

INKA214AP1-TH51

Active Clamp
Silicon N-channel MOSFET

AEC-Q101 Compliance

DESCRIPTION

INKA214AP1 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.

FEATURE

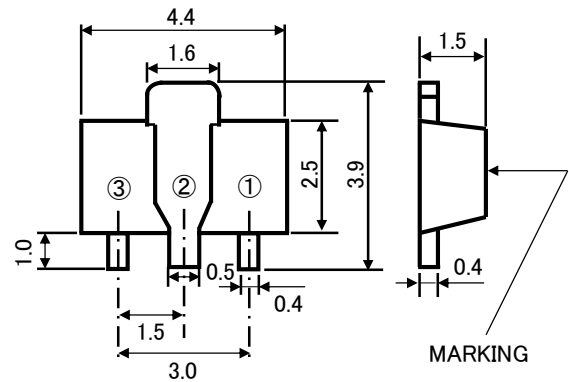
- The built in clamp diode connected between drain and gate.
- Built in bias resistor enables reduction of parts count.
- Drive voltage 4V

APPLICATION

Motor, Solenoid drive etc

OUTLINE DRAWING

Unit: mm



TERMINAL CONNECTER

- ①: GATE
②: DRAIN
③: SOURCE

JEITA: SC-62

JEDEC: SOT-89

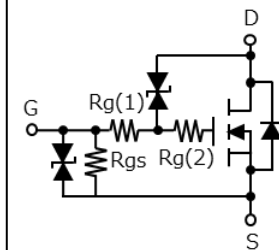
MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Rating	Unit
V _{GS}	Gate-Source Voltage	10	V
I _D	Drain Current(DC)	2(※1)	A
I _{DP}	Drain Current(Pulse)	6(※2)	A
P _D	Total Power Dissipation	0.75(※1)	W
T _{ch}	Channel Temperature	+150	°C
T _{stg}	Storage temperature	-55~+150	°C

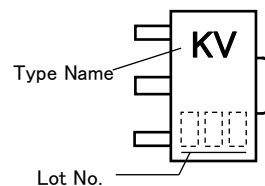
※1 package mounted on 19mm × 45mm × 1mm glass-epoxy substrate

※2 Pw ≤ 1ms, Duty cycle ≤ 1%

EQUIVALENT CIRCUIT



MARKING



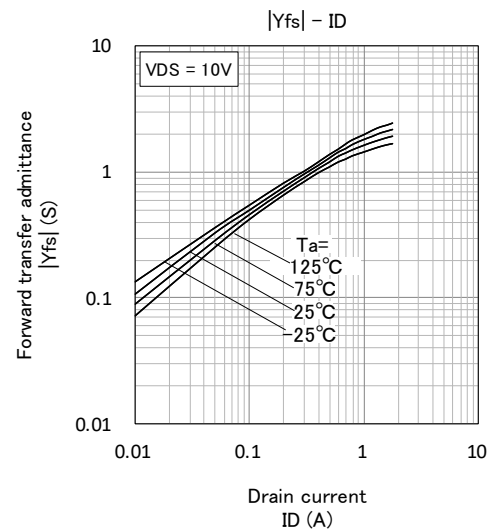
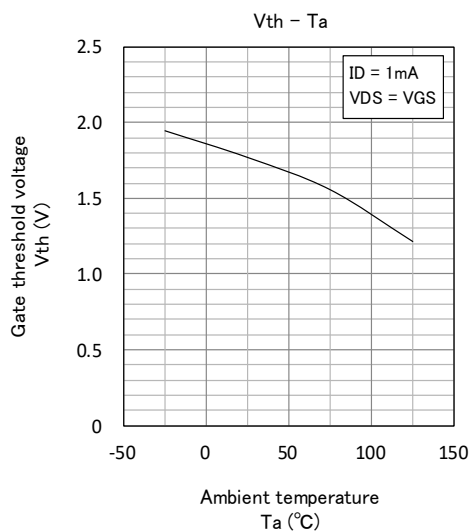
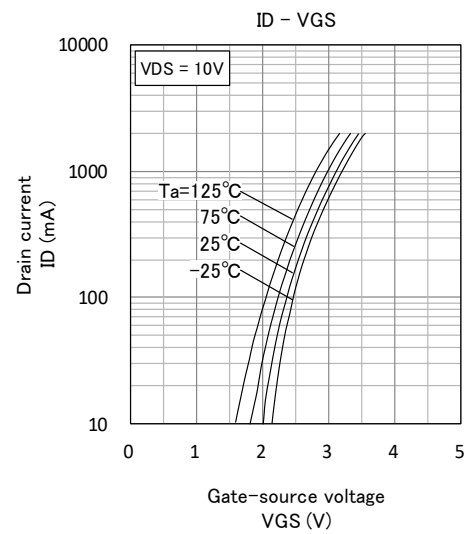
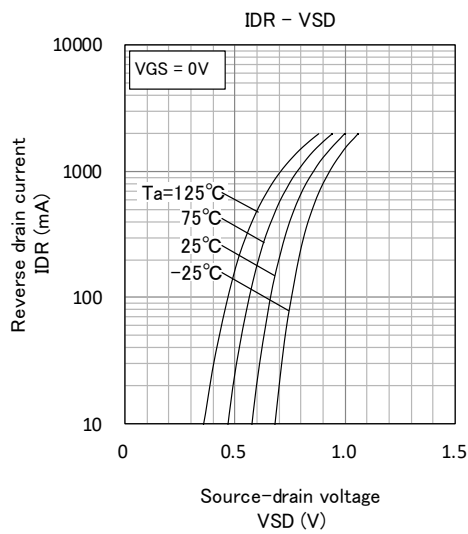
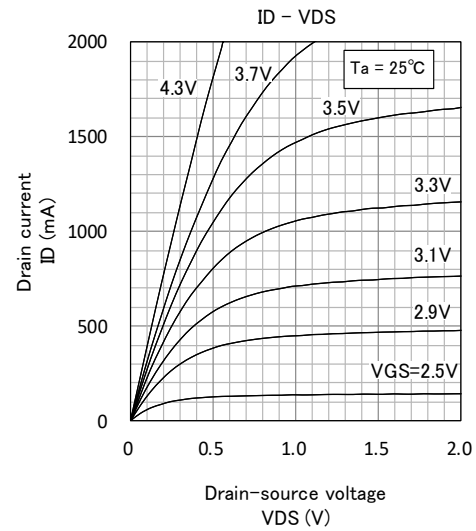
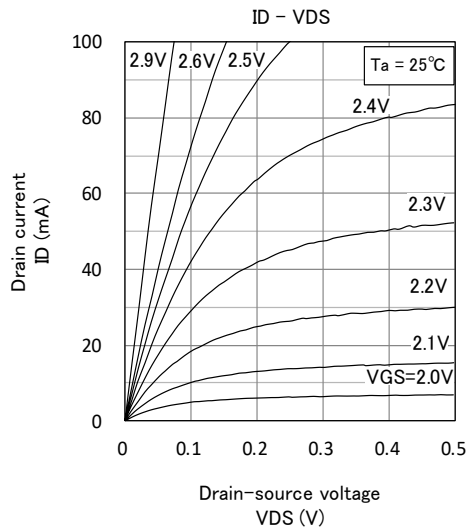
ELECTRICAL CHARACTERISTICS (Ta=25°C)

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
Forward Transfer Admittance	Y _{fs}	V _{DS} =10V, I _D =1A	-	2	-	S
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 _g (1)		-	1.5	-	kΩ
Gate Resistance2	R _g (2)		-	500	-	Ω
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	20	-	pF
Output Capacitance	C _{oss}		-	55	-	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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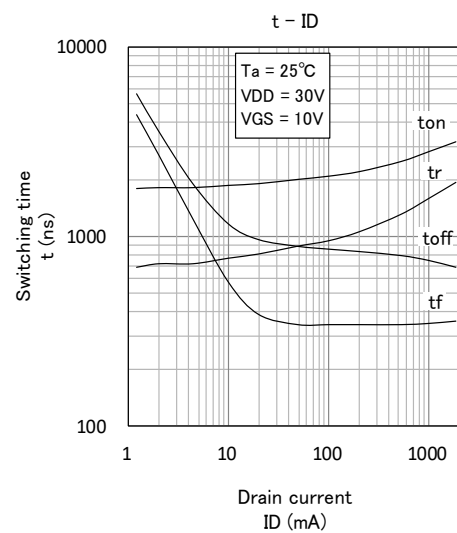
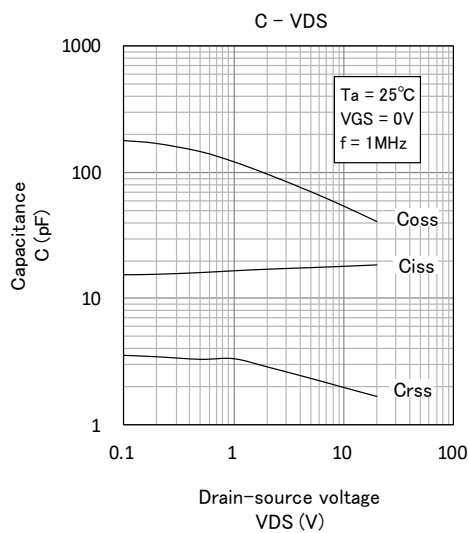
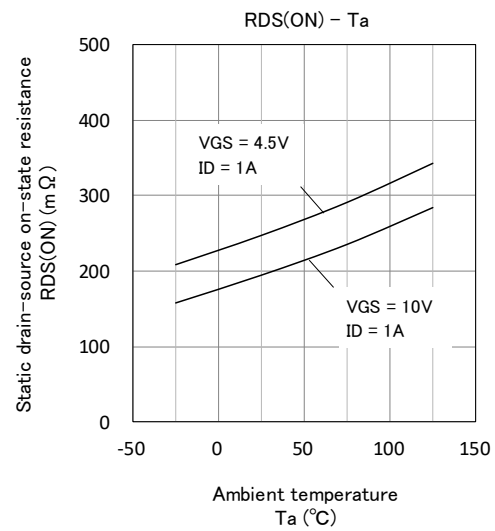
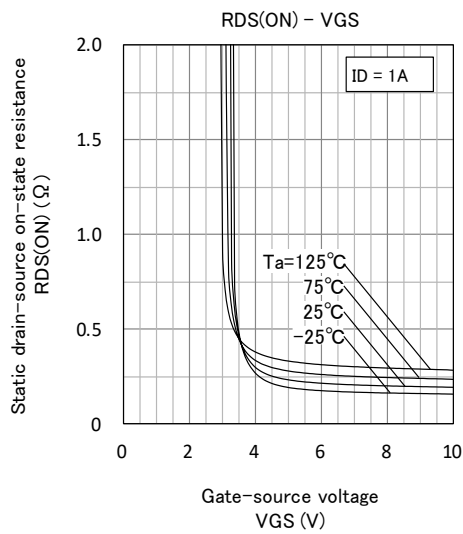
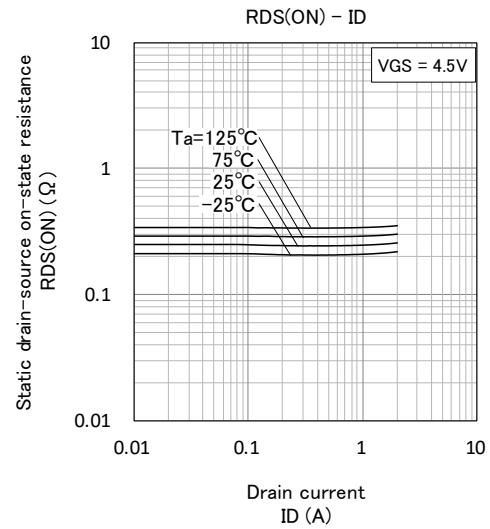
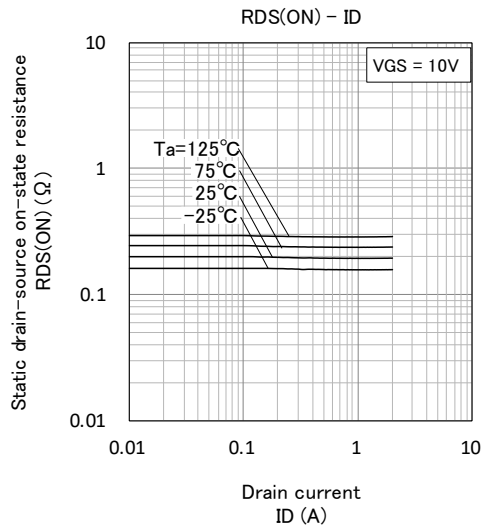
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TYPICAL CHARACTERISTICS



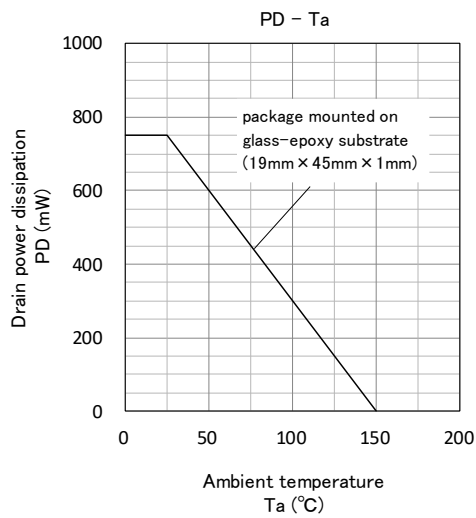
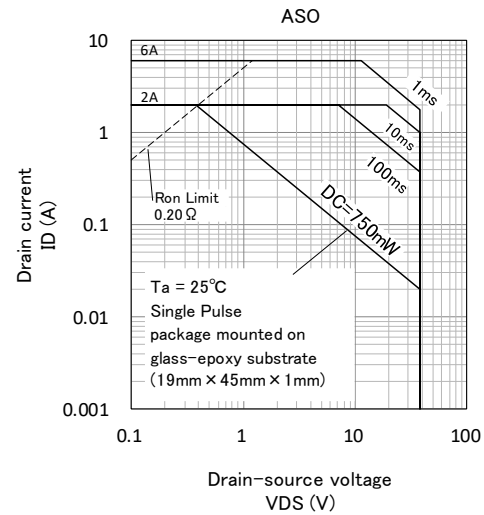
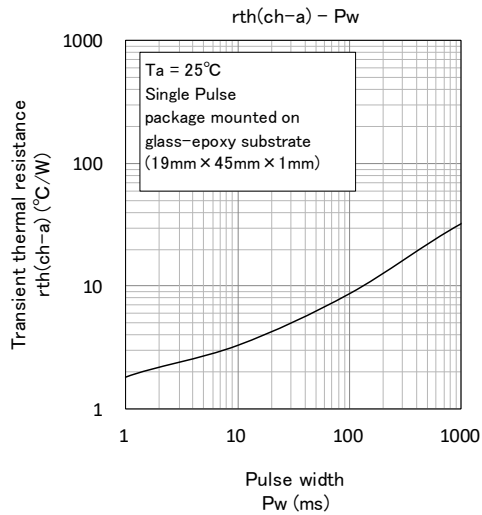
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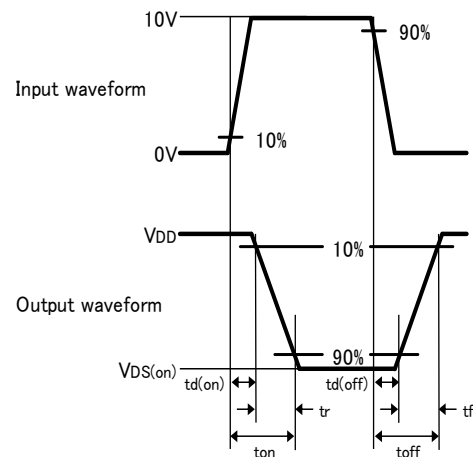
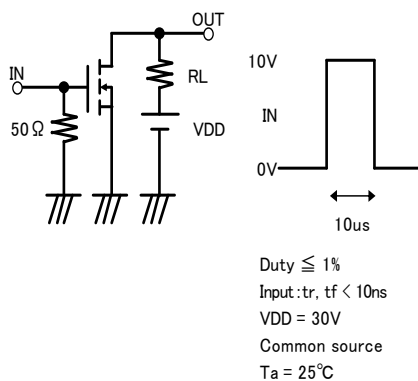


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Switching time test condition



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