

PRELIMINARY

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

INKA214AC1

Active Clamp
Silicon N-channel MOSFET

DESCRIPTION

INKA214AC1 is a Silicon N-channel Active Clamp MOSFET.
The built in clamp diode connected between drain and gate protects the MOS-FET from the counter electromotive force in switching drive of the inductance load. Therefore, no freewheel diode is required. The circuit layout can be simplified

FEATURE

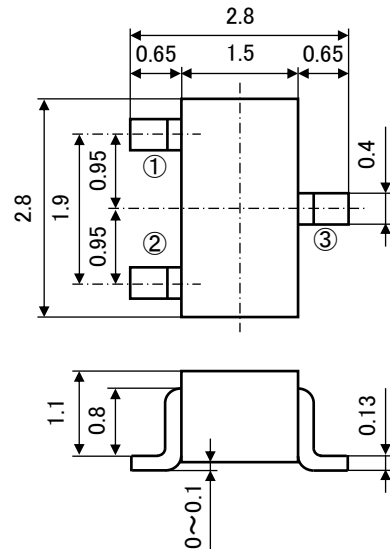
- The built in clamp diode connected between drain and gate.
- The ESD protection diodes and resistance for bias enables to reduce the peripheral components.
- Drive voltage 4V

APPLICATION

Motor, solenoid drive, etc.

OUTLINE DRAWING

Unit: mm



TERMINAL CONNECTOR

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

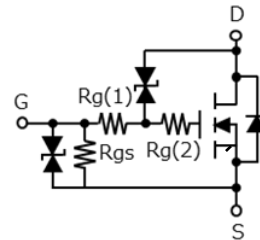
MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Rating	Unit
V _{GSS}	Gate-Source Voltage	10	V
I _D	Drain Current(DC)	1.5(※1)	A
I _{DP}	Drain current(Pulse)	4(※2)	A
P _D	Total Power Dissipation	550(※1)	mW
T _j	Junction Temperature	+150	°C
T _{stg}	Storage temperature	-55~+150	°C

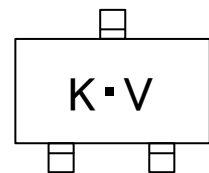
※1 package mounted on glass-epoxy substrate.(19mm × 9mm × 1mm)

※2 Single pulse Pw ≤ 1ms , Duty cycle ≤ 1%

EQUIVALENT CIRCUIT



MARKING



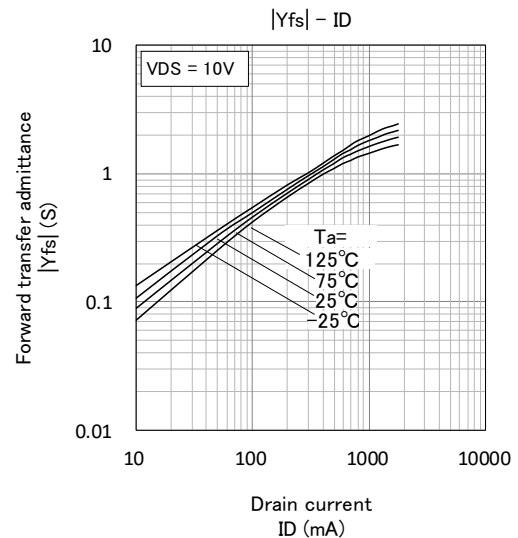
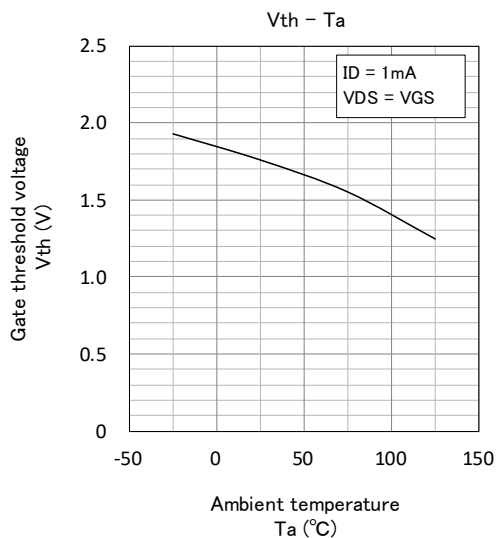
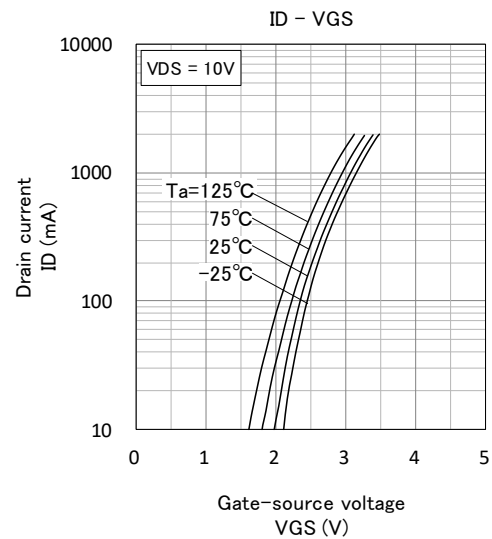
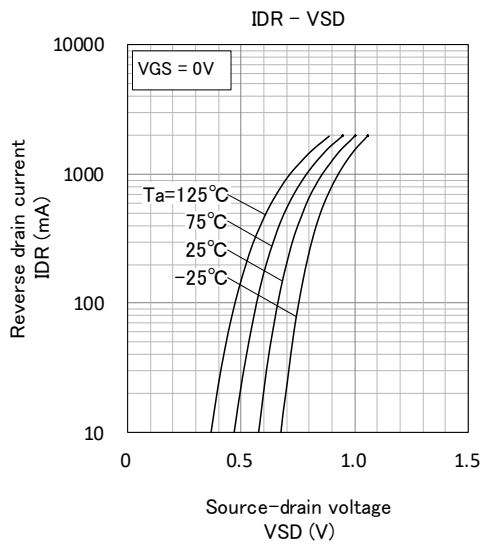
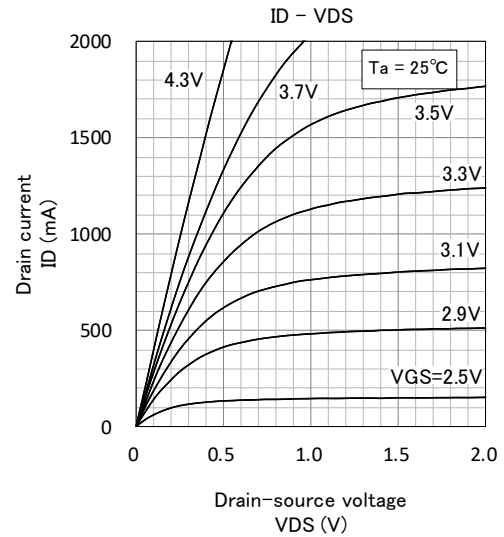
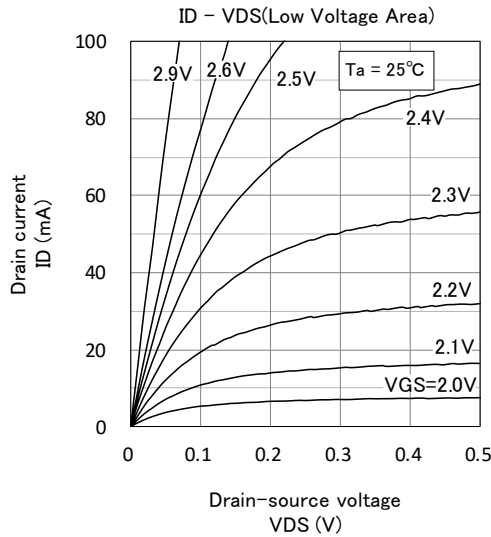
ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Condition	Limit			Unit
			MIN	TYP	MAX	
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D =10mA, V _{GS} =0V	38	-	62	V
Gate-Source Leak current	I _{GSS}	V _{GS} =±5V, V _{DS} =0V	-	-	±100	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	1.0	μA
Gate Threshold Voltage	V _{th}	I _D =1mA, V _{DS} =V _{GS}	1.0	-	2.5	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	I _D =1A, V _{GS} =10V	-	150	-	mΩ
		I _D =1A, V _{GS} =4.5V	-	200	-	mΩ
Gate-Source Resistance	R _{GS}		-	100	-	kΩ
Gate Resistance1	R _{G1}	-	-	1.5	-	kΩ
Gate Resistance2	R _{G2}	-	-	500	-	Ω
Input Capacitance	C _{iss}		-	20	-	pF
Output Capacitance	C _{oss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	55	-	pF
Reverse Transfer Capacitance	C _{rss}		-	1.8	-	pF
Switching Time	t _{on}	V _{DD} =30V, I _D =1A	-	2.8	-	μs
	t _{off}	V _{GS} =0~10V	-	0.8	-	μs

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TYPICAL CHARACTERISTICS

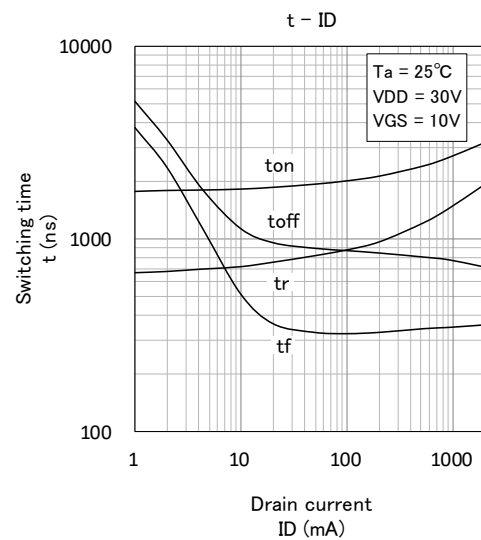
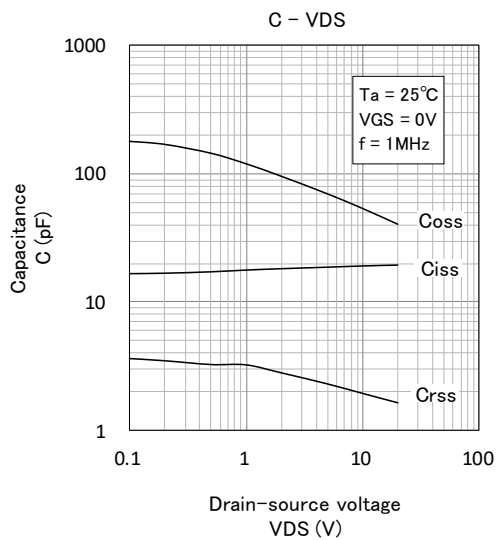
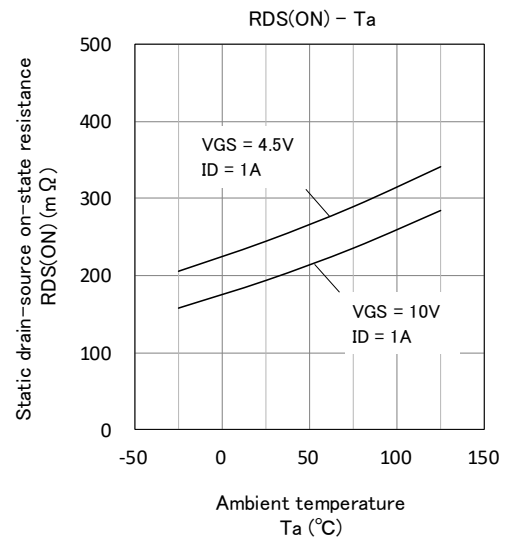
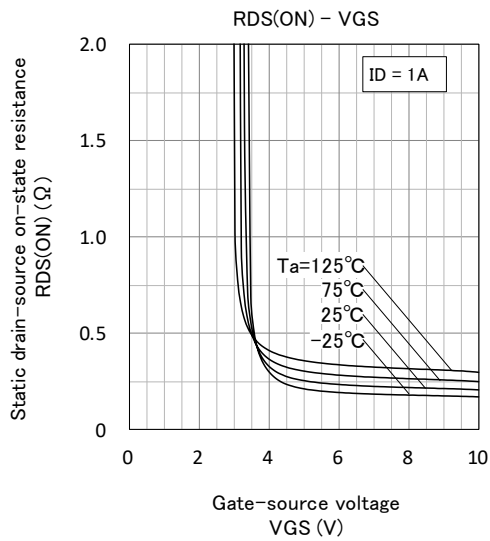
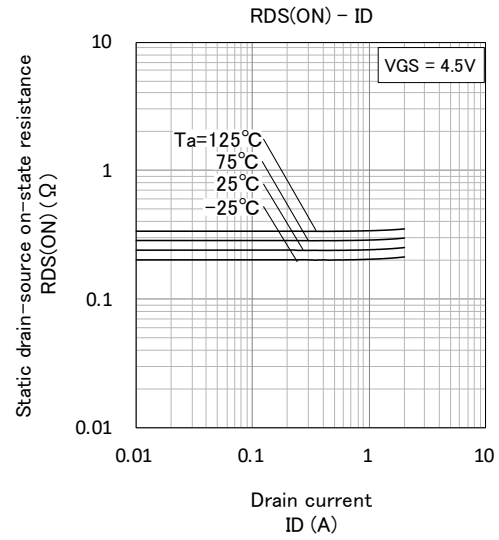
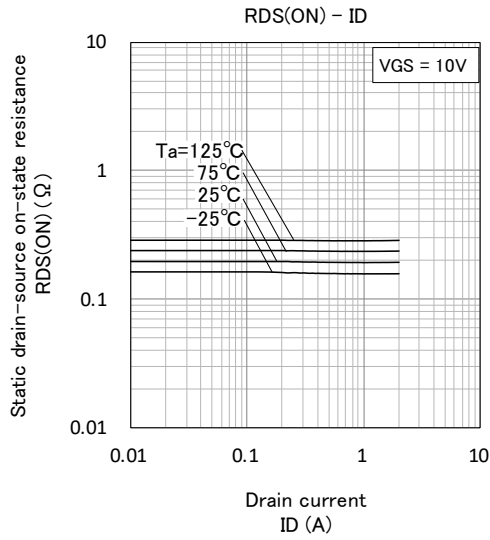


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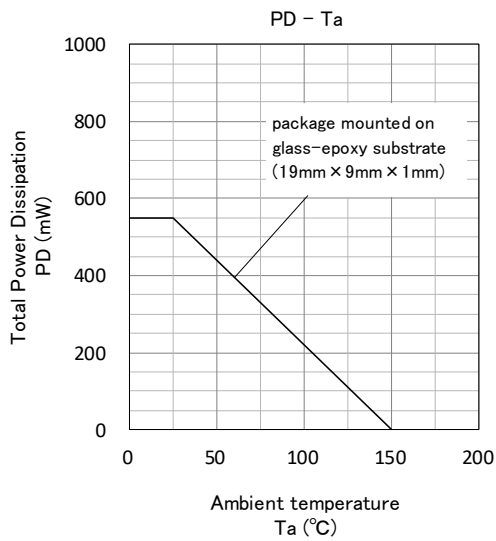
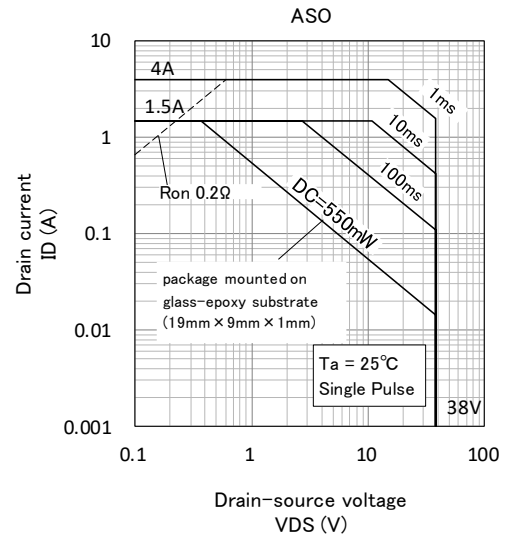
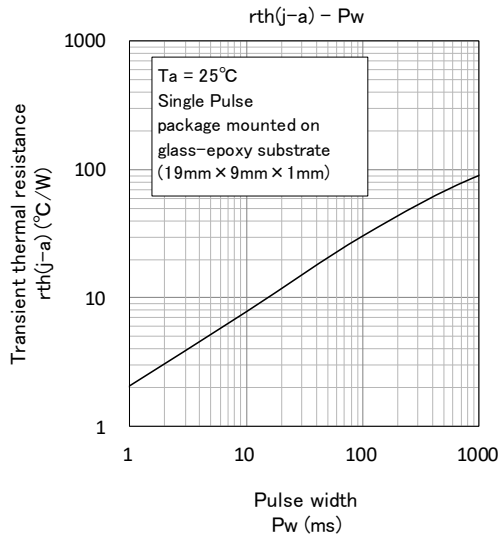


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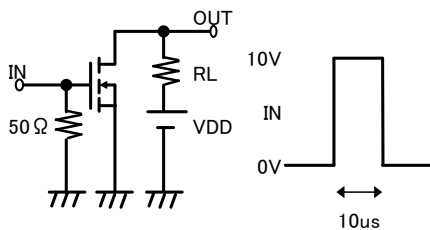
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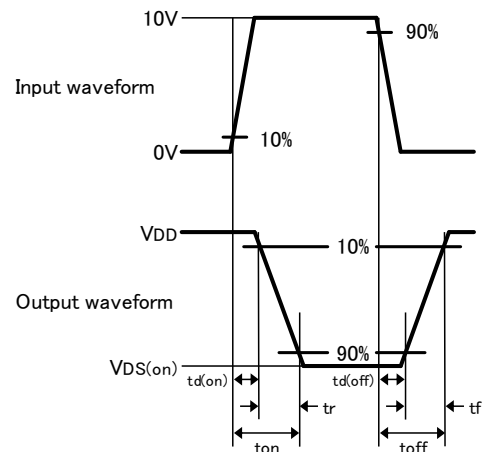
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Switching time test condition



Duty \leq 1%
Input: tr, tf < 10ns
VDD = 30V
Common source
Ta = 25°C



Keep safety first in your circuit designs!

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