

4V Drive Pch+Pch MOSFET

SH8J62

●Structure

Silicon P-channel MOSFET

●Features

- 1) Low On-resistance.
- 2) Built-in G-S Protection Diode.
- 3) Small Surface Mount Package (SOP8).

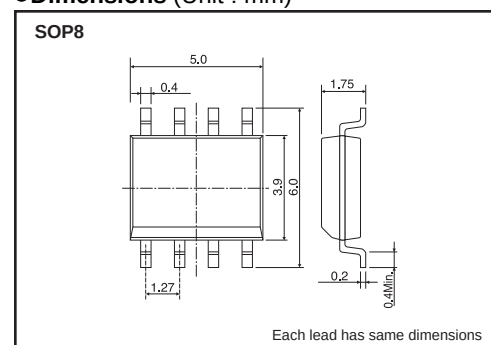
●Application

Switching

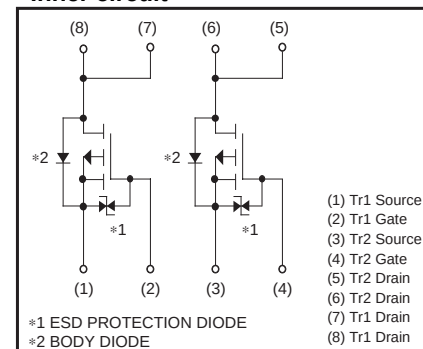
●Packaging specifications

Type	Package	Taping
	Code	TB
	Basic ordering unit (pieces)	2500
SH8J62		○

●Dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

<It is the same ratings for the Tr1 and Tr2.>

Parameter	Symbol	Limits	Unit
Drain-source voltage	V_{DS}	-30	V
Gate-source voltage	V_{GS}	± 20	V
Drain current	Continuous	I_D	± 4.5 A
	Pulsed	I_{DP} *1	± 18 A
Source current (Body diode)	Continuous	I_S	-1.6 A
	Pulsed	I_{SP} *1	-18 A
Total power dissipation	P_D *2	2.0	W / TOTAL
		1.4	W / ELEMENT
Channel temperature	T_{ch}	150	°C
Range of Storage temperature	T_{stg}	-55 to +150	°C

*1 $P_w \leq 10 \mu s$, Duty cycle $\leq 1\%$

*2 Mounted on a ceramic board

●Electrical characteristics (Ta=25°C)

<It is the same characteristics for the Tr1 and Tr2.>

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	—	—	± 10	μA	$V_{GS}=\pm 20V$, $V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR) DSS}$	-30	—	—	V	$I_D = -1mA$, $V_{GS}=0V$
Zero gate voltage drain current	I_{DSS}	—	—	-1	μA	$V_{DS} = -30V$, $V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	-1.0	—	-2.5	V	$V_{DS} = -10V$, $I_D = -1mA$
Static drain-source on-state resistance	$R_{DS(on)}^*$	—	40	56	m Ω	$I_D = -4.5A$, $V_{GS} = -10V$
		—	55	77	m Ω	$I_D = -2.5A$, $V_{GS} = -4.5V$
		—	60	84	m Ω	$I_D = -2.5A$, $V_{GS} = -4.0V$
Forward transfer admittance	$ Y_{fs} ^*$	3.5	—	—	S	$V_{DS} = -10V$, $I_D = -4.5A$
Input capacitance	C_{iss}	—	800	—	pF	$V_{DS} = -10V$
Output capacitance	C_{oss}	—	120	—	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	—	110	—	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}^*$	—	7	—	ns	$I_D = -2.5A$
Rise time	t_r^*	—	15	—	ns	$V_{DD} \rightleftharpoons -15V$ $V_{GS} = -10V$
Turn-off delay time	$t_{d(off)}^*$	—	70	—	ns	$R_L=6.0\Omega$
Fall time	t_f^*	—	50	—	ns	$R_G=10\Omega$
Total gate charge	Q_g^*	—	8.0	—	nC	$V_{DD} \rightleftharpoons -15V$
Gate-source charge	Q_{gs}^*	—	2.5	—	nC	$I_D = -4.5A$ $V_{GS} = -5V$
Gate-drain charge	Q_{gd}^*	—	3.0	—	nC	$R_L=3.3\Omega$ / $R_G=10\Omega$

*Pulsed

●Body diode characteristics (Source-Drain) (Ta=25°C)

<It is the same characteristics for the Tr1 and Tr2.>

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{SD}^*	—	—	-1.2	V	$I_S = -4.5A$, $V_{GS}=0V$

* Pulsed

●Electrical characteristic curves

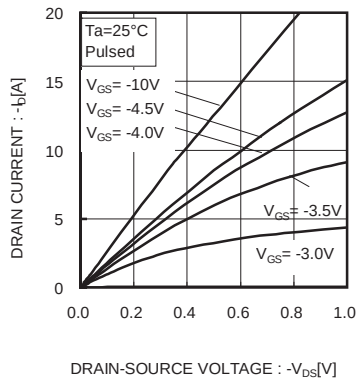


Fig.1 Typical output characteristics(I)

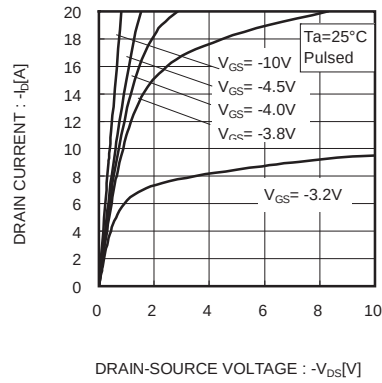


Fig.2 Typical output characteristics(II)

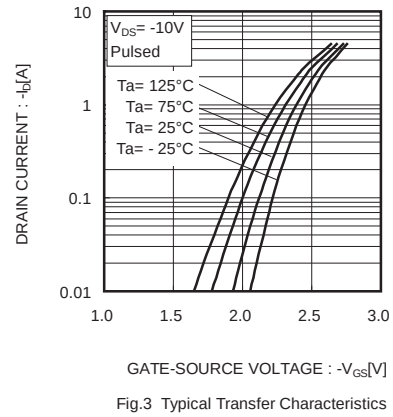


Fig.3 Typical Transfer Characteristics

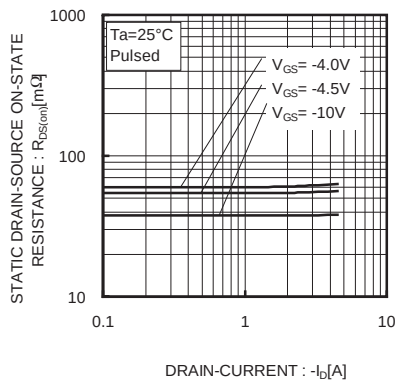


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current(I)

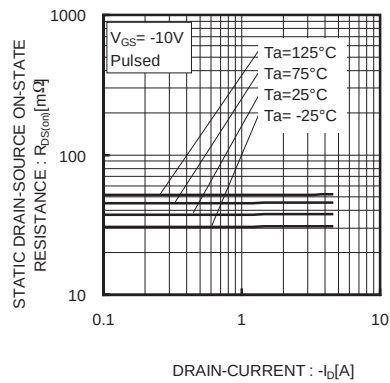


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current(II)

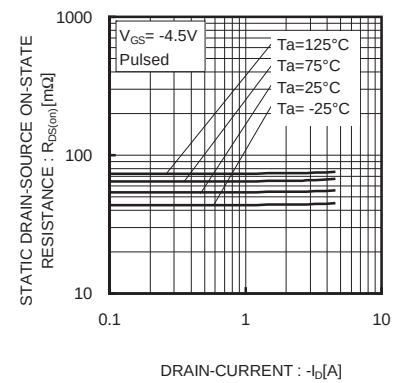


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(III)

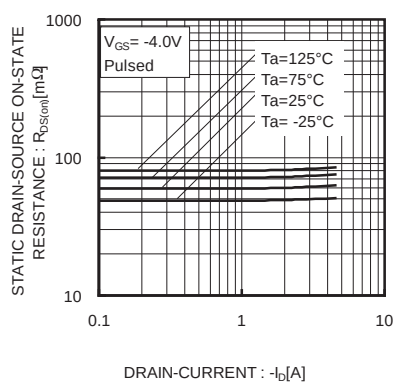


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(IV)

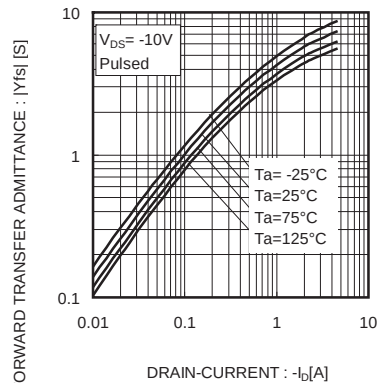


Fig.8 Forward Transfer Admittance vs. Drain Current

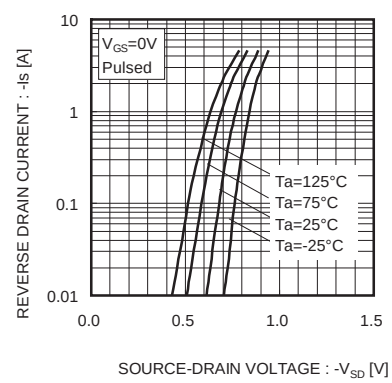


Fig.9 Reverse Drain Current vs. Source-Drain Voltage

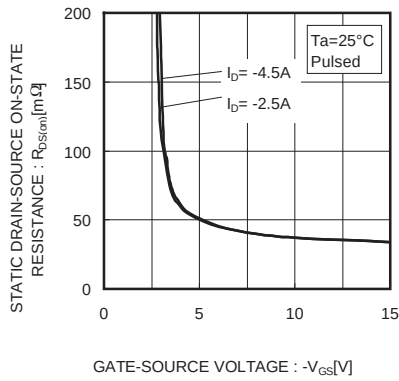


Fig.10 Static Drain-Source On-State Resistance vs. Gate Source Voltage

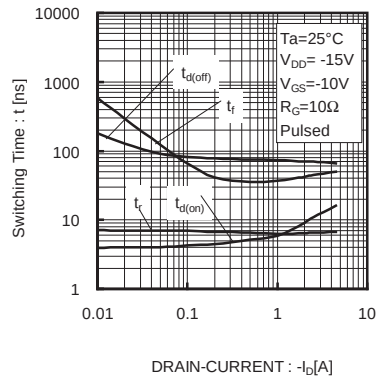


Fig.11 Switching Characteristics

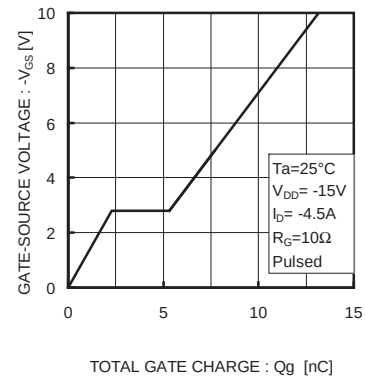


Fig.12 Dynamic Input Characteristics

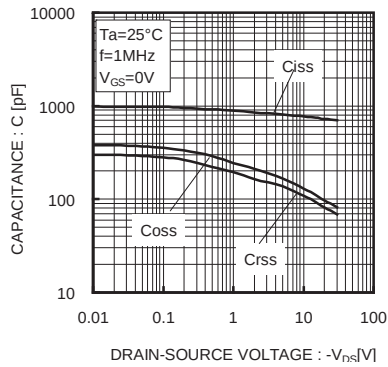


Fig.13 Typical Capacitance vs. Drain-Source Voltage

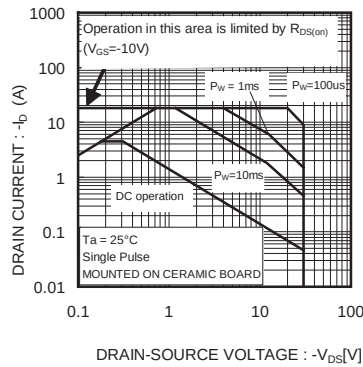


Fig.14 Maximum Safe Operating Area

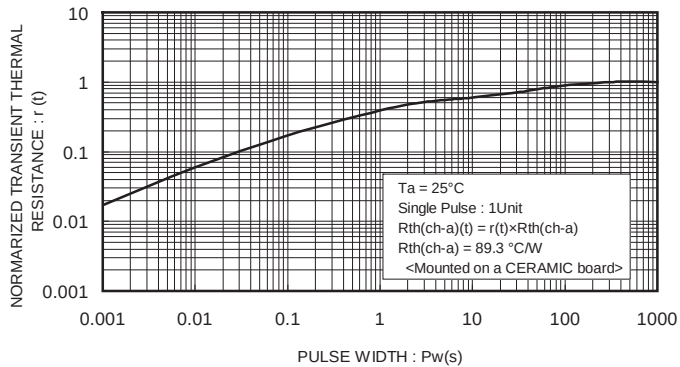


Fig.15 Normalized Transient Thermal Resistance vs. Pulse Width

●Measurement circuits

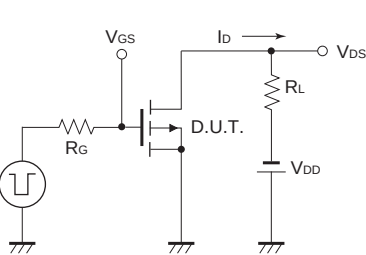


Fig.1-1 Switching Time Test Circuit

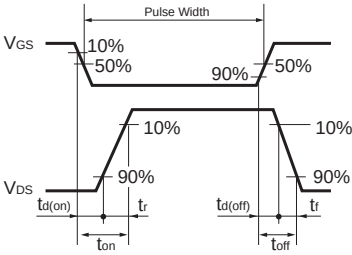


Fig.1-2 Switching Time Waveforms

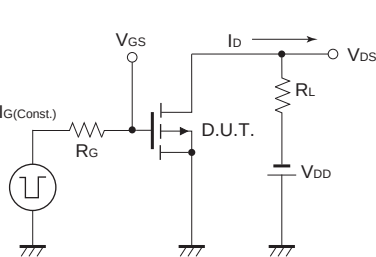


Fig.2-1 Gate Charge Test Circuit

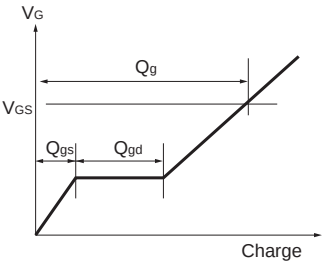


Fig.2-2 Gate Charge Waveform

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