PRELIMINARY

Notice : This is not a final specification
Some parametric are subject to change.

INK0810AK1

High Speed Switching
Silicon N-channel MOSFET

DESCRIPTION

INK0810AK1 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

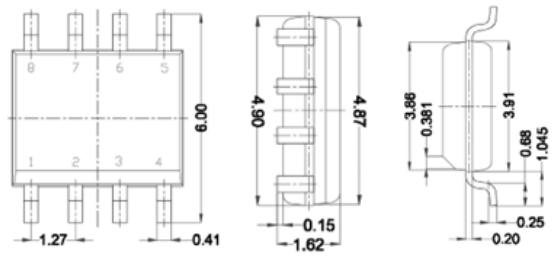
- Low on-resistance RDS(ON): max. 25 mΩ @ VGS = 10 V, ID = 5 A
- High drain current ID=7.8A
- Drive voltage 4.0V
- High speed switching.

APPLICATION

Switching Regulator, DC/DC Converter

OUTLINE DRAWING

Unit : mm



TERNIMAL CONNECTOR

①:SOURCE
②:SOURCE
③:SOURCE
④:GATE
⑤:DRAIN
⑥:DRAIN
⑦:DRAIN
⑧:DRAIN

JEITA: SOP8

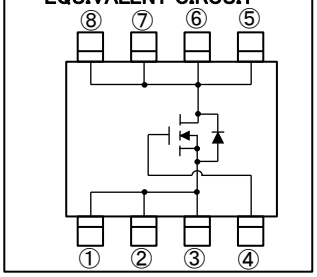
MAXIMUM RATINGS

Paramete	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current(DC) (※1)	I_D	7.8	A
Drain Current(Pulse) (※2)	I_{DP}	18	A
Total Power Dissipation (※1)	P_D	2.5	W
Channel Temperature	T_{ch}	+150	℃
Storage Temperature	T_{stg}	−55～+150	℃

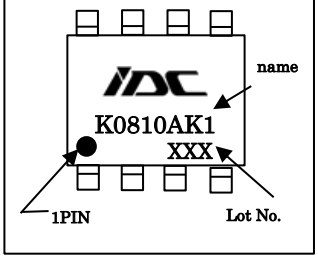
※1 package mounted on glass-epoxy substrate.
39mm × 39mm × 1.6mm
Copper foil with an area of 1460 mm² and a thickness of 35 μm

※2 : Pw≦10ms, Duty cycle≦1%

EQUIVALENT CIRCUIT



MARKING

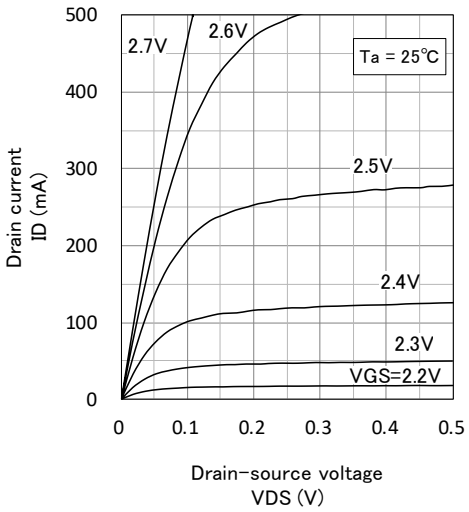


ELECTRICAL CHARACTERISTICS (Ta=25℃)

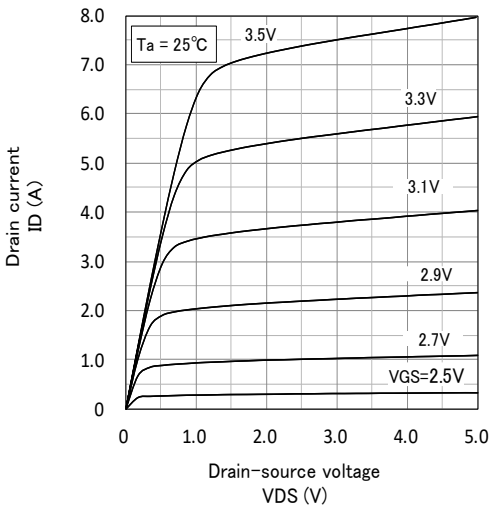
Parameter	Symbol	Test Condition	Limit			Unit
			MIN	TYP	MAX	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=250μA, V_{GS}=0V	60	−	−	V
Gate-Source Leak Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	−	−	±0.1	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	−	−	10	μA
Gate Threshold Voltage	V_{th}	I_D=250μA, V_{DS}=V_{GS}	1.0	−	3.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	I_D=5A, V_{GS}=10V	−	18	25	mΩ
		I_D=7A, V_{GS}=4.5V	−	22	30	
Input Capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0V, f=1MHz	−	1880	−	pF
Output Capacitance	C_{oss}		−	150	−	
Feedback Capacitance	C_{rss}		−	115	−	
Switching Time	t_{on}	V_{DS}=20V, I_D=200mA, f=1MHz	−	70	−	ns
	t_{off}		−	115	−	

TYPICAL CHARACTERISTICS

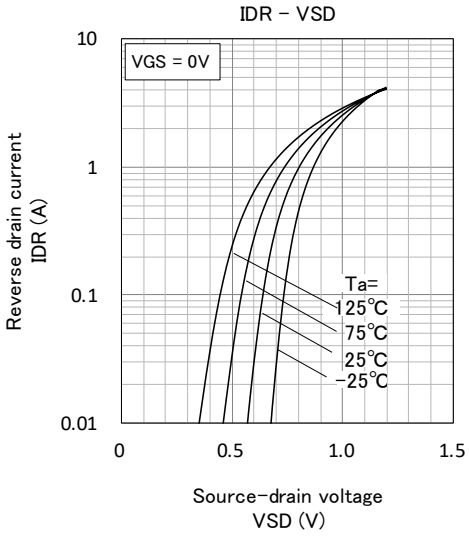
ID – VDS



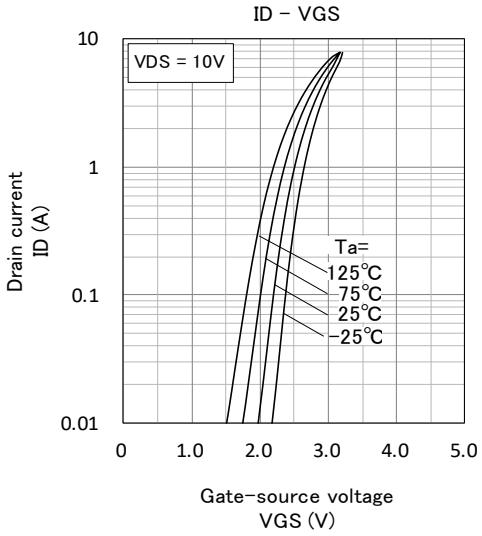
ID – VDS



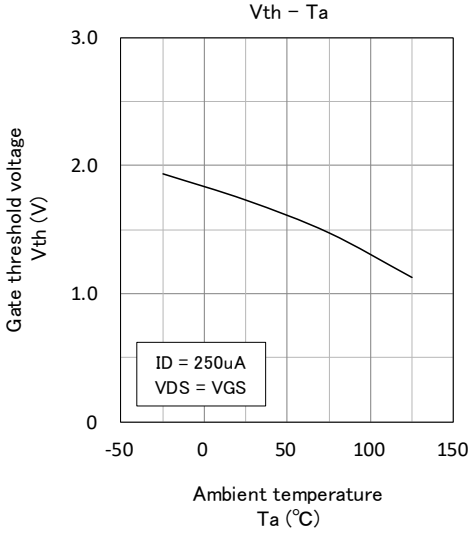
IDR – VSD



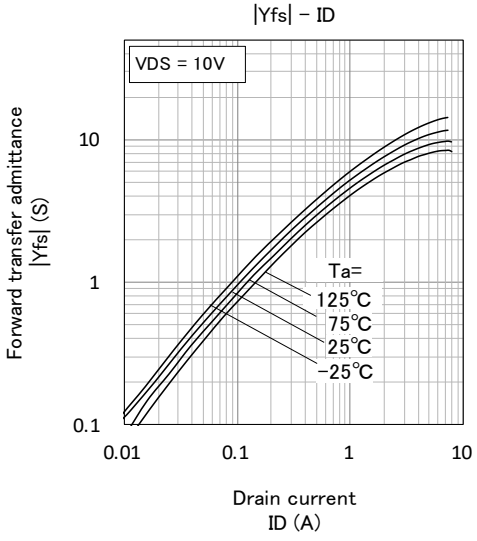
ID – VGS



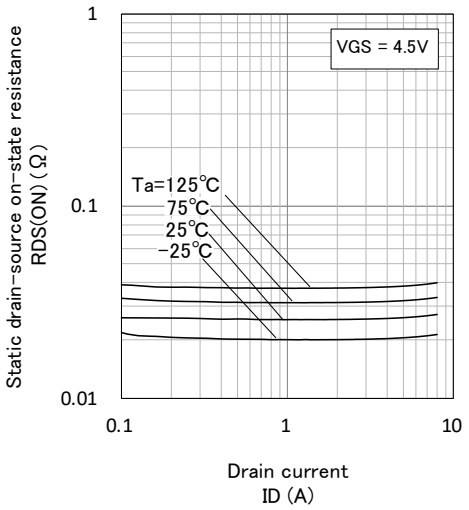
Vth – Ta



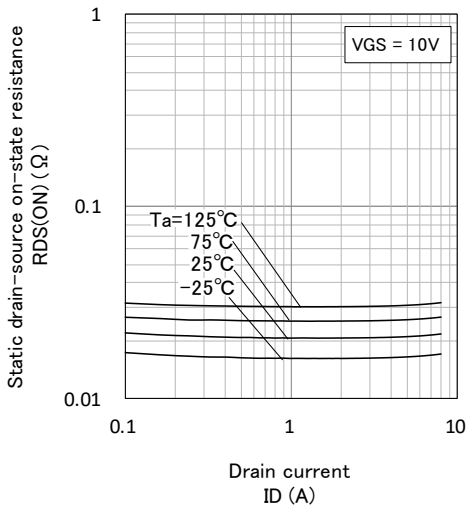
|Yfs| – ID



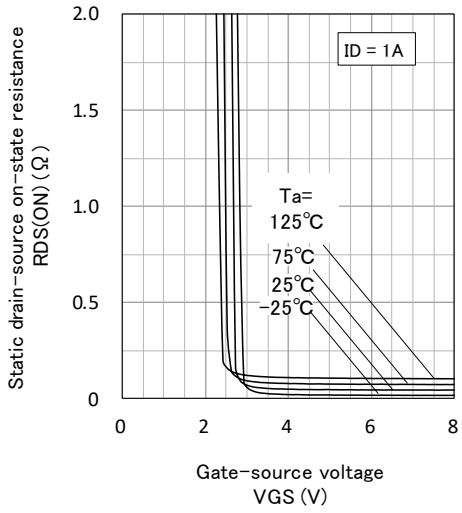
RDS(ON) – ID



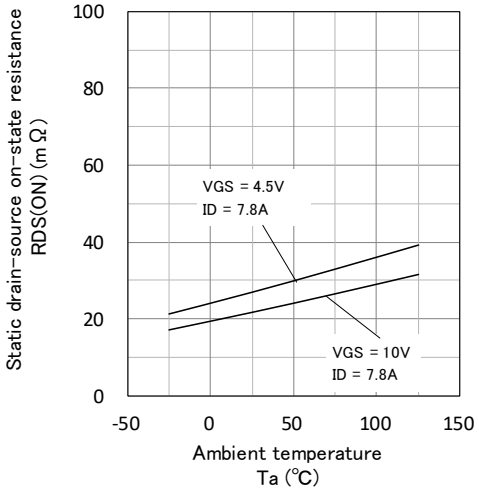
RDS(ON) – ID



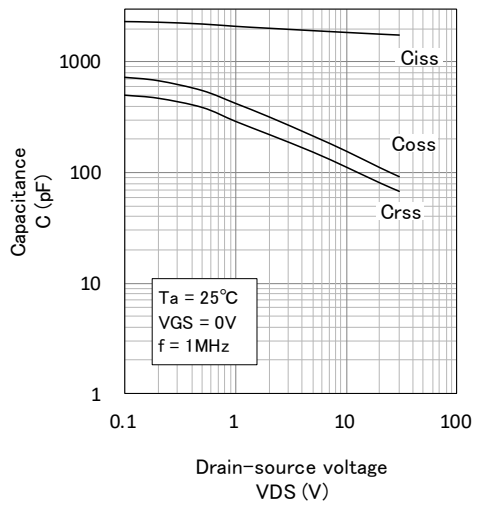
RDS(ON) – VGS



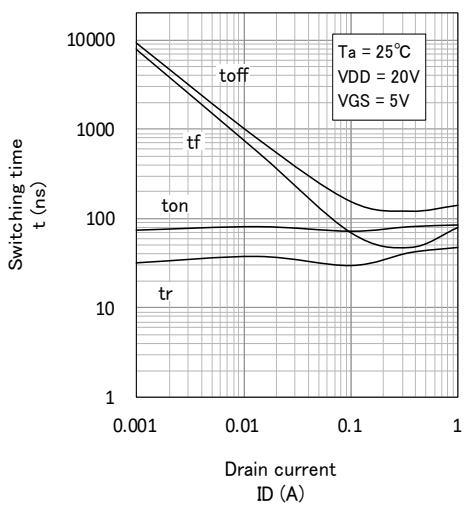
RDS(ON) – Ta



C – VDS



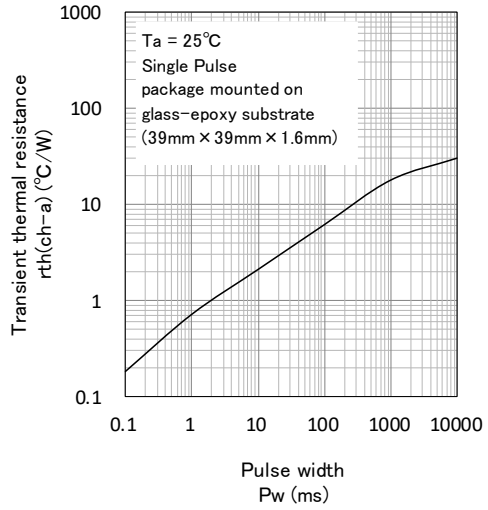
t – ID



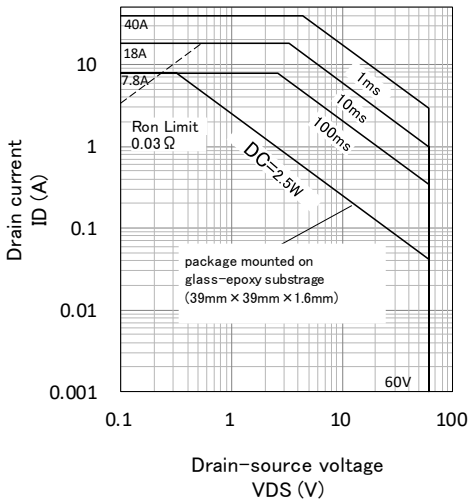
INK0810AK1

High Speed Switching
Silicon N-channel MOSFET

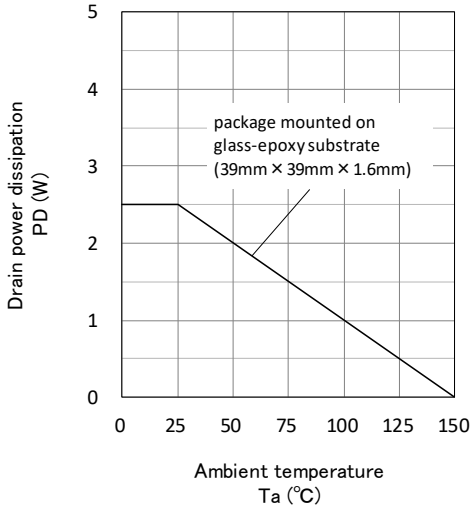
rth(ch-a) – Pw



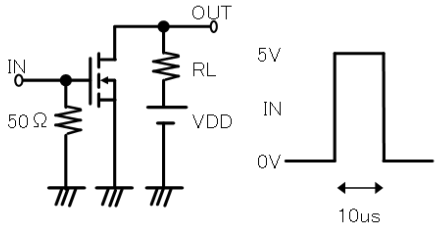
ASO



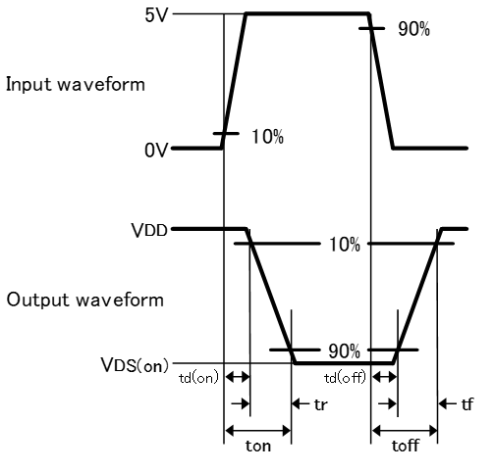
PD – Ta



Switching time test condition



Duty ≦ 1%
Input: tr, tf < 10ns
VDD = 20V
Common source
Ta = 25℃



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