

# INK0012AM1-T150

High Speed Switching  
Silicon N-channel MOSFET

AEC-Q101 COMPLIANCE

## DESCRIPTION

INK0012AM1 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

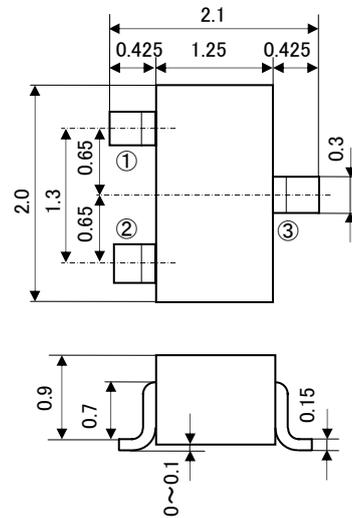
- Input impedance is high, and not necessary to consider a drive electric current.
- Drive voltage 4V
- Low on Resistance.  
 $R_{DS(ON)}=1.7\ \Omega$  (TYP) @ $I_D=100\text{mA}$ ,  $V_{GS}=4.0\text{V}$   
 $R_{DS(ON)}=1.0\ \Omega$  (TYP) @ $I_D=100\text{mA}$ ,  $V_{GS}=10\text{V}$
- High speed switching.
- Small package for easy mounting.

## APPLICATION

High speed switching , Analog switching

## OUTLINE DRAWING

UNIT : mm



JEITA : SC-70

JEDEC : -

TERMINAL CONNECTOR

① : Gate

② : SOURCE

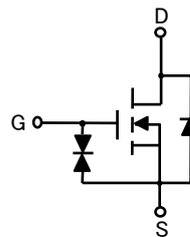
③ : DRAIN

## MAXIMUM RATING (Ta=25°C)

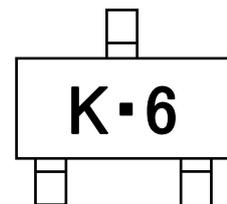
| SYMBOL | PARAMETER                    | RATING   | UNIT |
|--------|------------------------------|----------|------|
| VDSS   | Drain-source voltage         | 30       | V    |
| VGSS   | Gate-source voltage          | ±20      | V    |
| ID     | Drain current(DC)            | 200      | mA   |
| IDP    | Drain current(Pulse) ※1      | 400      | mA   |
| PD     | Total power dissipation      | 200      | mW   |
| Tch    | Channel temperature          | +150     | °C   |
| Tstg   | Range of Storage temperature | -55~+150 | °C   |

※1: Pw ≤ 10 μs, Duty cycle ≤ 1%

## EQUIVALENT CIRCUIT



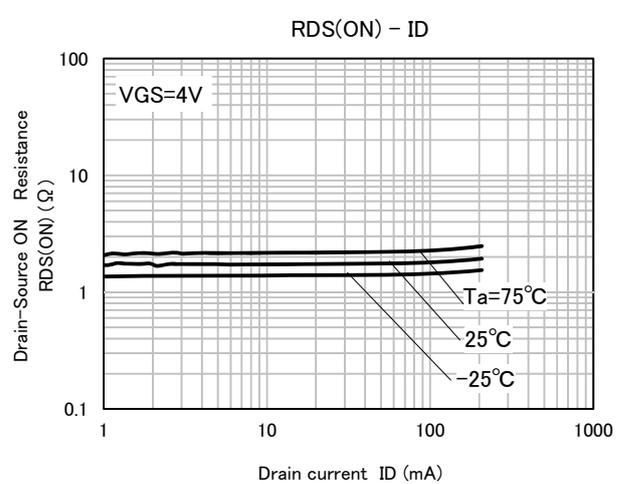
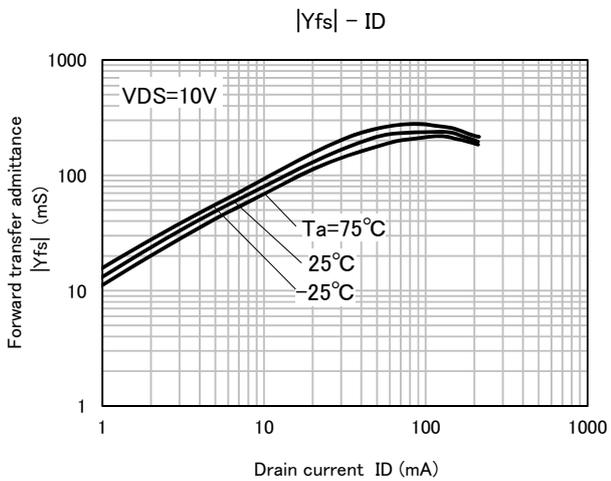
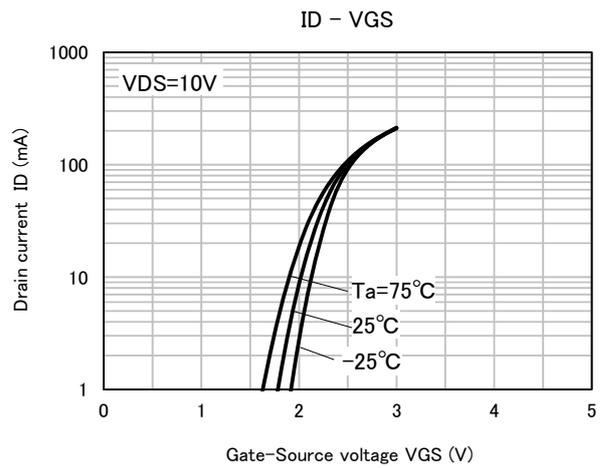
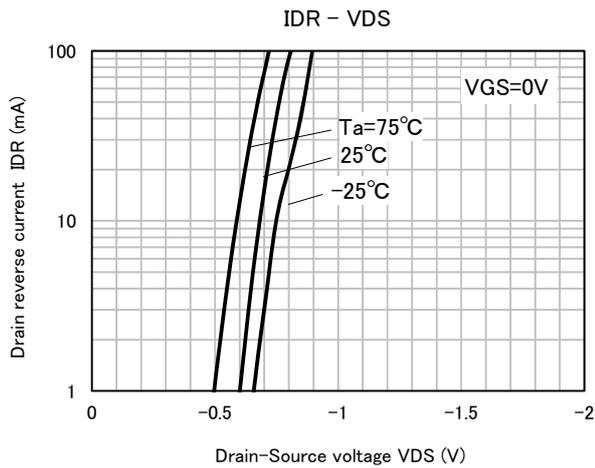
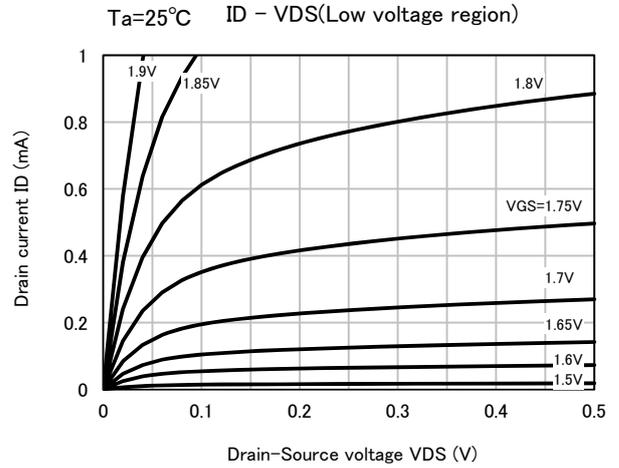
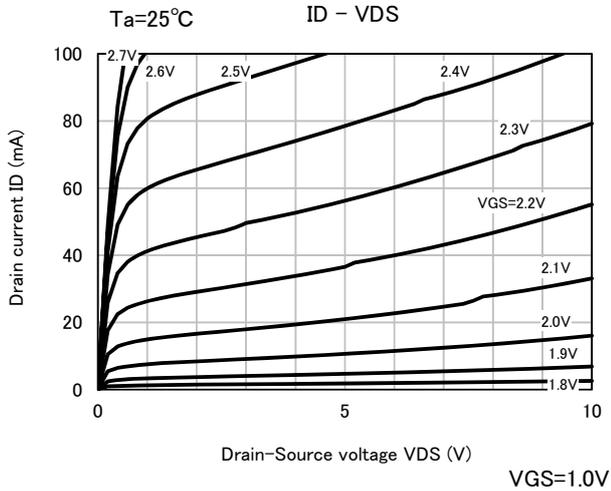
## MARKING



## ELECTRICAL CHARACTERISTICS (Ta=25°C)

| PARAMETER                               | SYMBOL   | TEST CONDITION   | LIMIT |     |      | UNIT |
|---|----------|--|-------|-----|------|------|
|   |          |  | MIN   | TYP | MAX  |      |
| Drain-source breakdown voltage          | V(BR)DSS | $I_D=100\ \mu\text{A}$ , $V_{GS}=0\text{V}$                | 30    | -   | -    | V    |
| Gate-source leak current                | IGSS     | $V_{GS}=\pm 15\text{V}$ , $V_{DS}=0\text{V}$               | -     | -   | ±1.0 | μA   |
| Zero gate voltage drain current         | IDSS     | $V_{DS}=30\text{V}$ , $V_{GS}=0\text{V}$                   | -     | -   | 1.0  | μA   |
| Gate threshold voltage                  | Vth      | $I_D=250\ \mu\text{A}$ , $V_{DS}=V_{GS}$                   | 1.0   | -   | 2.0  | V    |
| Forward transfer admittance             | Yfs      | $V_{DS}=10\text{V}$ , $I_D=100\text{mA}$                   | -     | 245 | -    | mS   |
| Static drain-source on-state resistance | RDS(ON)  | $I_D=100\text{mA}$ , $V_{GS}=4.0\text{V}$                  | -     | 1.7 | -    | Ω    |
|   |          | $I_D=100\text{mA}$ , $V_{GS}=10\text{V}$                   | -     | 1.0 | -    |      |
| Input capacitance                       | Ciss     | $V_{DS}=10\text{V}$ , $V_{GS}=0\text{V}$ , $f=1\text{MHz}$ | -     | 23  | -    | pF   |
| Output capacitance                      | Coss     |  | -     | 7.0 | -    | pF   |
| Switching time                          | ton      | $V_{DD}=5\text{V}$ , $I_D=10\text{mA}$                     | -     | 30  | -    | ns   |
|   | toff     | $V_{GS}=0\sim 5\text{V}$                                   | -     | 66  | -    | ns   |

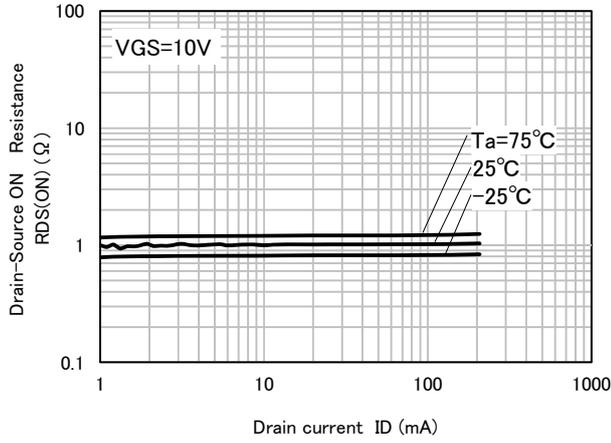
## TYPICAL CHARACTERISTICS



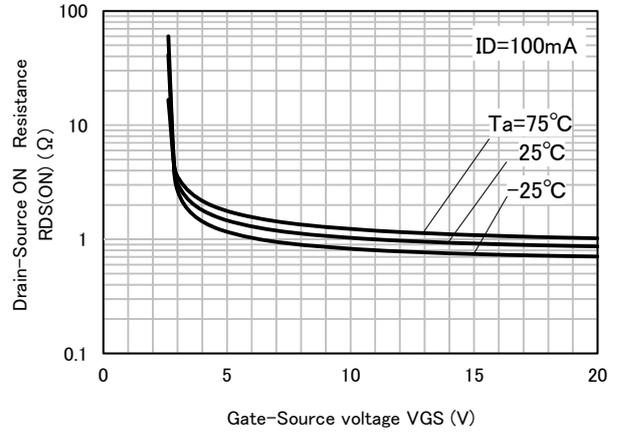
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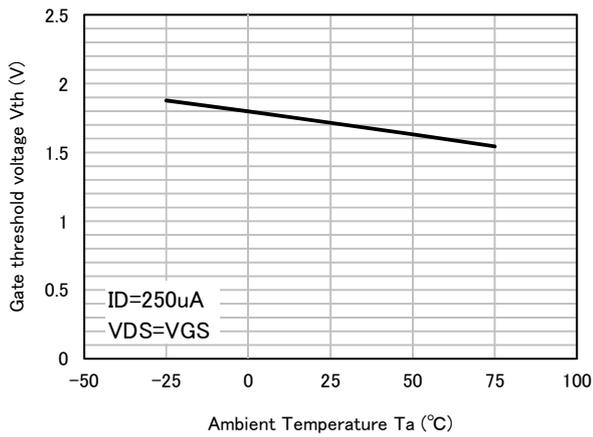
RDS(ON) - ID



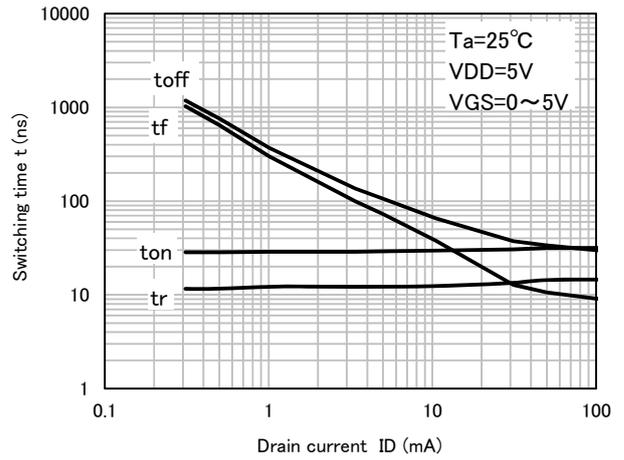
RDS(ON) - VGS



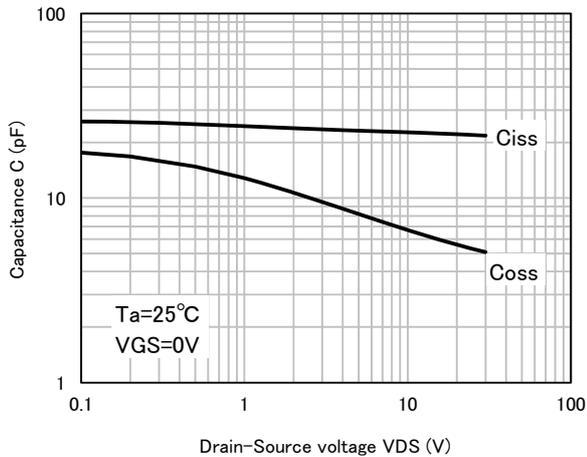
Vth - Ta



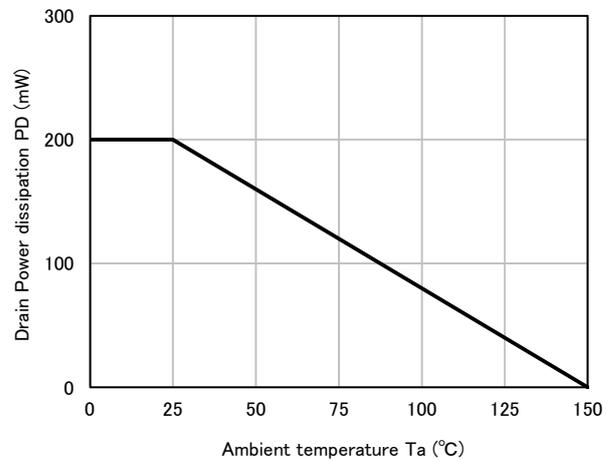
t - ID



C - VDS



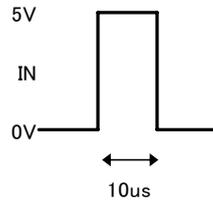
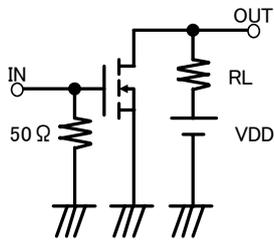
PD - Ta



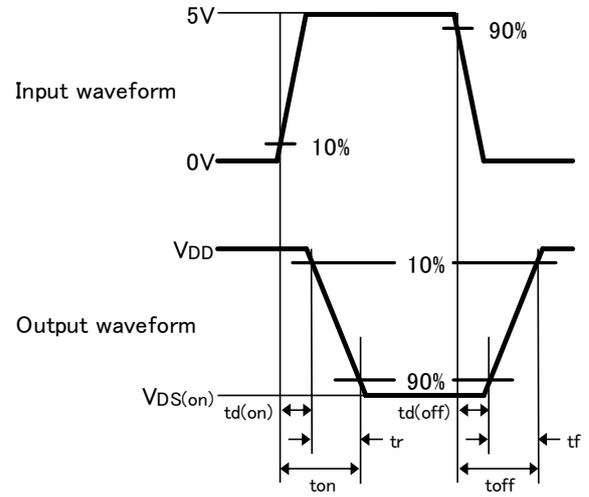
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## Switching time test condition



Duty  $\leq$  1%  
VDD = 5V  
Common source  
Ta = 25°C





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

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