

# 4V Drive Pch+Pch MOSFET

## SH8J66

### ●Structure

Silicon P-channel MOSFET

### ●Features

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

### ●Applications

Switching

### ●Packaging specifications

Type	Package	Taping
	Code	TB
	Basic ordering unit (pieces)	2500
SH8J66		○

### ●Absolute maximum ratings (Ta=25°C)

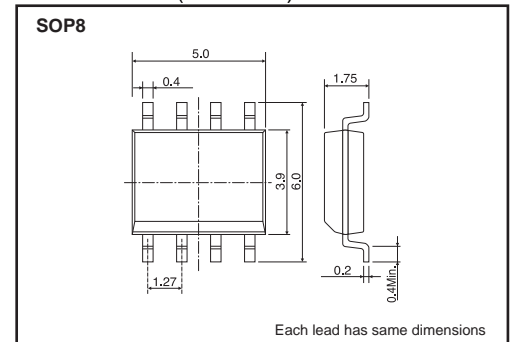
<It is the same ratings for Tr1 and Tr2.>

Parameter		Symbol	Limits	Unit
Drain-source voltage		V <sub>DSS</sub>	−30	V
Gate-source voltage		V <sub>GSS</sub>	±20	V
Drain current	Continuous	I <sub>D</sub>	±9	A
	Pulsed	I <sub>DP</sub> *1	±36	A
Source current (Body diode)	Continuous	I <sub>S</sub>	−1.6	A
	Pulsed	I <sub>SP</sub> *1	−36	A
Total power dissipation		P <sub>D</sub> *2	2.0	W / TOTAL
			1.4	W / ELEMENT
Channel temperature		T <sub>ch</sub>	150	°C
Range of Storage temperature		T <sub>stg</sub>	−55 to +150	°C

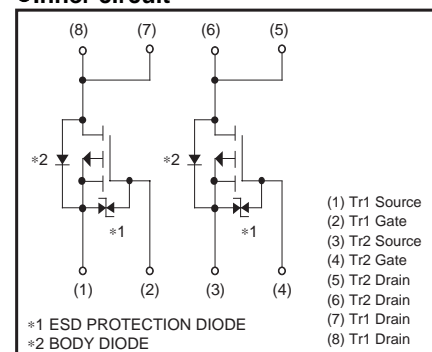
\*1  $P_w \leq 10 \mu s$ , Duty cycle  $\leq 1\%$

\*2 Mounted on a ceramic board

### ●Dimensions (Unit : mm)



### ●Inner circuit



### ●Electrical characteristics (Ta=25°C)

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	$I_{GSS}$	—	—	$\pm 10$	$\mu A$	$V_{GS}=\pm 20V$ , $V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR) DSS}$	-30	—	—	V	$I_D = -1mA$ , $V_{GS}=0V$
Zero gate voltage drain current	$I_{DSS}$	—	—	-1	$\mu A$	$V_{DS} = -30V$ , $V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	-1.0	—	-2.5	V	$V_{DS} = -10V$ , $I_D = -1mA$
Static drain-source on-state resistance	$R_{DS(on)}$ *	—	13.5	18.5	m $\Omega$	$I_D = -9A$ , $V_{GS} = -10V$
		—	17.5	23.6	m $\Omega$	$I_D = -4.5A$ , $V_{GS} = -4.5V$
		—	19.0	24.7	m $\Omega$	$I_D = -4.5A$ , $V_{GS} = -4.0V$
Forward transfer admittance	$ Y_{fs} $ *	11	—	—	S	$V_{DS} = -10V$ , $I_D = -9A$
Input capacitance	$C_{iss}$	—	3000	—	pF	$V_{DS} = -10V$
Output capacitance	$C_{oss}$	—	400	—	pF	$V_{GS}=0V$
Reverse transfer capacitance	$C_{rss}$	—	400	—	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$ *	—	20	—	ns	$V_{DD} = -15V$
Rise time	$t_r$ *	—	60	—	ns	$I_D = -4.5A$
Turn-off delay time	$t_{d(off)}$ *	—	170	—	ns	$V_{GS} = -10V$
Fall time	$t_f$ *	—	100	—	ns	$R_L=3.3\Omega$
Total gate charge	$Q_g$ *	—	35	—	nC	$V_{DD} = -15V$
Gate-source charge	$Q_{gs}$ *	—	9	—	nC	$I_D = -9A$
Gate-drain charge	$Q_{gd}$ *	—	12	—	nC	$V_{GS} = -5V$ $R_L=1.7\Omega / R_G=10\Omega$

\* Pulsed

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

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_{SD}$ *	—	—	-1.2	V	$I_S = -9A$ , $V_{GS}=0V$

\* Pulsed

# ●Electrical characteristic curves

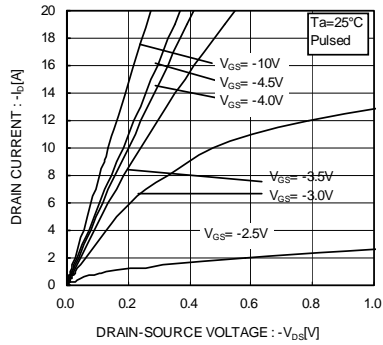


Fig.1 Typical output characteristics(I)

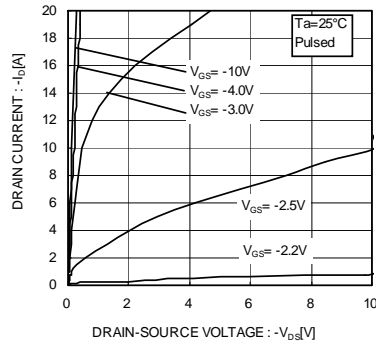


Fig.2 Typical output characteristics(II)

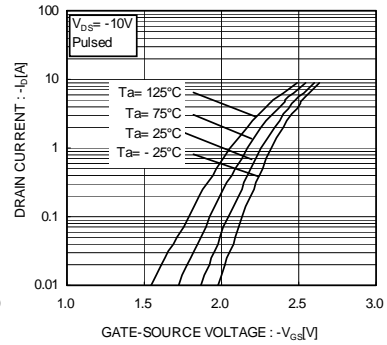


Fig.3 Typical Transfer Characteristics

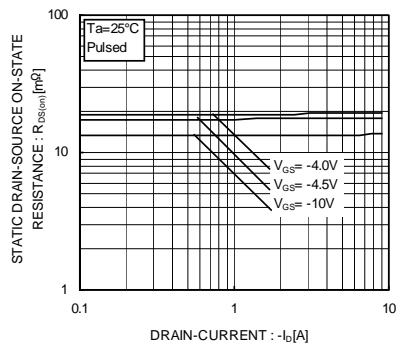


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current(I)

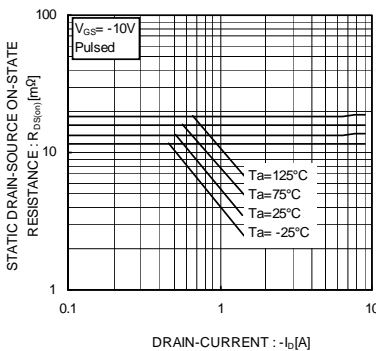


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current(II)

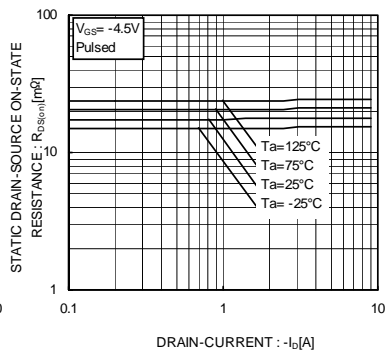


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(III)

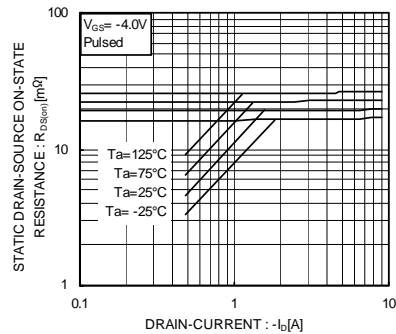


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(IV)

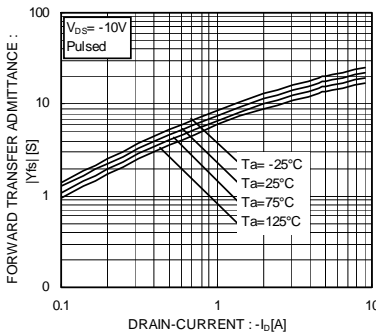


Fig.8 Forward Transfer Admittance vs. Drain Current

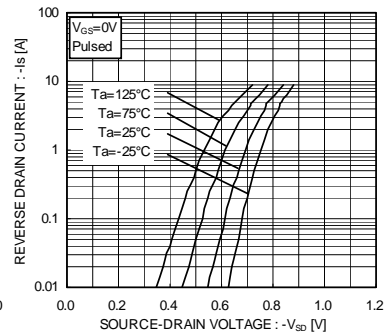


Fig.9 Reverse Drain Current vs. Source-Drain Voltage

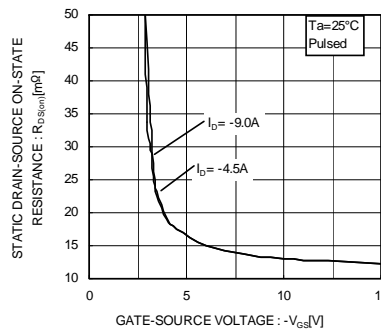


Fig.10 Static Drain-Source On-State Resistance vs. Gate Source Voltage

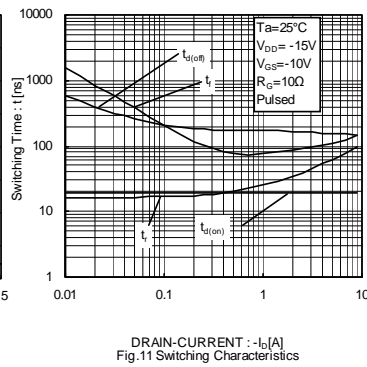


Fig.11 Switching Characteristics

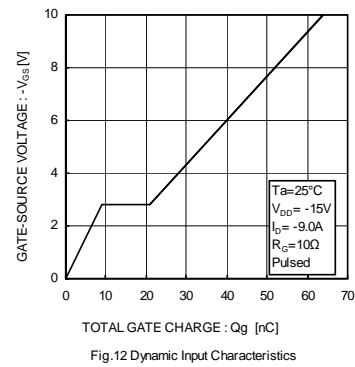


Fig.12 Dynamic Input Characteristics

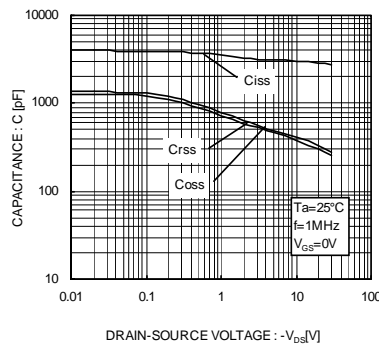


Fig.13 Typical Capacitance vs. Drain-Source Voltage

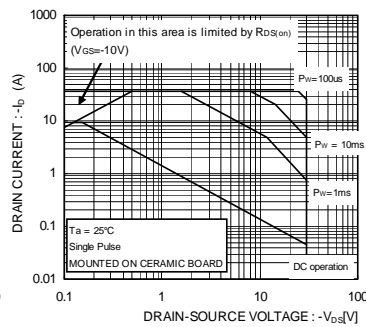


Fig.14 Maximum Safe Operating Area

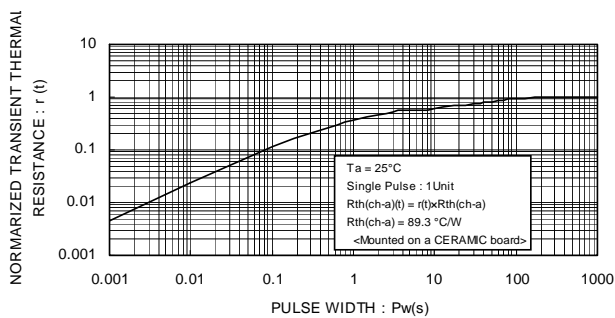


Fig.15 Normalized Transient Thermal Resistance vs. Pulse Width

●Measurement circuits

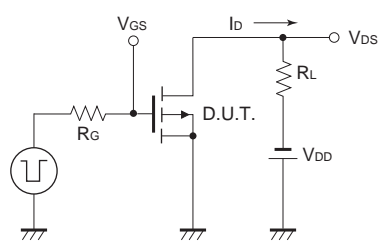


Fig.1-1 Switching Time Test Circuit

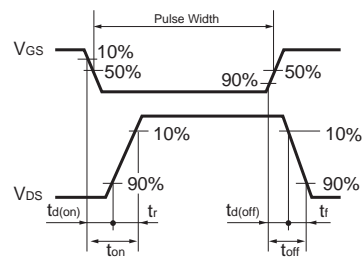


Fig.1-2 Switching Time Waveforms

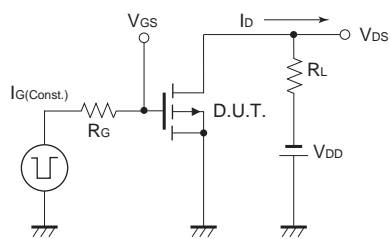


Fig.2-1 Gate Charge Test Circuit

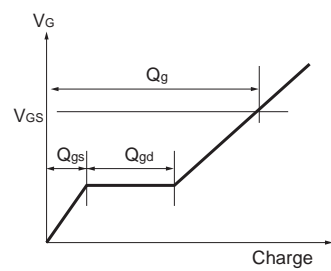


Fig.2-2 Gate Charge Waveform

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