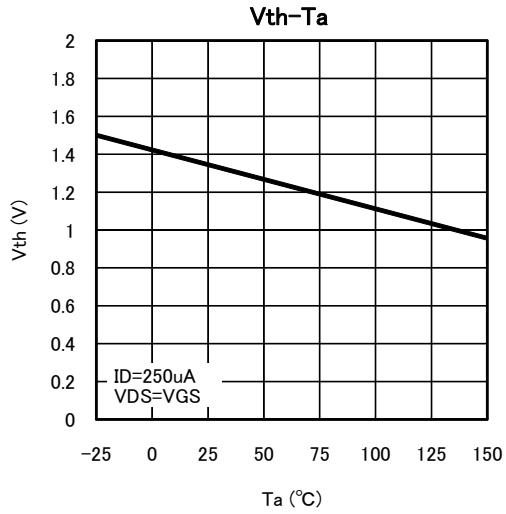


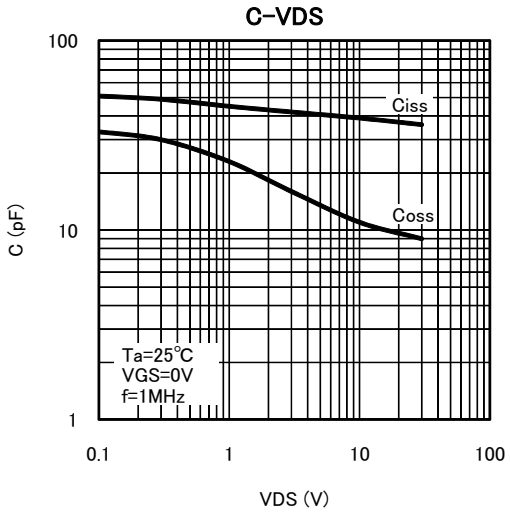
RDS(ON)-ID

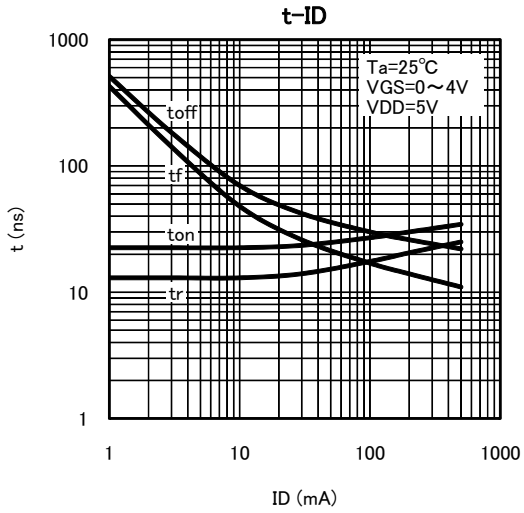


RDS(ON)-VGS




Vth-Ta
Vth (V)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
ID=250uA
VDS=VGS
−25
0
25
50
75
100
125
150
Ta (℃)


C-VDS
C (pF)
100
10
1
Ciss
Coss
Ta=25℃
VGS=0V
f=1MHz
0.1
1
10
100
VDS (V)


t-ID
t (ns)
1000
100
10
1
Ta=25℃
VGS=0～4V
VDD=5V
toff
tf
ton
tr
1
10
100
1000
ID (mA)

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