

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).

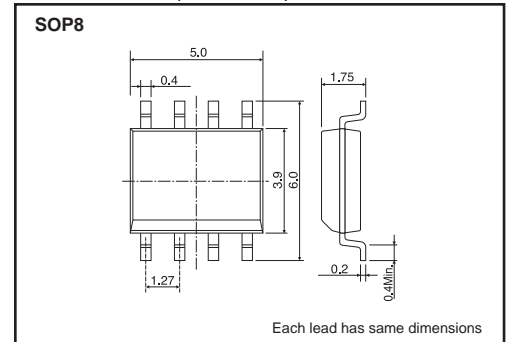
●Application

Switching

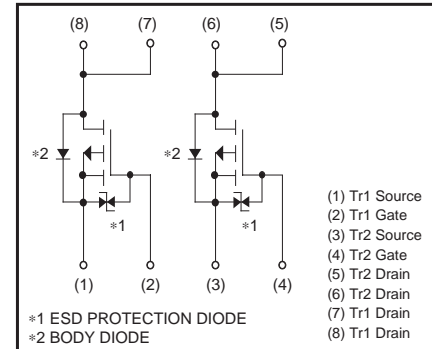
●Packaging specifications

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_{DSS}	-30	V
Gate-source voltage	V_{GSS}	± 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	mΩ	$I_D=-4.5A, V_{GS}=-10V$
		-	55	77	mΩ	$I_D=-2.5A, V_{GS}=-4.5V$
		-	60	84	mΩ	$I_D=-2.5A, V_{GS}=-4.0V$
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	$V_{DD}=-15V$ $V_{GS}=-10V$
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	$V_{DD}=-15V$
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

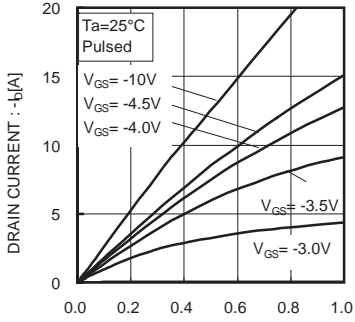
●Body diode characteristics (Source-Drain) (Ta=25°C)

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

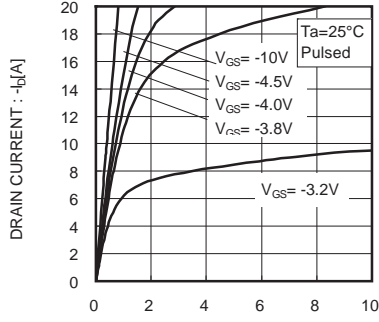
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{SD} *	-	-	-1.2	V	$I_S=-4.5A, V_{GS}=0V$

* Pulsed

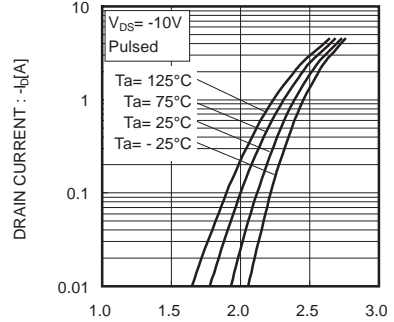
●Electrical characteristic curves



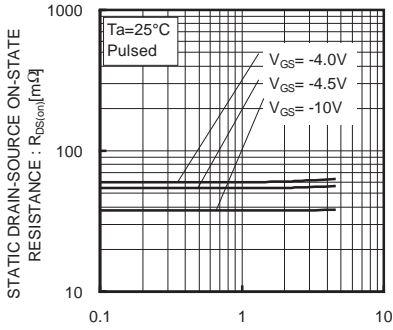
DRAIN-SOURCE VOLTAGE : $-V_{DS}$ [V]
Fig.1 Typical output characteristics (I)



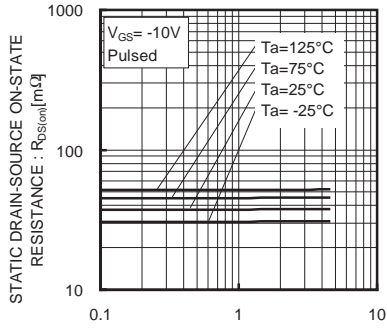
DRAIN-SOURCE VOLTAGE : $-V_{DS}$ [V]
Fig.2 Typical output characteristics (II)



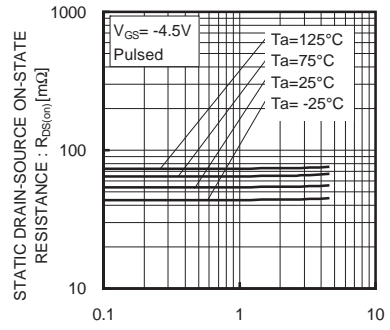
GATE-SOURCE VOLTAGE : $-V_{GS}$ [V]
Fig.3 Typical Transfer Characteristics



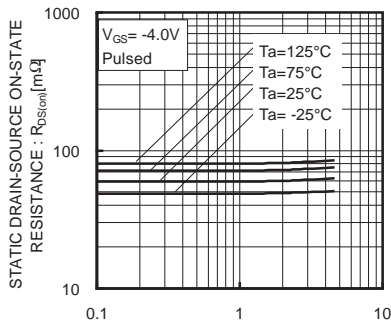
DRAIN-CURRENT : I_D [A]
Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (I)



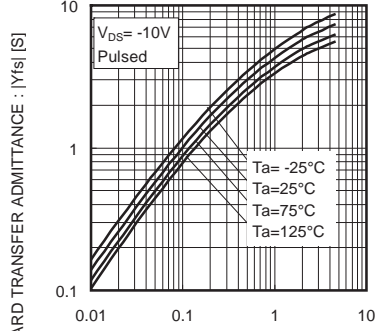
DRAIN-CURRENT : I_D [A]
Fig.5 Static Drain-Source On-State Resistance vs. Drain Current (II)



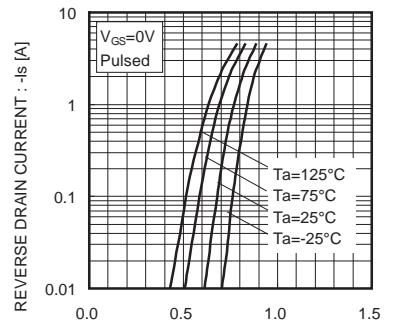
DRAIN-CURRENT : I_D [A]
Fig.6 Static Drain-Source On-State Resistance vs. Drain Current (III)



DRAIN-CURRENT : I_D [A]
Fig.7 Static Drain-Source On-State Resistance vs. Drain Current (IV)



DRAIN-CURRENT : I_D [A]
Fig.8 Forward Transfer Admittance vs. Drain Current



SOURCE-DRAIN VOLTAGE : $-V_{SD}$ [V]
Fig.9 Reverse Drain Current vs. Source-Drain Voltage

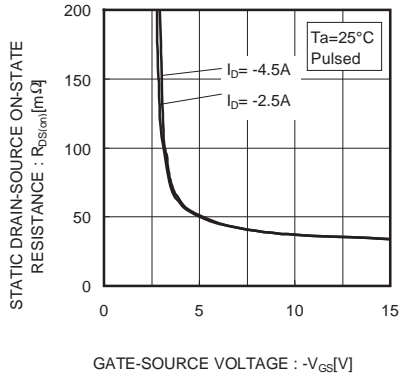


Fig.10 Static Drain-Source On-State Resistance vs. Gate Source Voltage

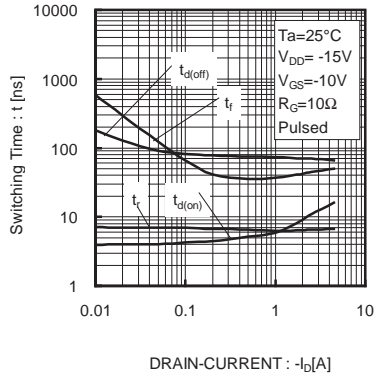


Fig.11 Switching Characteristics

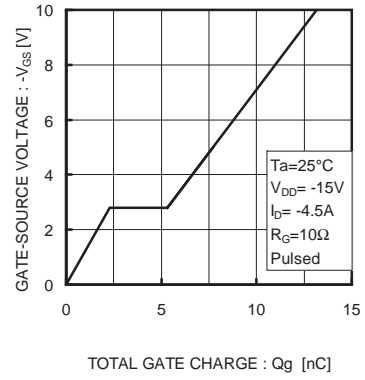


Fig.12 Dynamic Input Characteristics

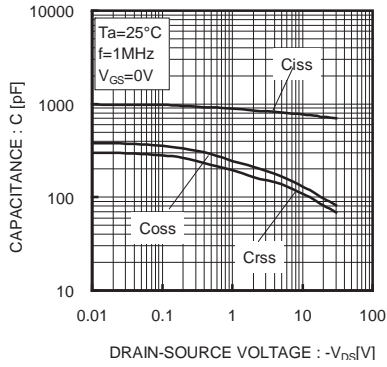


Fig.13 Typical Capacitance vs. Drain-Source Voltage

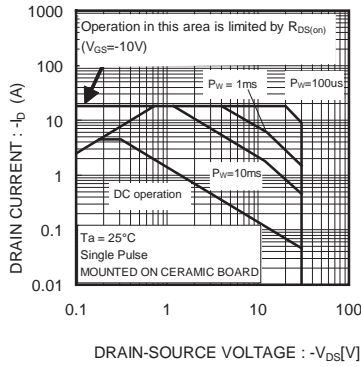


Fig.14 Maximum Safe Operating Area

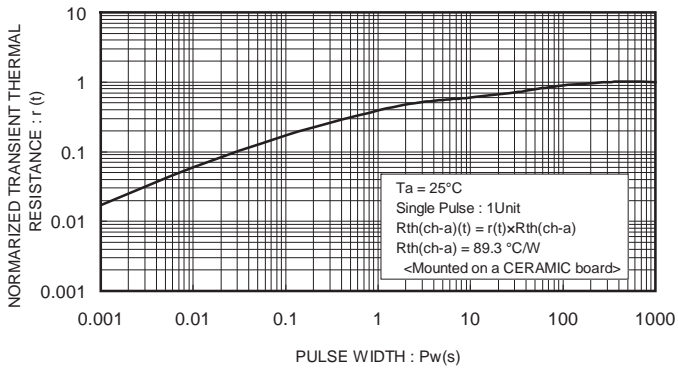


Fig.15 Normalized Transient Thermal Resistance vs. Pulse Width

●Measurement circuits

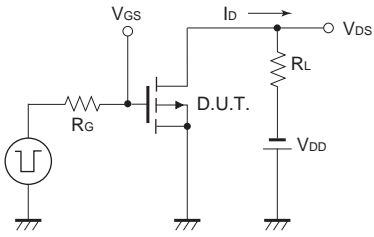


Fig.1-1 Switching Time Test Circuit

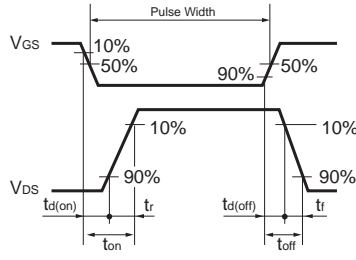


Fig.1-2 Switching Time Waveforms

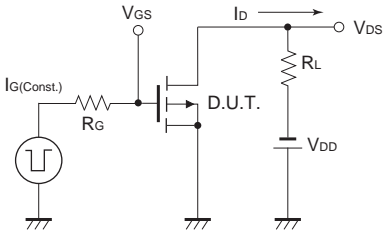


Fig.2-1 Gate Charge Test Circuit

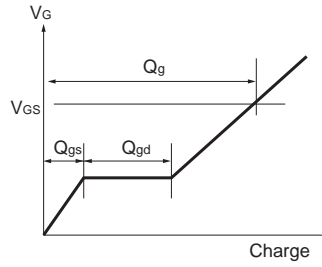


Fig.2-2 Gate Charge Waveform

Notes

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