# INK0002AX SERIES

High speed switching
Silicon N-channel MOSFET

## DESCRIPTION

INK0002AX 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.

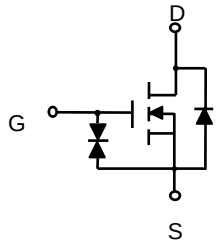
## FEATURE

- Input impedance is high, and not necessary to consider a drive electric current.
- Drive voltage 2.5V
- Low on Resistance.
  $R_{DS(ON)}$=1.1Ω (TYP) @$I_D$=100mA, $V_{GS}$=4.0V
- High speed switching.
- Small package for easy mounting.

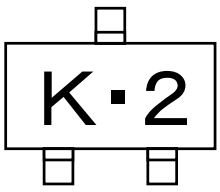
## APPLICATION

High speed switching , Analog switching

EQUIVALENT CIRCUIT

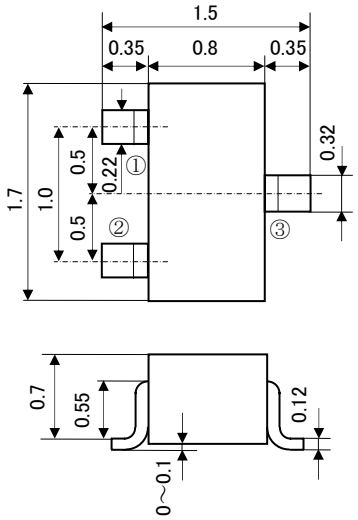



MARKING



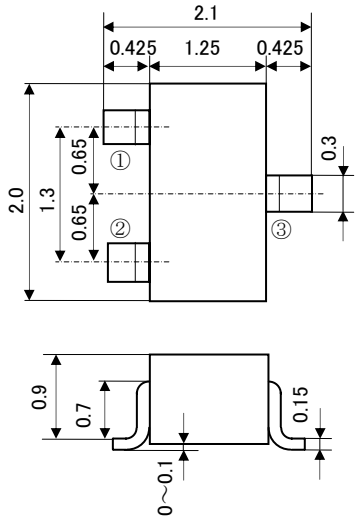

## OUTLINE DRAWING (Unit:mm)

INK0002AU1



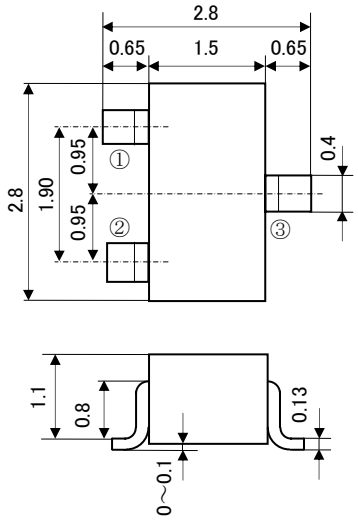

JEITA:SC-75A
JEDEC:—
TERMINAL CONNECTOR
①:GATE
②:SOURCE
③:DRAIN

INK0002AM1




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

INK0002AC1




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

# INK0002AX SERIES

High speed switching
Silicon N-channel MOSFET

## MAXIMUM RATING(Ta＝25℃)

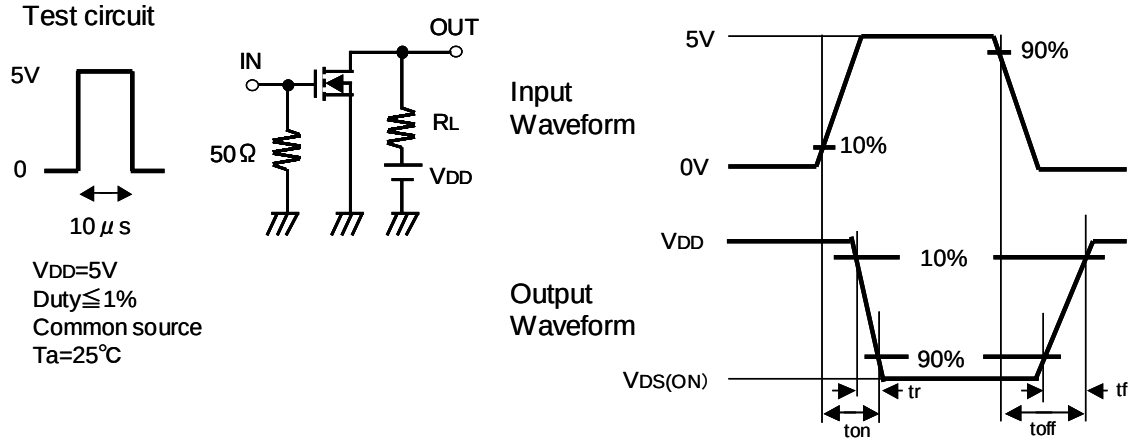
| SYMBOL | PARAMETER | RATING | | | UNIT |
|---|---|---|---|---|---|
| | | INK0002AU1 | INK0002AM1 | INK0002AC1 | |
| $V_{DSS}$ | Drain-source voltage | 30 | | | V |
| $V_{GSS}$ | Gate-source voltage | ±8 | | | V |
| $I_D$ | Drain current(DC) | 200 | | | mA |
| $I_{DP}$ | Drain current(Pulse) | 400(※1) | | | mA |
| $P_D$ | Total power dissipation | 150 | 200 | | mW |
| $T_{ch}$ | Channel temperature | +150 | | | ℃ |
| $T_{stg}$ | Range of Storage temperature | −55～+150 | | | ℃ |

※1：Pw≦10μs, Duty cycle≦1%　　※2：package mounted on 9mm×19mm×1mm glass-epoxy substrate.

## ELECTRICAL CHARACTERISTICS(Ta＝25℃)

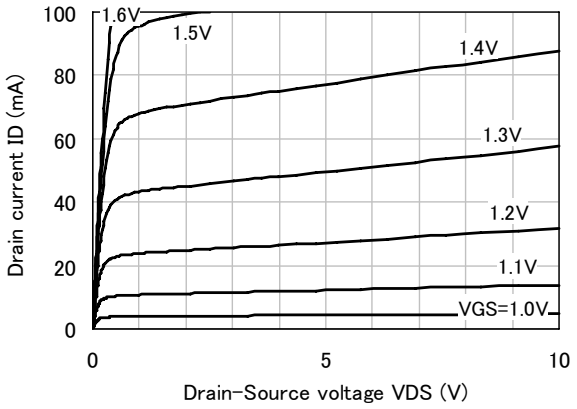
| SYMBOL | PARAMETER | TEST CONDITION | LIMIT | | | UNIT |
|---|---|---|---|---|---|---|
| | | | MIN | TYP | MAX | |
| $V_{(BR)DSS}$ | Drain-source breakdown voltage | $I_D$=100μA, $V_{GS}$=0V | 30 | − | − | V |
| $I_{GSS}$ | Gate-source leak current | $V_{GS}$=±5V, $V_{DS}$=0V | − | − | ±0.5 | μA |
| $I_{DSS}$ | Zero gate voltage drain current | $V_{DS}$=30V, $V_{GS}$=0V | − | − | 1.0 | μA |
| $V_{th}$ | Gate threshold voltage | $I_D$=250μA, $V_{DS}$=$V_{GS}$ | 0.6 | − | 1.2 | V |
| $\|Y_{fs}\|$ | Forward transfer admittance | $V_{DS}$=10V, $I_D$=0.1A | − | 300 | − | mS |
| $R_{DS(ON)}$ | Static drain-source on-state resistance | $I_D$=100mA, $V_{GS}$=4.0V | − | 1.1 | − | Ω |
| $C_{iss}$ | Input capacitance | $V_{DS}$=10V, $V_{GS}$=0V, f=1MHz | − | 33 | − | pF |
| $C_{oss}$ | Output capacitance | | − | 6.8 | − | |
| $t_{on}$ | Switching time | $V_{DD}$=5V, $I_D$=10mA<br>$V_{GS}$=0～5V | − | 12 | − | ns |
| $t_{off}$ | | | − | 80 | − | |

### Switching time test condition

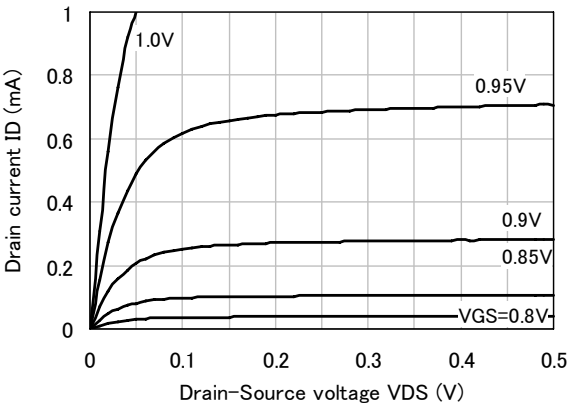


## TYPICAL CHARACTERISTICS

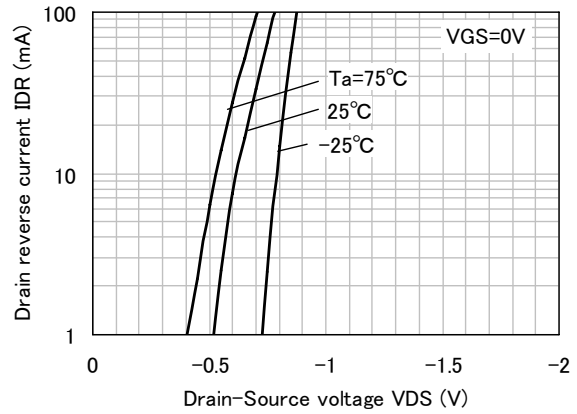
Ta=25℃ ID – VDS



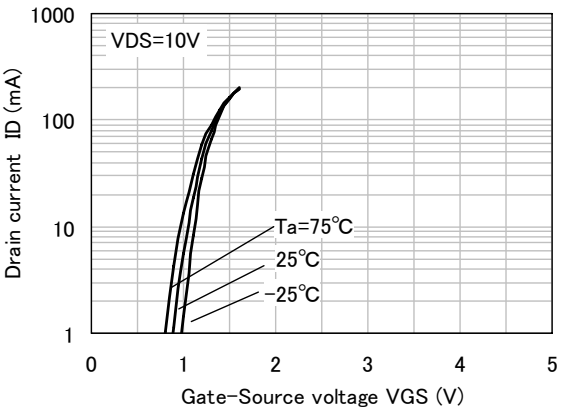

Ta=25℃ ID – VDS(Low voltage region)



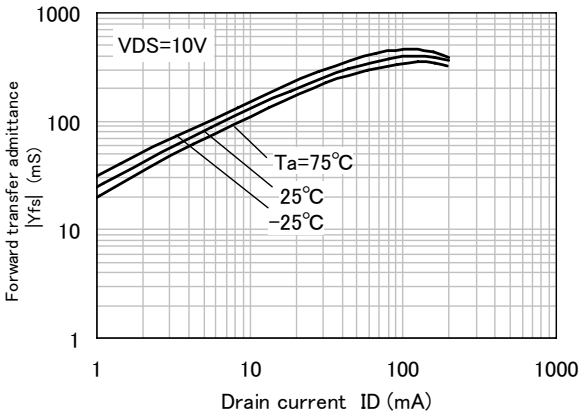

IDR – VDS



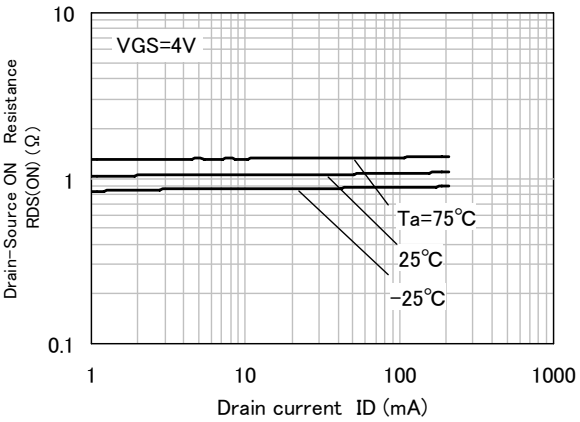

ID – VGS



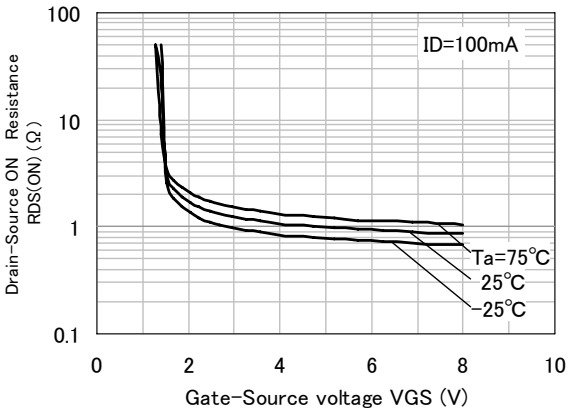

|Yfs| – ID



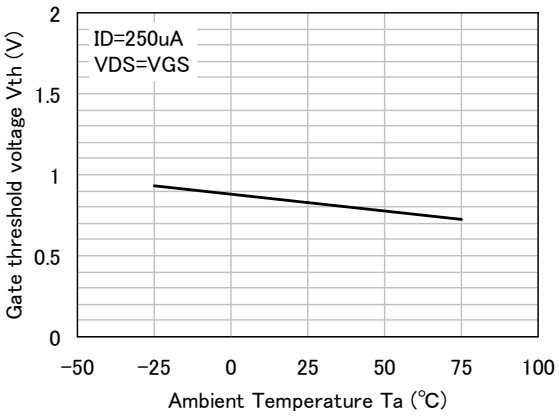

RDS(ON) – ID



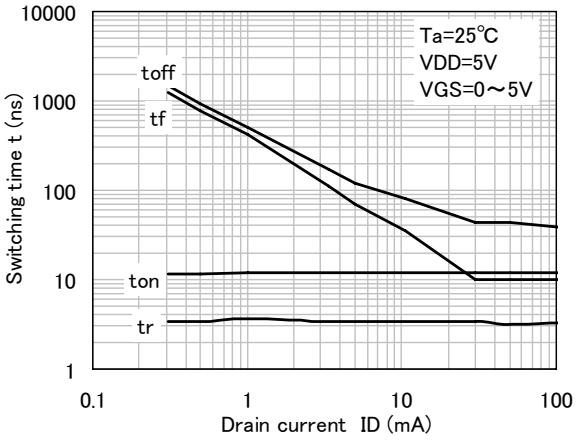
RDS(ON) - VGS



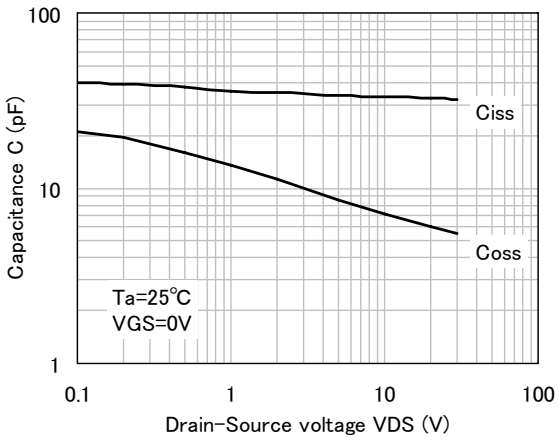

Vth - Ta




t - ID




C - VDS



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