

# INJ0503BC1

High Speed Switching  
Silicon P-channel MOSFET

## DESCRIPTION

INJ0503BC1 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  $I_D = -4.6A$
- Drive voltage  $-2.5V$
- Low on Resistance.  $R_{DS(ON)} = 41m\Omega$  typ(@ $V_{GS} = -2.5V$ )  
 $R_{DS(ON)} = 32m\Omega$  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	$V_{DSS}$	-20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$	V
Drain Current(DC) (※1)	$I_D$	-4.6	A
Drain Current(Pulse) (※2)	$I_{DP}$	-25	A
Total Power Dissipation (※1)	PD	0.9	W
Channel Temperature	$T_{ch}$	+150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ C$

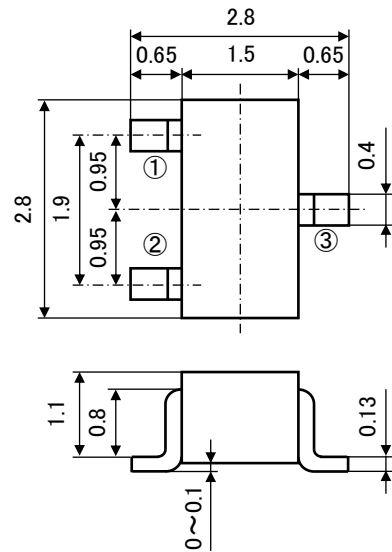
※1 package mounted on glass-epoxy substrate.

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

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

## OUTLINE DRAWING

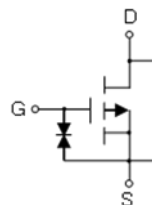
Unit: mm



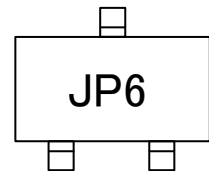
### TERMINAL CONNECTOR

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

## EQUIVALENT CIRCUIT



## MARKING



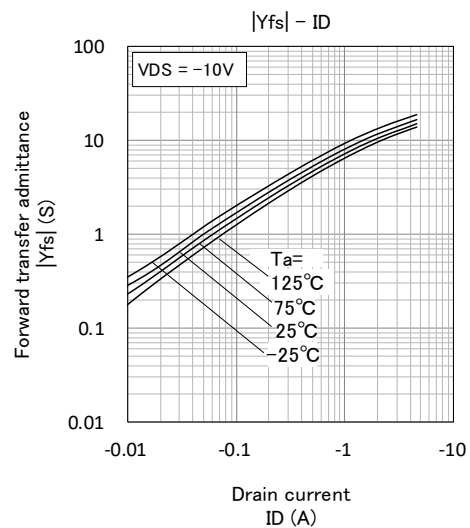
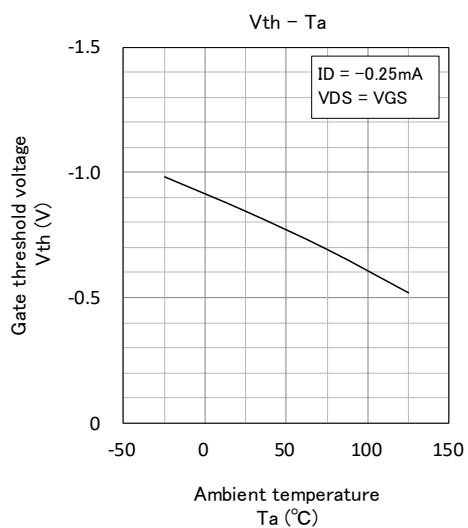
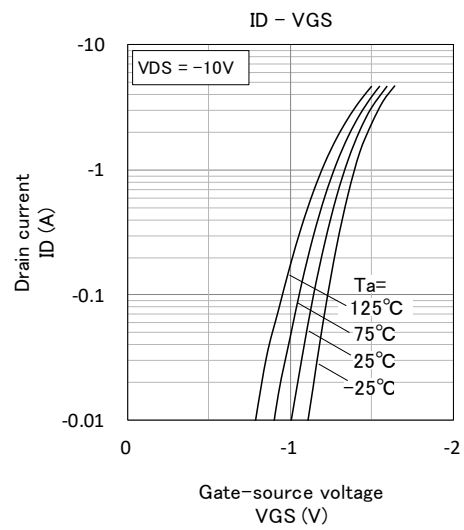
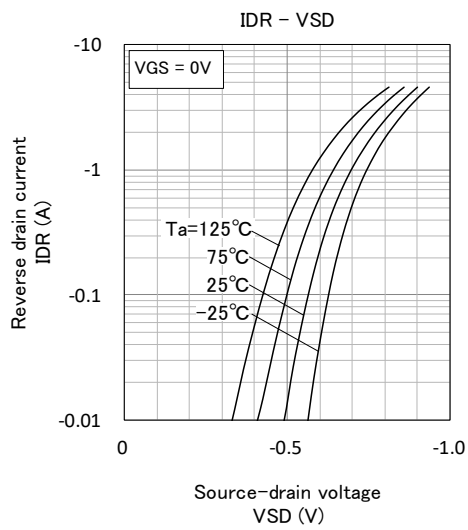
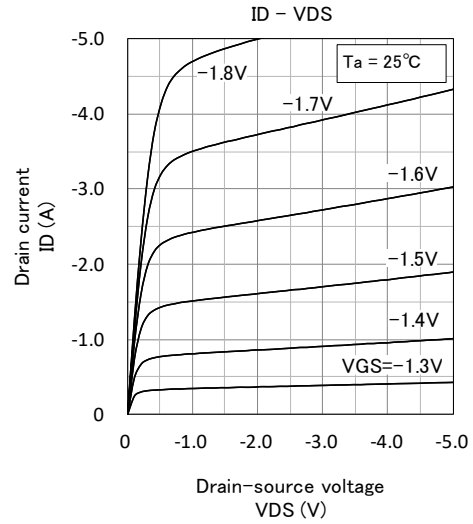
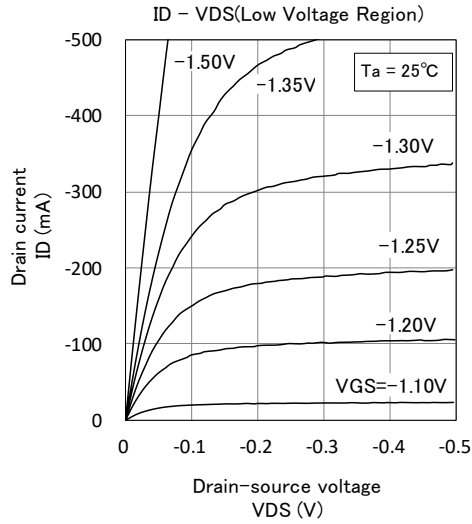
## ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

Parameter	Symbol	Test Condition	Limit			Unit
			MIN	TYP	MAX	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -250\mu A, V_{GS} = 0V$	-20	-	-	V
Gate-Source Leak Current	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$	-	-	$\pm 25$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1.0	$\mu A$
Gate Threshold Voltage	$V_{th}$	$I_D = -250\mu A, V_{DS} = V_{GS}$	-0.5	-	-1.2	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$I_D = -4.6A, V_{GS} = -2.5V$	-	41	53	$m\Omega$
		$I_D = -4.6A, V_{GS} = -4.5V$	-	32	41	
Input Capacitance	$C_{iss}$	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$	-	480	-	pF
Output Capacitance	$C_{oss}$		-	130	-	
Reverse Transfer Capacitance	$C_{rss}$		-	46	-	
Switching Time	$t_{on}$	$V_{DD} = -20V, I_D = -200mA, V_{GS} = -5V$	-	96	-	ns
	$t_{off}$		-	1050	-	

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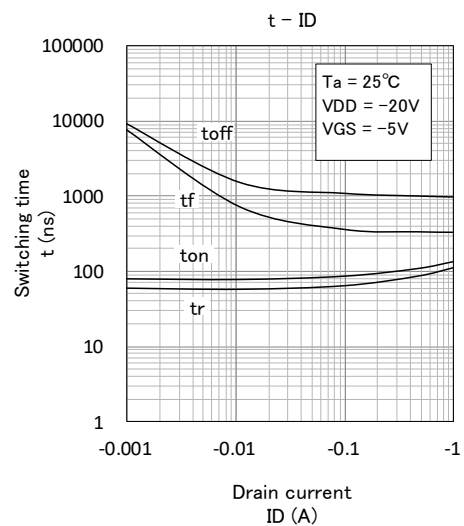
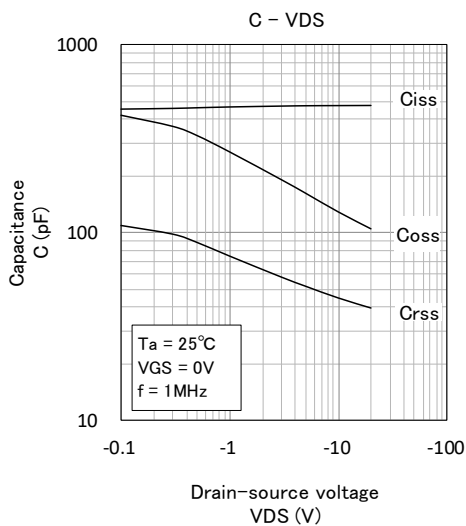
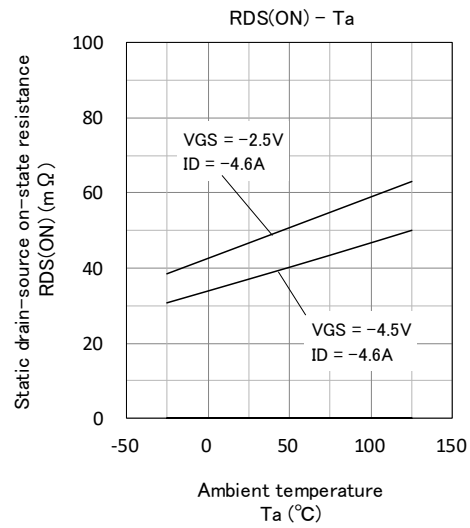
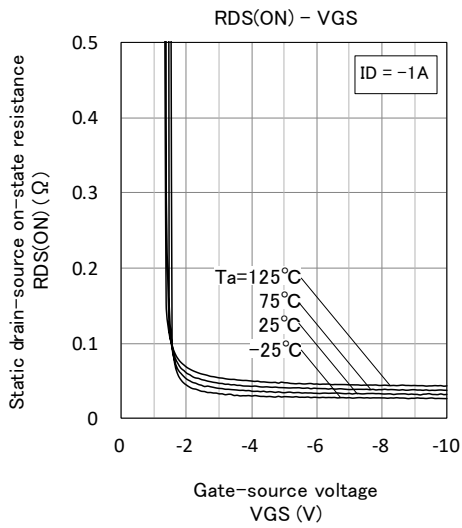
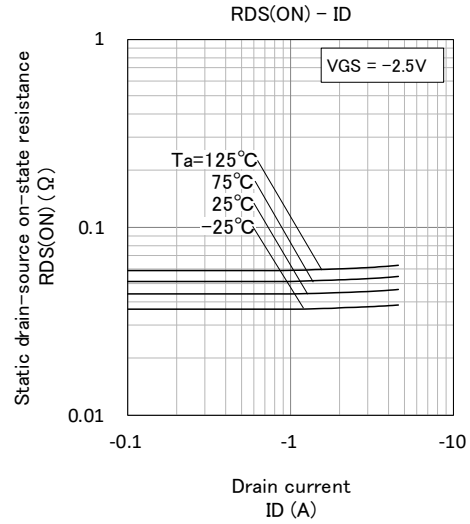
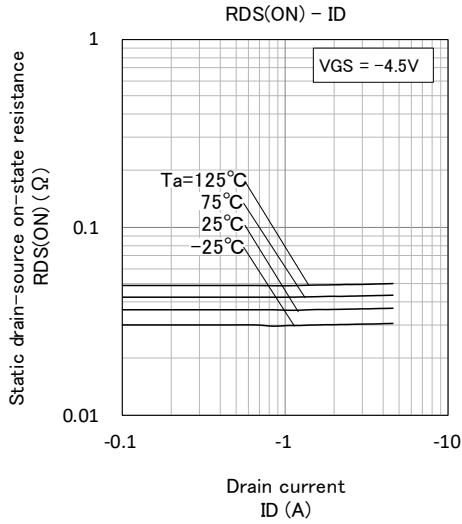
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## TYPICAL CHARACTERISTICS



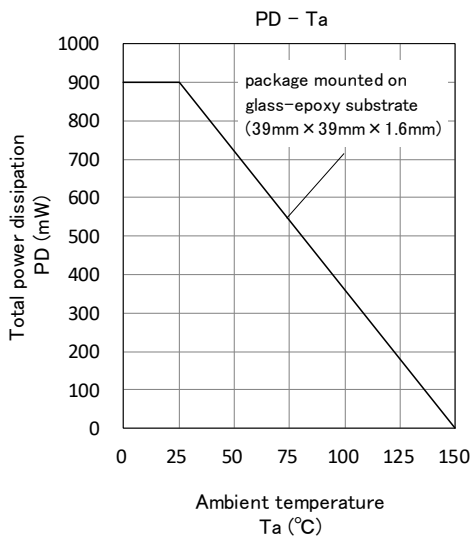
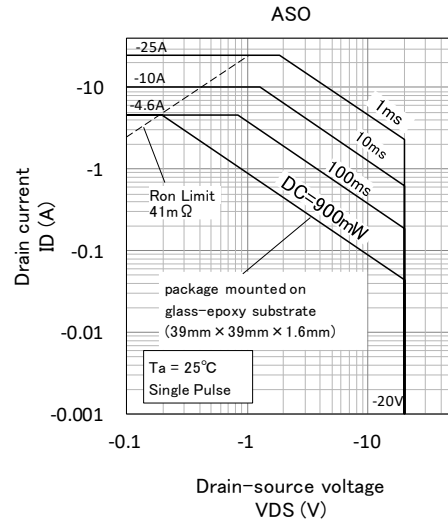
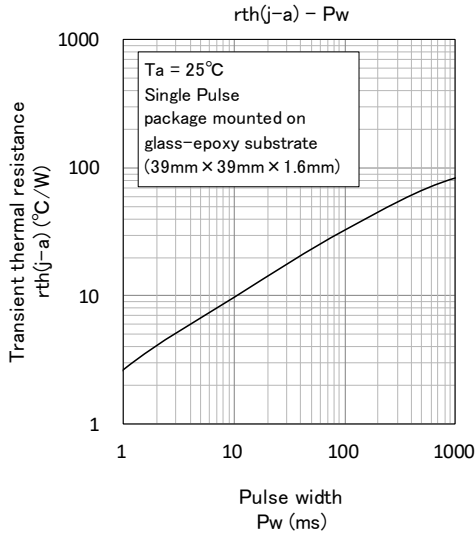
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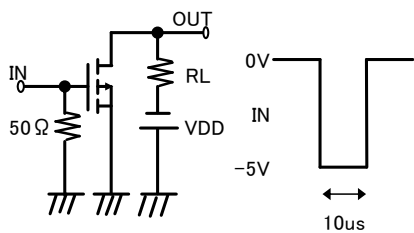


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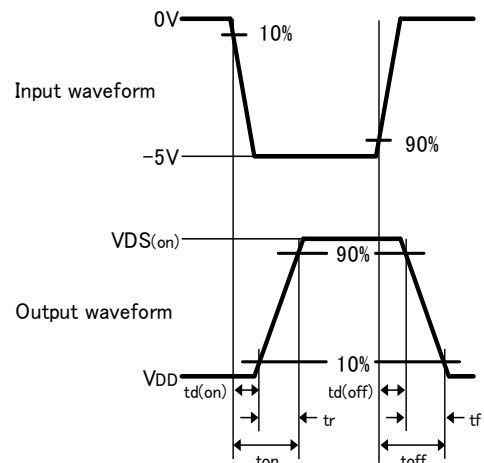
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### Switching time test condition



Duty  $\leq 1\%$   
Input:  $t_r, t_f < 10\text{ns}$   
VDD = -20V  
Common source  
 $T_a = 25^{\circ}\text{C}$



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**Keep safety first in your circuit designs!**

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