High Speed Switching Silicon N-channel MOSFET

## **DESCRIPTION**

INK040AAC1 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 ID=3.7A
- •Drive voltage 4V
- •Low on Resistance. RDS(ON)=48m  $\Omega$  typ(@VGS=10V).  $\mbox{RDS(ON)=63m} \ \Omega \ \mbox{typ(@VGS=4.5V)}$
- ·High speed switching.

## **APPLICATION**

High speed switching, Analog switching

# MAXIMUM RATINGS (Ta=25°C)

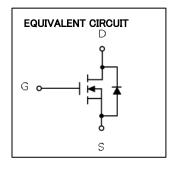
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	VDSS	100	<b>V</b>
Gate-Source Voltage	Vgss	+20/-12	V
Drain Current(DC) (%1)	ĪD	3.7	Α
Drain Current(Pulse) (%2)	ĪDP	12	Α
Total Power Dissipation (%1)	Pb	0.9	W
Channel Temperature	Tch	+150	°C
Storage Temperature	Tstg	−55 <b>~</b> +150	°C

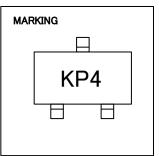
X1 package mounted on glass-epoxy substrate.

 $(39\text{mm} \times 39\text{mm} \times 1.6\text{mm},\text{Cu pad }1500\text{mm}^2)$ 

 $\frak{\times}2\ Pw\frak{\le}10ms$  , Duty cycle  $\frak{\le}1\%$ 

# TERMINAL CONNECTOR ①: GATE ②: SOURCE ③: DRAIN O.65 1.5 O.65 0.65 1.5 O.65 TERMINAL CONNECTOR ①: GATE ②: SOURCE ③: DRAIN JEITA: SC-59 JEDEC: Similar to TO-236



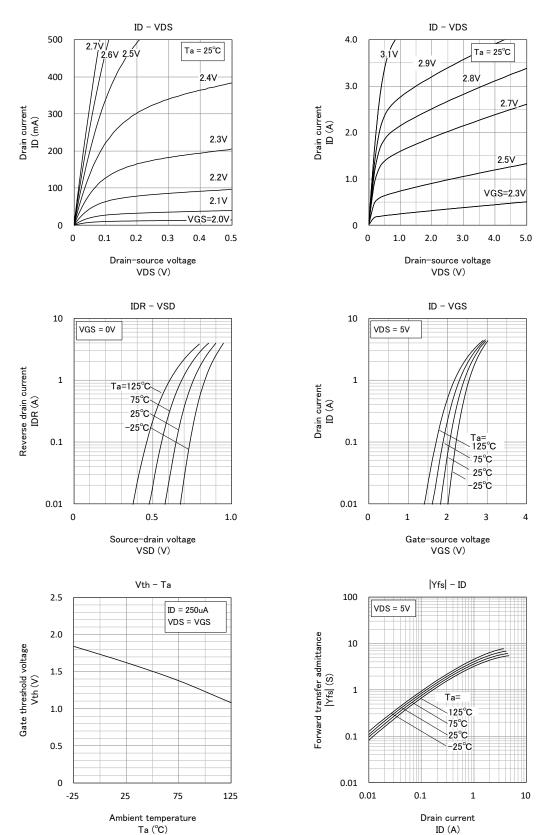


## ELECTRICAL CHARACTERISTICS (Ta=25°C)

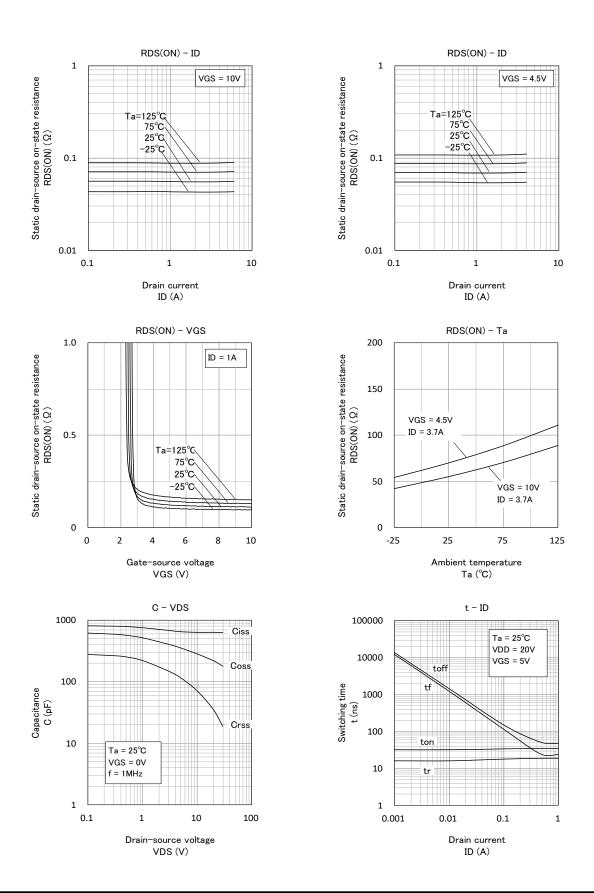
Parameter	Symbol	Test Condition		Limit		
			MIN	TYP	MAX	Unit
Drain-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	100	_	_	٧
Gate-Source Leak Current	Igss	$V_{GS}=\pm 20V$ , $V_{DS}=0V$	_	-	±1.0	μA
Zero Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V	_	-	1.0	
Gate Threshold Voltage	Vth	$I_D=250\mu A,\ V_{DS}=V_{GS}$	1.0	-	2.5	٧
Static Drain-Source On-State Resistance	Darkers	I <sub>D</sub> =3.7A, V <sub>GS</sub> =4.5V	_	63	83	mΩ
	Rds(on)	I <sub>D</sub> =3.7A, V <sub>GS</sub> =10V	-	48	63	
Input Capacitance	Ciss	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz	-	635	-	pF
Output Capacitance	Coss		-	290	-	
Feedback Capacitance	Crss	1	-	72	-	
Switching Time	ton	V 90V I 900 A V 5V	_	18	-	ns
	toff	V <sub>DD</sub> =20V, I <sub>D</sub> =200mA, V <sub>GS</sub> =5V	_	30	_	

High Speed Switching Silicon N-channel MOSFET

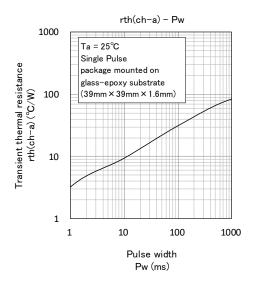
# TYPICAL CHARACTERISTICS

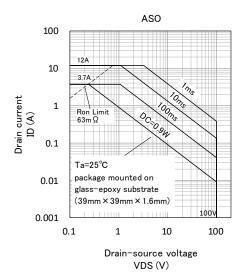


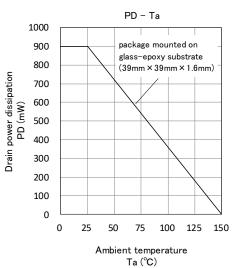
High Speed Switching Silicon N-channel MOSFET



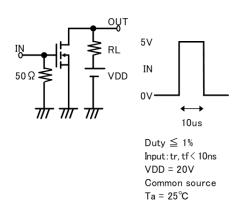
High Speed Switching Silicon N-channel MOSFET

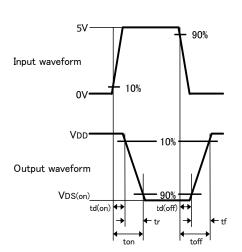






Switching time test condition





### Keep safety first in your circuit designs!

ISAHAYA Electronics Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (1) placement of substitutive, auxiliary, (2) use of non-farmable material or (3) prevention against any malfunction or mishap.

### Notes regarding these materials

- •These materials are intended as a reference to our customers in the selection of the ISAHAYA products best suited to the customer's application; they don't convey any license under any intellectual property rights, or any other rights, belonging ISAHAYA or third party.
  •ISAHAYA Electronics Corporation assumes no responsibility for any damage, or infringement of any third party's rights, originating in the use of any product data, diagrams, charts or circuit application examples contained in these materials.
- All information contained in these materials, including product data, diagrams and charts, represent information on products at the time of publication of these materials, and are subject to change by ISAHAYA Electronics Corporation without notice due to product improvements or other reasons. It is therefore recommended that customers contact ISAHAYA Electronics Corporation or an authorized ISAHAYA products distributor for the latest product information before purchasing product listed herein.
- distributor for the latest product information before purchasing product listed herein.

  ISAHAYA Electronics Corporation products are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact ISAHAYA Electronics Corporation or an authorized ISAHAYA products distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.
- The prior written approval of ISAHAYA Electronics Corporation is necessary to reprint or reproduce in whole or in part these materials.
- If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination. Any diversion or re-export contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.
- Please contact ISAHAYA Electronics Corporation or authorized ISAHAYA products distributor for further details on these materials or the products contained therein.