

# INK0003AX SERIES

High speed switching  
Silicon N-channel MOSFET

## DESCRIPTION

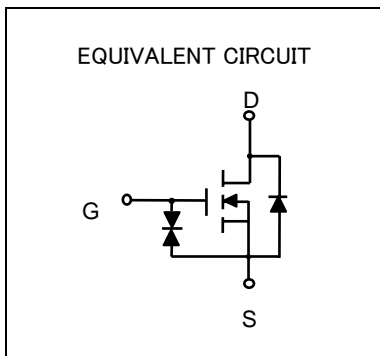
INK0003AX is a Silicon N-channel MOSFET.  
This product is most suitable for low voltage use such as portable machinery, because of low voltage drive and low on resistance.

## FEATURE

- Input impedance is high, and not necessary to consider a drive electric current.
- $V_{th}$  is low, and drive by low voltage is possible.  $V_{th}=0.6\sim 1.2V$
- Low on Resistance.  $R_{on}=0.9\Omega$  (TYP)
- High speed switching.
- Small package for easy mounting.

## APPLICATION

high speed switching, Analog switching



## OUTLINE DRAWING

Unit: mm

| INK0003AT2  | INK0003AM1   |
|---|--|
|   |  |
| JEITA, JEDEC: —<br>ISAHAYA: T-USM<br>TERMINAL CONNECTOR<br>①: GATE<br>②: SOURCE<br>③: DRAIN | JEITA: SC-70<br>JEDEC: —<br>TERMINAL CONNECTOR<br>①: GATE<br>②: SOURCE<br>③: DRAIN                   |
| INK0003AU1  | INK0003AC1   |
|   |  |
| JEITA: SC-75A<br>JEDEC: —<br>TERMINAL CONNECTOR<br>①: GATE<br>②: SOURCE<br>③: DRAIN         | JEITA: SC-59<br>JEDEC: Similar to TO-236<br>T TERMINAL CONNECTOR<br>①: GATE<br>②: SOURCE<br>③: DRAIN |

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High speed switching  
Silicon N-channel MOSFET

## MAXIMUM RATING (Ta=25°C)

| SYMBOL           | PARAMETER                         | RATING     |            |            |            | UNIT |
|------------------|-----------------------------------|------------|------------|------------|------------|------|
|                  |                                   | INK0003AT2 | INK0003AU1 | INK0003AM1 | INK0003AC1 |      |
| V <sub>DSS</sub> | Drain-source voltage              | 20         |            |            |            | V    |
| V <sub>GSS</sub> | Gate-source voltage               | ±8         |            |            |            | V    |
| I <sub>D</sub>   | Drain current                     | 200        |            |            |            | mA   |
| P <sub>D</sub>   | Total power dissipation (Ta=25°C) | 125(※)     | 150        | 200        |            | mW   |
| T <sub>ch</sub>  | Channel temperature               | +125       | +150       |            |            | °C   |
| T <sub>stg</sub> | Range of Storage temperature      | -55~+125   | -55~+150   |            |            | °C   |

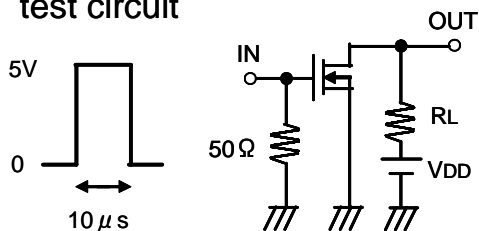
## ELECTRICAL CHARACTERISTICS (Ta=25°C)

※package mounted on 9mm × 19mm × 1mm glass-epoxy substrate.

| SYMBOL               | PARAMETER                               | TEST CONDITION   | LIMIT |     |      | UNIT |
|----------------------|---|--|-------|-----|------|------|
|                      |   |  | MIN   | TYP | MAX  |      |
| V <sub>(BR)DSS</sub> | Drain-source breakdown voltage          | I <sub>D</sub> =100 μA, V <sub>GS</sub> =0V                        | 20    | -   | -    | V    |
| I <sub>GSS</sub>     | Gate-source leak current                | V <sub>GS</sub> =±5V, V <sub>DS</sub> =0V                          | -     | -   | ±0.5 | μA   |
| I <sub>DSS</sub>     | Zero gate voltage drain current         | V <sub>DS</sub> =20V, V <sub>GS</sub> =0V                          | -     | -   | 1.0  | μA   |
| V <sub>th</sub>      | Gate threshold voltage                  | I <sub>D</sub> =250 μA, V <sub>DS</sub> =V <sub>GS</sub>           | 0.6   | -   | 1.2  | V    |
| Y <sub>fs</sub>      | Forward transfer admittance             | V <sub>DS</sub> =10V, I <sub>D</sub> =0.1A                         | -     | 300 | -    | mS   |
| R <sub>DS(ON)</sub>  | Static drain-source on-state resistance | I <sub>D</sub> =100mA, V <sub>GS</sub> =4.0V                       | -     | 0.9 | -    | Ω    |
| C <sub>iss</sub>     | Input capacitance                       | V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz                  | -     | 34  | -    | pF   |
| C <sub>oss</sub>     | Output capacitance                      | V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz                  | -     | 8.5 | -    | pF   |
| t <sub>ON</sub>      | Switching time                          | V <sub>DD</sub> =5V, I <sub>D</sub> =10mA<br>V <sub>GS</sub> =0~5V | -     | 14  | -    | ns   |
| t <sub>OFF</sub>     |   |  | -     | 85  | -    |      |

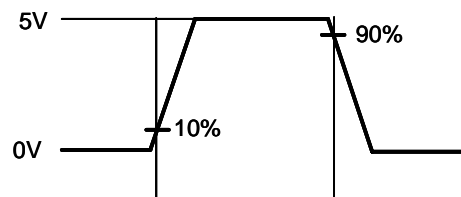
## Switching time test condition

### test circuit

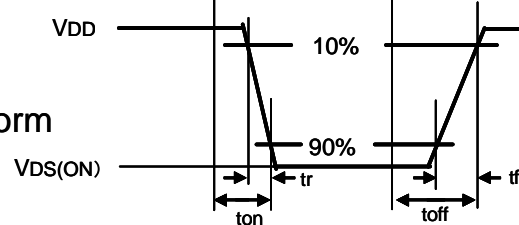


V<sub>DD</sub>=5V  
D.U. ≤ 1%  
Common source  
Ta=25°C

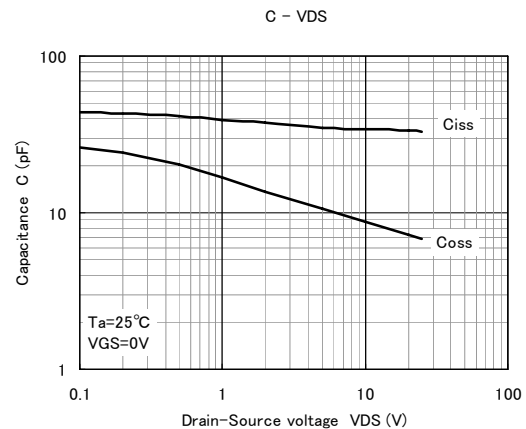
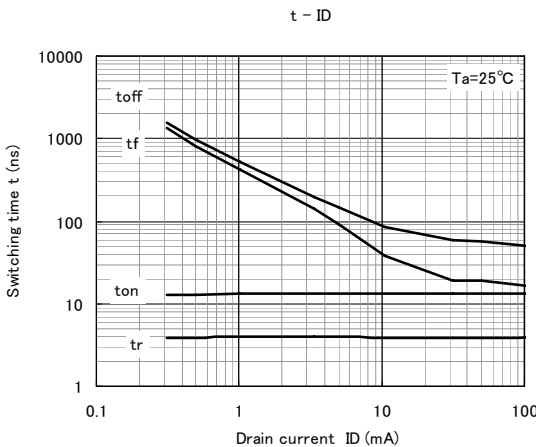
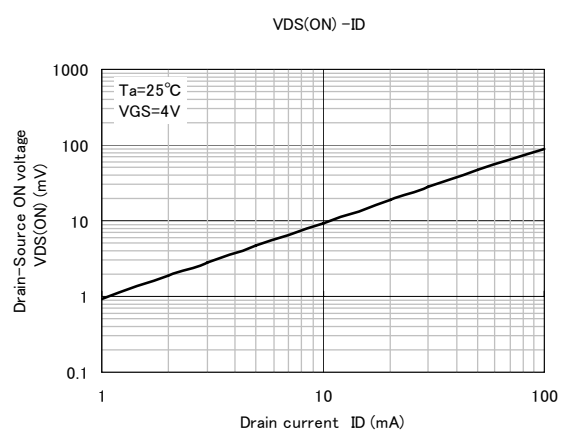
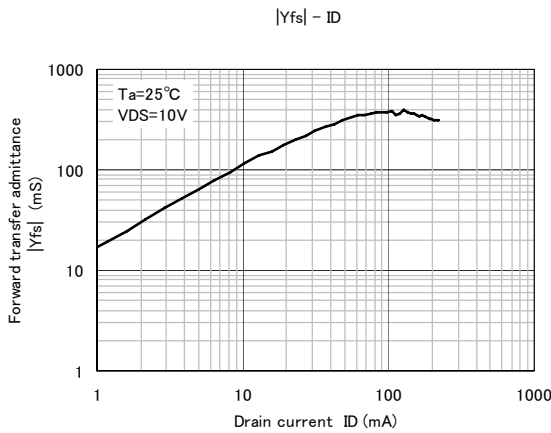
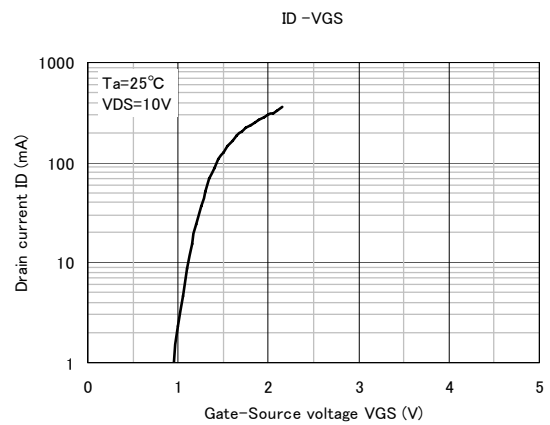
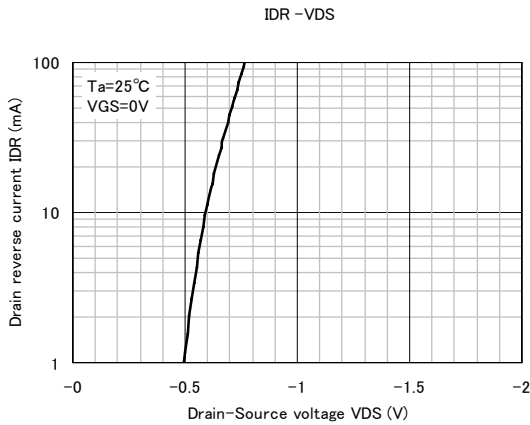
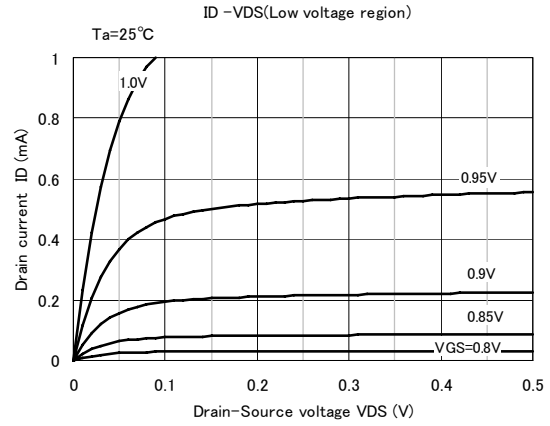
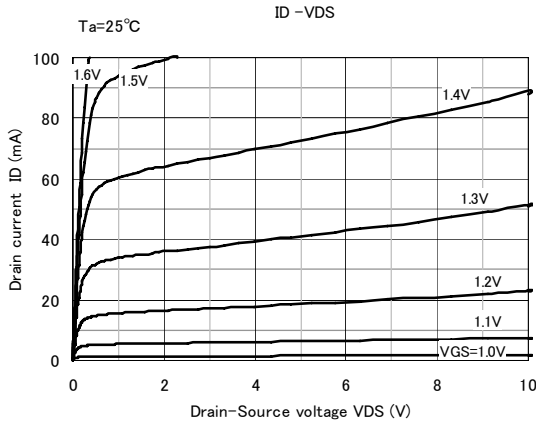
input waveform



output waveform



# TYPICAL CHARACTERISTICS





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