

# PRELIMINARY

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

## INJ0310AC1

High Speed Switching  
Silicon P-channel MOSFET

### DESCRIPTION

INJ0310AC1 is a Silicon P-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  $I_D = -2.5A$
- Drive voltage  $-4V$
- Low on Resistance.  $R_{DS(ON)} = 110m\Omega$  typ(@ $V_{GS} = -10V$ )  
 $R_{DS(ON)} = 139m\Omega$  typ(@ $V_{GS} = -4.5V$ )
- High speed switching.

### APPLICATION

High speed switching, Analog switching

### MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current(DC) (※1)	$I_D$	-2.5	A
Drain Current(Pulse) (※2)	$I_{DP}$	-10	A
Total Power Dissipation (※1)	PD	0.9	W
Channel Temperature	$T_{ch}$	+150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ C$

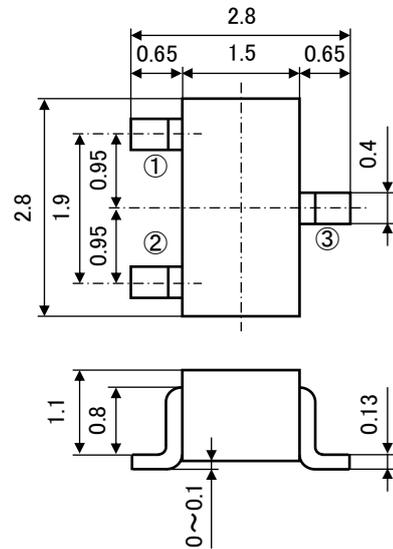
※1 package mounted on glass-epoxy substrate.

(39mm × 39mm × 1.6mm, Cu pad 1500mm<sup>2</sup>)

※2  $P_w \leq 1ms$ , Duty cycle  $\leq 1\%$

### OUTLINE DRAWING

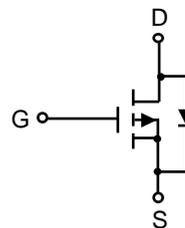
Unit: mm



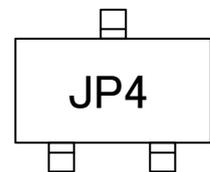
#### TERMINAL CONNECTOR

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

### EQUIVALENT CIRCUIT



### MARKING



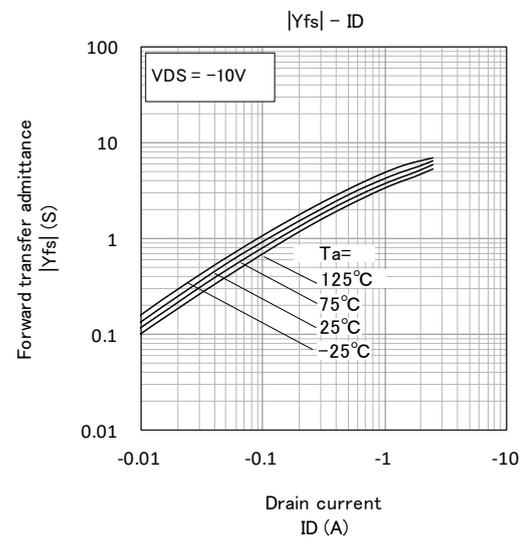
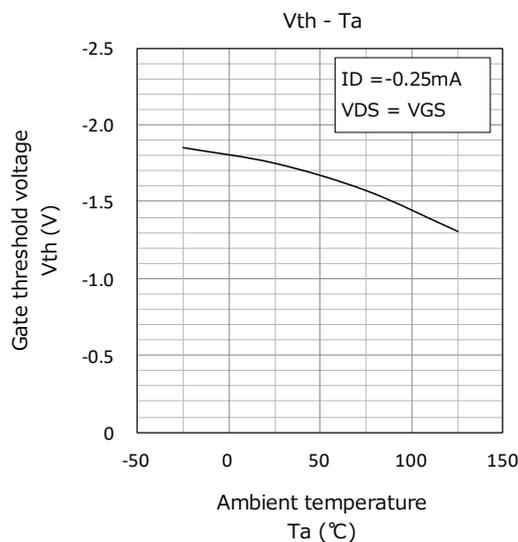
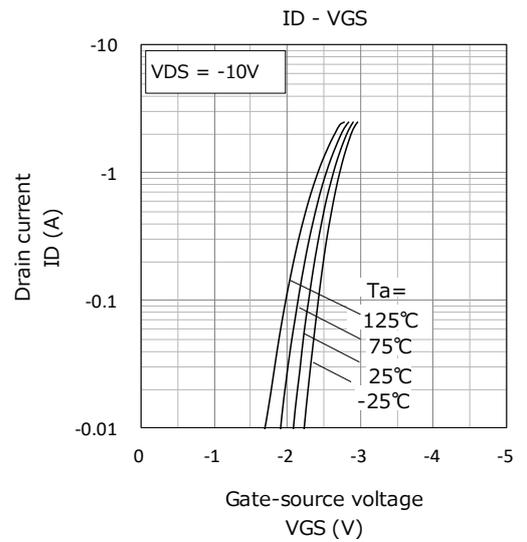
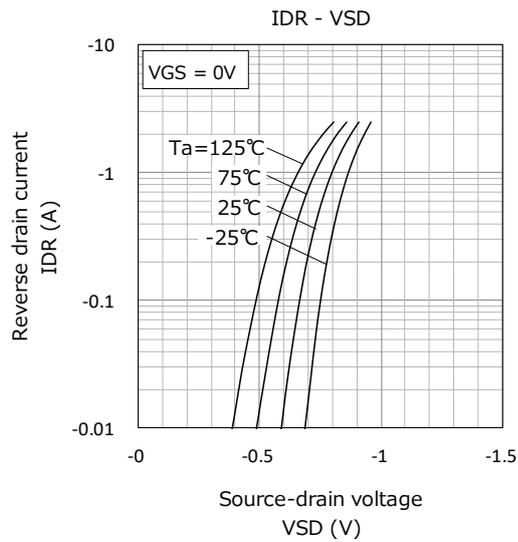
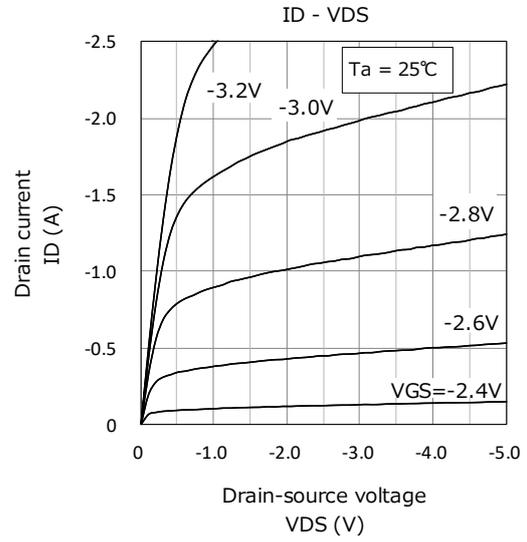
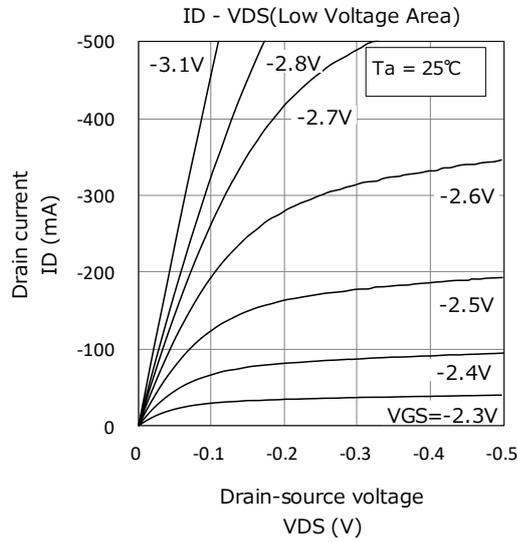
### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

Parameter	Symbol	Test Condition	Limit			Unit
			MIN	TYP	MAX	
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$I_D = -250\mu A, V_{GS} = 0V$	-60	-	-	V
Gate-Source Leak Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	$\pm 1.0$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -60V, V_{GS} = 0V$	-	-	-1.0	$\mu A$
Gate Threshold Voltage	$V_{th}$	$I_D = -250\mu A, V_{DS} = V_{GS}$	-1.0	-	-2.5	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = -10V, I_D = -100mA$	-	0.6	-	S
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$I_D = -2.5A, V_{GS} = -4.5V$	-	139	196	$m\Omega$
		$I_D = -2.5A, V_{GS} = -10V$	-	110	143	
Input Capacitance	$C_{iss}$	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$	-	740	-	$pF$
Output Capacitance	$C_{oss}$		-	60	-	
Feedback Capacitance	$C_{rss}$		-	70	-	
Switching Time	$t_{on}$	$V_{DD} = -20V, I_D = -200mA, V_{GS} = -5V$	-	30	-	ns
	$t_{off}$		-	110	-	

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TYPICAL CHARACTERISTICS

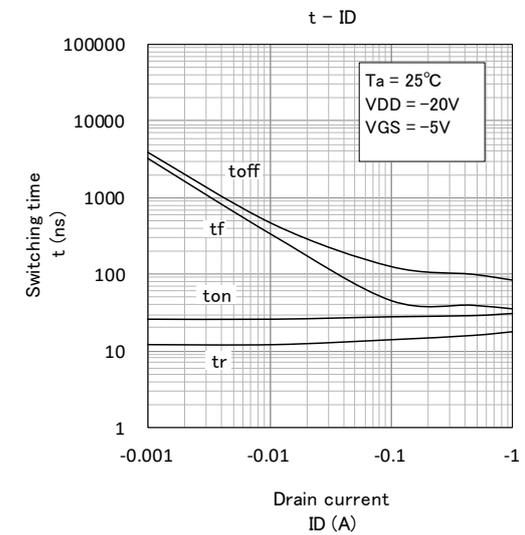
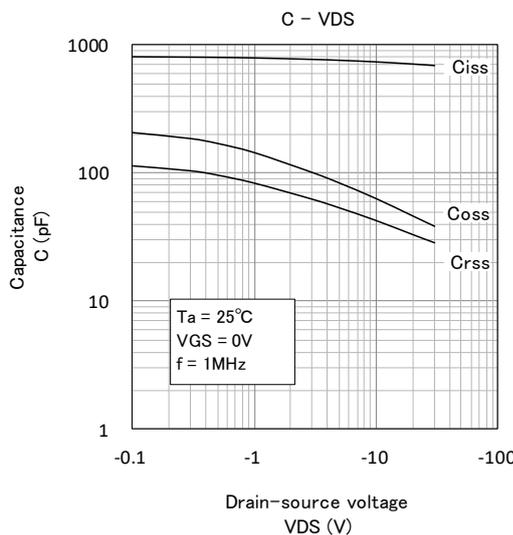
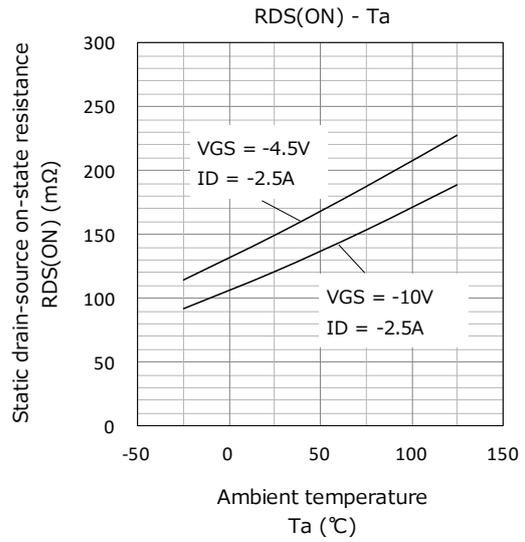
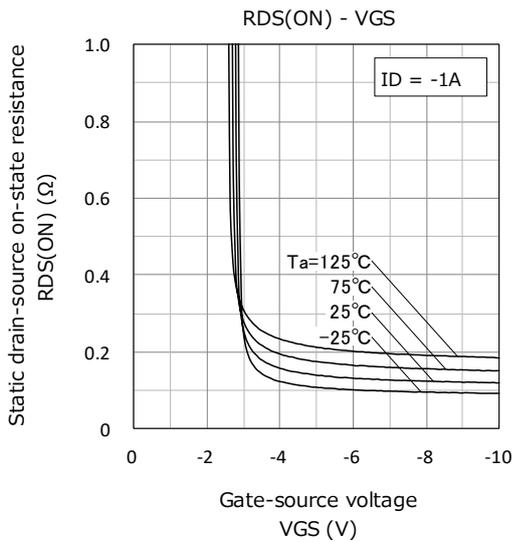
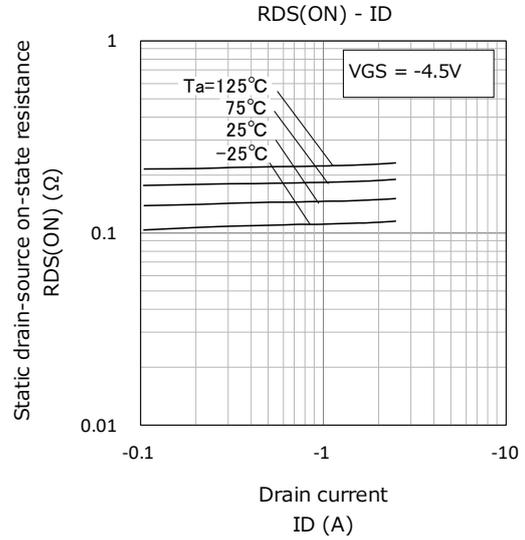
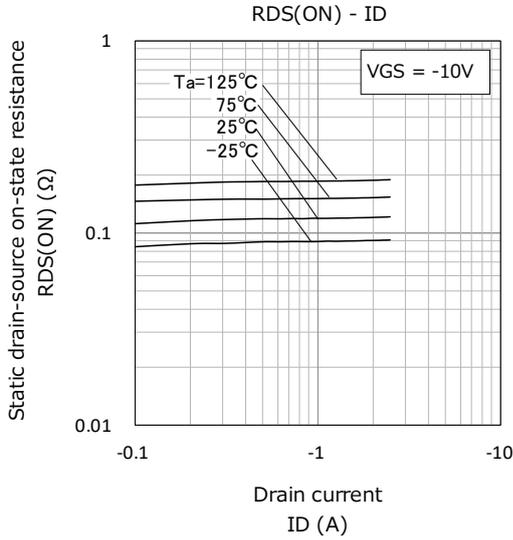


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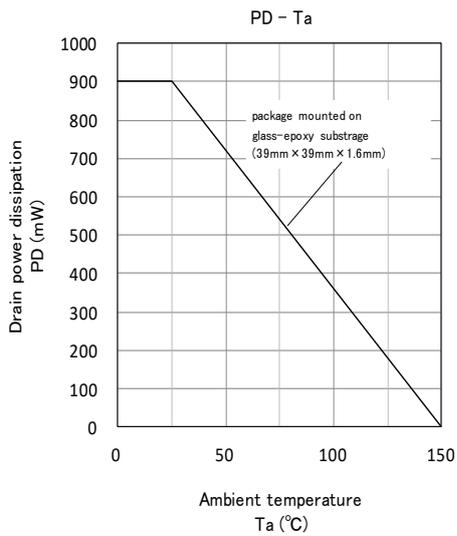
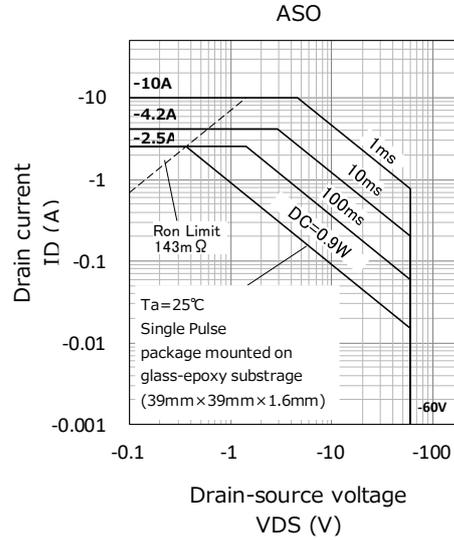
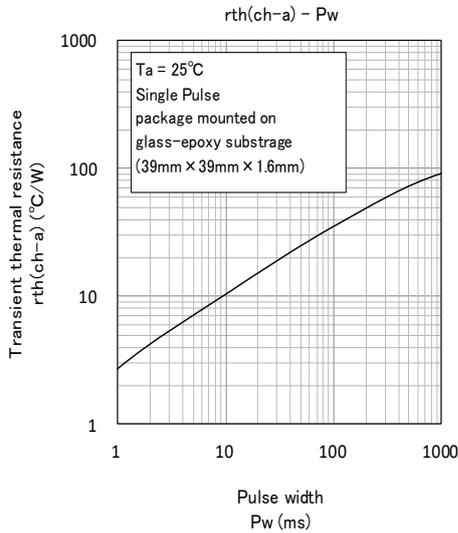


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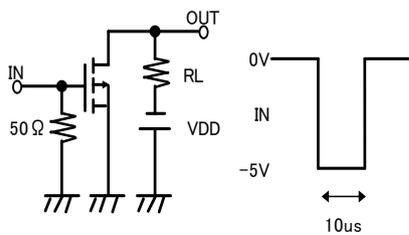
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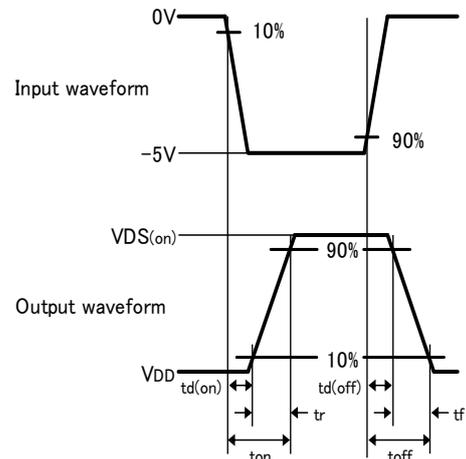
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### Switching time test condition



Duty ≤ 1%  
Input: tr, tf < 10ns  
VDD = -20V  
Common source  
Ta = 25°C



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**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-flammable material or (3) prevention against any malfunction or mishap.

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