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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



4V Drive Pch+Pch MOSFET

SH8J65

●Structure

Silicon P-channel MOSFET

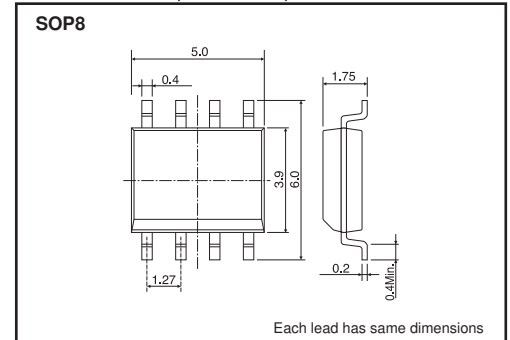
●Features

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

●Application

Switching

●Dimensions (Unit : mm)



●Packaging specifications

Type	Package	Taping
	Code	TB
	Basic ordering unit (pieces)	2500
SH8J65		○

●Absolute maximum ratings (Ta=25°C)

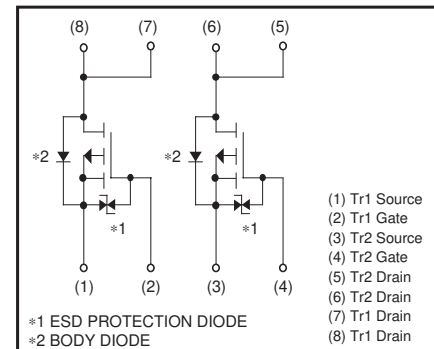
<It is the same ratings for the Tr1 and Tr2.>

Parameter	Symbol	Limits	Unit	
Drain-source voltage	V_{DS}	-30	V	
Gate-source voltage	V_{GS}	±20	V	
Drain current	Continuous	I_D	±7.0	A
	Pulsed	I_{DP} *1	±28	A
Source current (Body diode)	Continuous	I_S	-1.6	A
	Pulsed	I_{SP} *1	-28	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

●Inner circuit



●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} =±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)} *	–	21.5	29.0	mΩ	I _D = –7A, V _{GS} = –10V
		–	29.0	39.0	mΩ	I _D = –3.5A, V _{GS} = –4.5V *
		–	31.0	40.8	mΩ	I _D = –3.5A, V _{GS} = –4.0V *
Forward transfer admittance	Y _{fs} *	6.0	–	–	S	V _{DS} = –10V, I _D = –7A *
Input capacitance	C _{iss}	–	1200	–	pF	V _{DS} = –10V
Output capacitance	C _{oss}	–	170	–	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	–	170	–	pF	f=1MHz
Turn-on delay time	t _{d(on)} *	–	12	–	ns	V _{DD} = –15V
Rise time	t _r *	–	40	–	ns	I _D = –3.5A V _{GS} = –10V
Turn-off delay time	t _{d(off)} *	–	80	–	ns	R _L =4.3Ω
Fall time	t _f *	–	65	–	ns	R _G =10Ω
Total gate charge	Q _g *	–	18	–	nC	V _{DD} = –15V
Gate-source charge	Q _{gs} *	–	3.5	–	nC	I _D = –7A V _{GS} = –5V
Gate-drain charge	Q _{gd} *	–	6.5	–	nC	R _L =2.1Ω / R _G =10Ω

*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 = –7A, V _{GS} =0V

*Pulsed

●Electrical characteristic curves

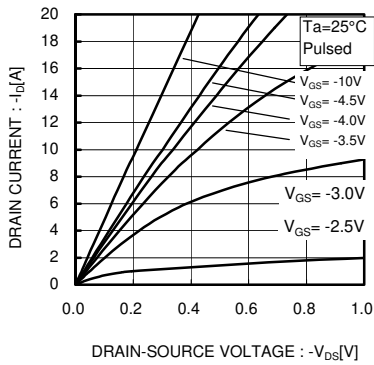


Fig.1 Typical Output Characteristics(I)

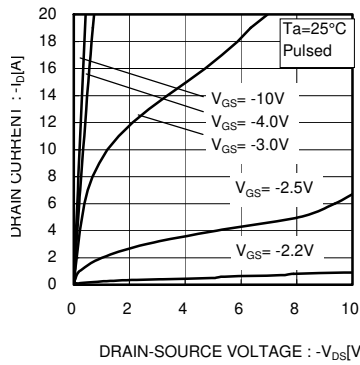


Fig.2 Typical Output Characteristics(II)

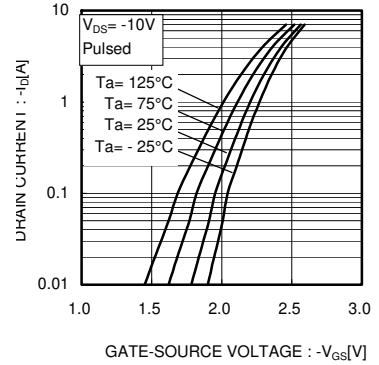


Fig.3 Typical Transfer Characteristics

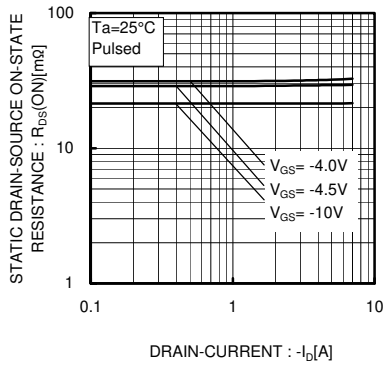


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current(I)

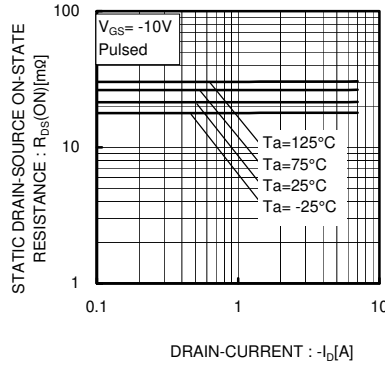


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current(II)

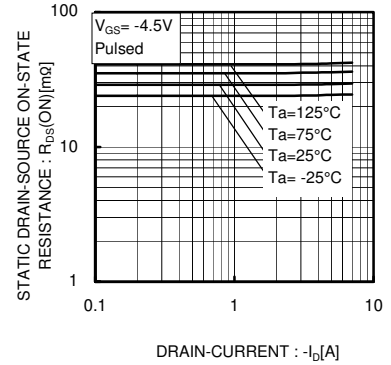


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(III)

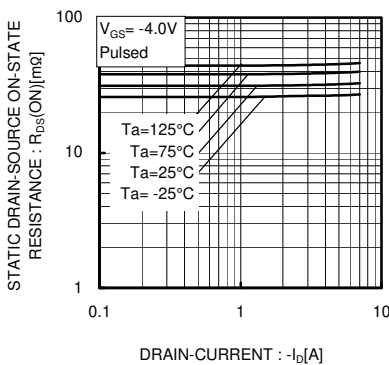


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(IV)

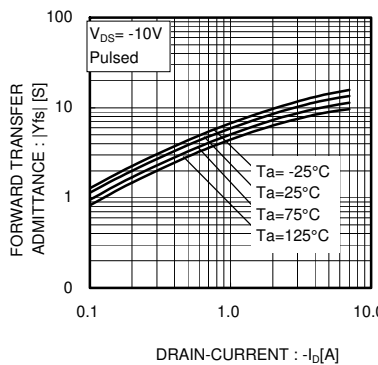


Fig.8 Forward Transfer Admittance vs. Drain Current

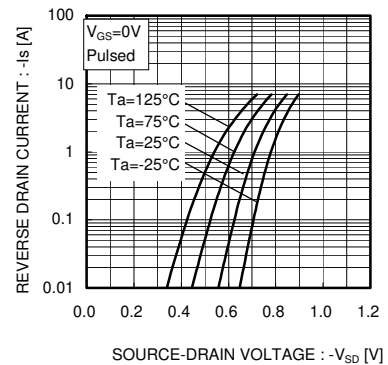


Fig.9 Reverse Drain Current vs. Source-Drain Voltage

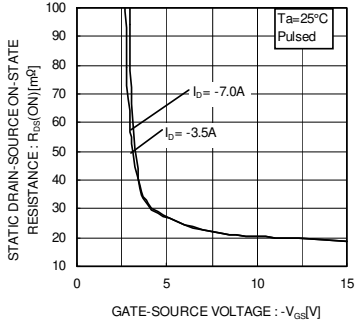


Fig.10 Static Drain-Source On-State Resistance vs. Gate Source Voltage

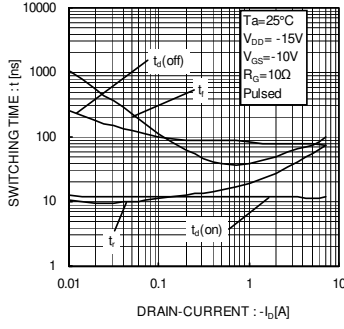


Fig.11 Switching Characteristics

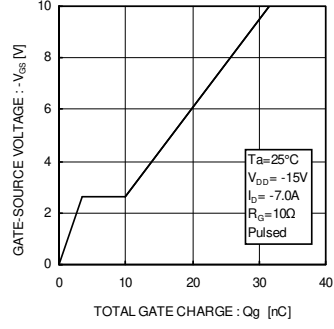


Fig.12 Dynamic Input Characteristics

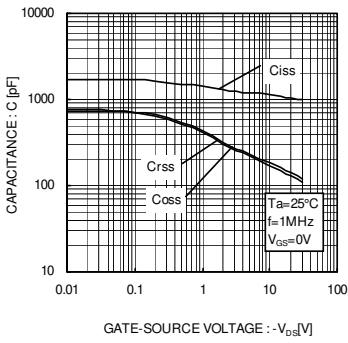


Fig.13 Typical Capacitance vs. Drain-Source Voltage

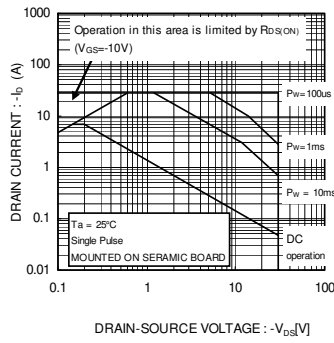


Fig.14 Maximum Safe Operating Area

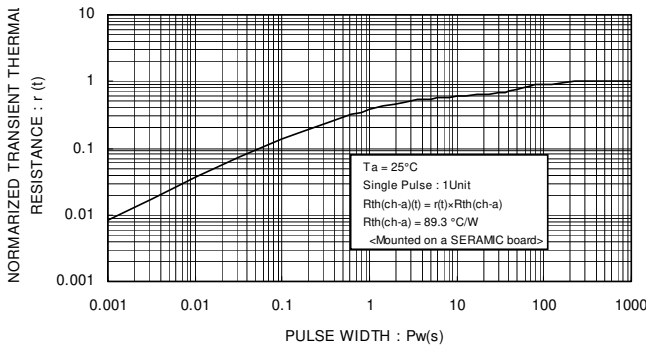


Fig.15 Normalized Transient Thermal Resistance vs. Pulse Width

●Measurement circuits

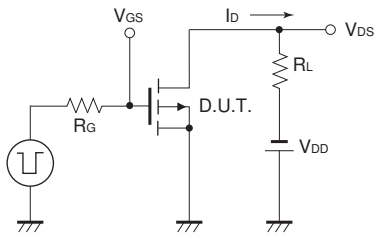


Fig.16 Switching Time Test Circuit

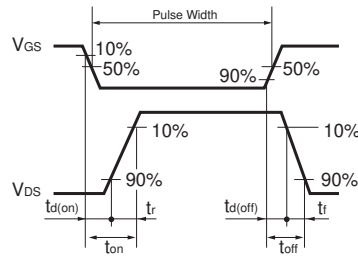


Fig.17 Switching Time Waveforms

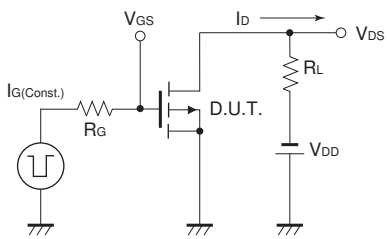


Fig.18 Gate Charge Test Circuit

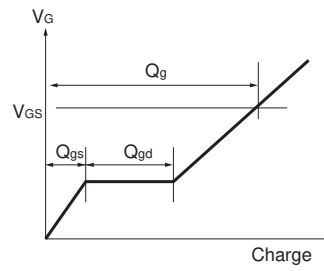


Fig.19 Gate Charge Waveform

Notes

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