

4V Drive Pch MOSFET

RSH070P05

●Structure

Silicon P-channel MOSFET

●Features

- 1) Built-in G-S Protection Diode.
- 2) Small and Surface Mount Package (SOP8).

●Application

Power switching, DC / DC converter, Inverter

●Packaging specifications

Type	Package	Taping
	Code	TB
	Basic ordering unit (pieces)	2500
RSH070P05		○

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	V_{DSS}	-45	V	
Gate-source voltage	V_{GSS}	± 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	W	
Chanel temperature	T_{ch}	150	°C	
Range of Storage temperature	T_{stg}	-55 to +150	°C	

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

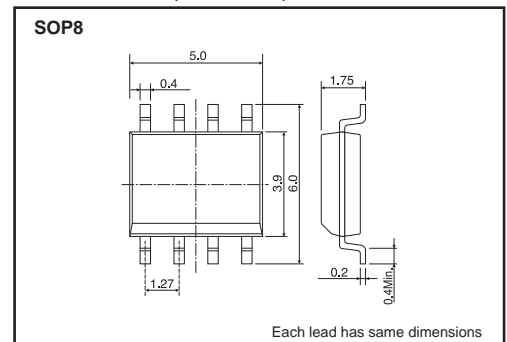
*2 Mounted on a ceramic board

●Thermal resistance

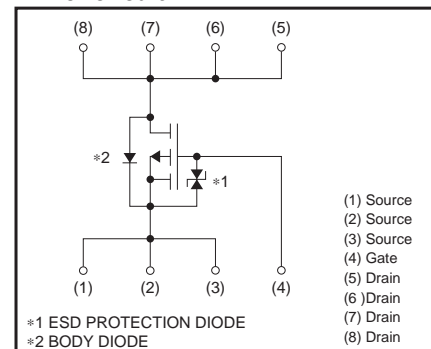
Parameter	Symbol	Limits	Unit
Chanel to ambient	$R_{th(ch-a)}$ *	62.5	°C/W

* Mounted on a ceramic board

●Dimensions (Unit : mm)



●Inner circuit



●Electrical characteristics (Ta=25°C)

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	$V_{(BR)DSS}$	-45	-	-	V	$I_D=-1mA, V_{GS}=0V$
Zero gate voltage drain current	I_{DSS}	-	-	-1	μA	$V_{DS}=-45V, V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	-1.0	-	-2.5	V	$V_{DS}=-10V, I_D=-1mA$
Static drain-source on-state resistance	$R_{DS(on)}^*$	-	19	27	m Ω	$I_D=-7A, V_{GS}=-10V$
		-	25	35	m Ω	$I_D=-7A, V_{GS}=-4.5V$
		-	28	39	m Ω	$I_D=-7A, V_{GS}=-4.0V$
Forward transfer admittance	$ Y_{fs} ^*$	10.0	-	-	S	$V_{DS}=-10V, I_D=-7A$
Input capacitance	C_{iss}	-	4100	-	pF	$V_{DS}=-10V$
Output capacitance	C_{oss}	-	510	-	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	-	330	-	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}^*$	-	31	-	ns	$V_{DD}=-25V$ $I_D=-3.5A$
Rise time	t_r^*	-	35	-	ns	$V_{GS}=-10V$
Turn-off delay time	$t_{d(off)}^*$	-	135	-	ns	$R_L=-7\Omega$
Fall time	t_f^*	-	50	-	ns	$R_G=10\Omega$
Total gate charge	Q_g^*	-	34.0	47.6	nC	$V_{DD}=-25V, V_{GS}=-5V$
Gate-source charge	Q_{gs}^*	-	9.5	-	nC	$I_D=-7A$
Gate-drain charge	Q_{gd}^*	-	12	-	nC	$R_L=3.5\Omega, R_G=10\Omega$

*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{SD}^*	-	-	-1.2	V	$I_S=-7A, V_{GS}=0V$

*Pulsed

●Electrical characteristic curves

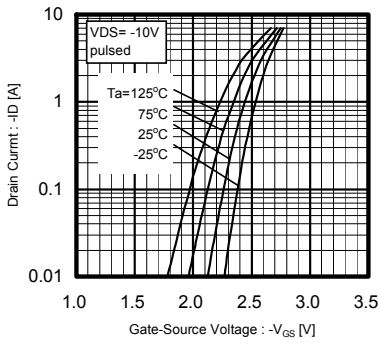


Fig.1 Typical Transfer Characteristics

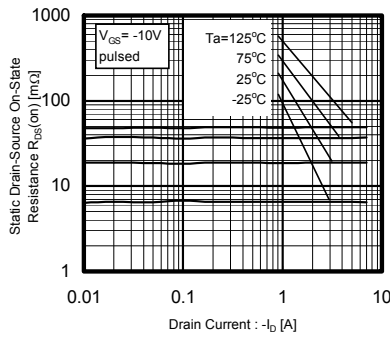


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

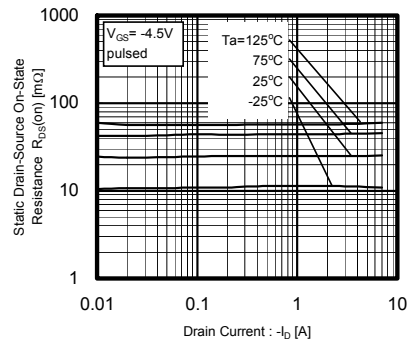


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

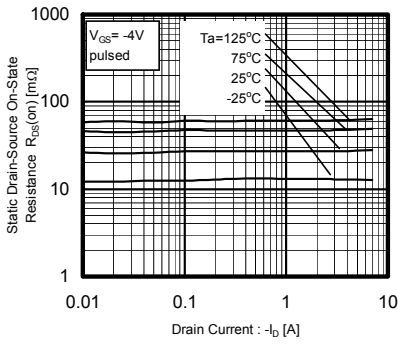


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

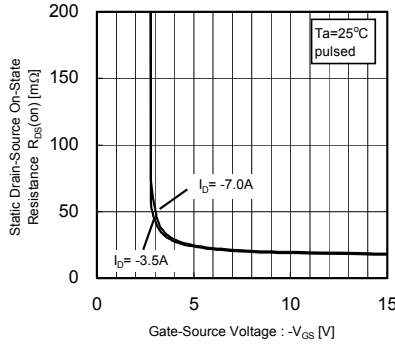


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

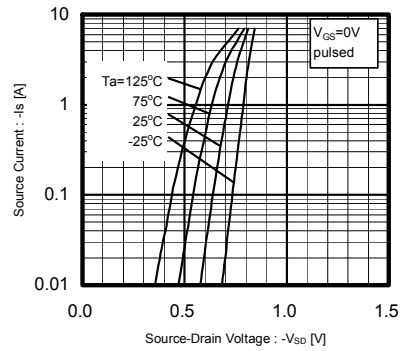


Fig.6 Source-Current vs. Source-Drain Voltage

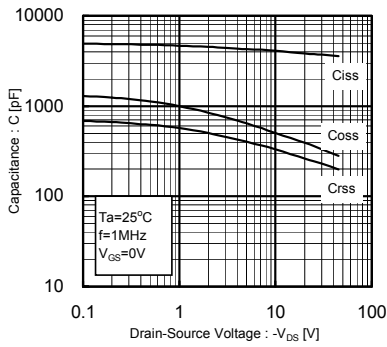


Fig.7 Typical capacitance vs. Source-Drain Voltage

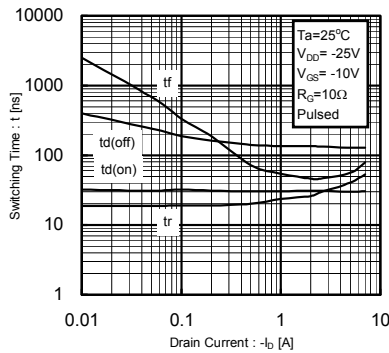


Fig.8 Switching Characteristics

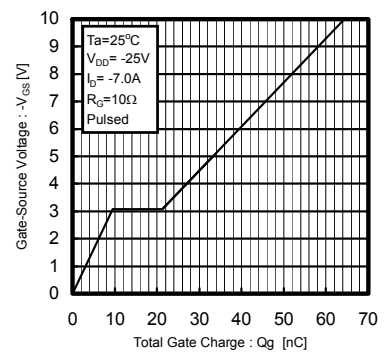


Fig.9 Dynamic Input Characteristics

● Measurement circuits

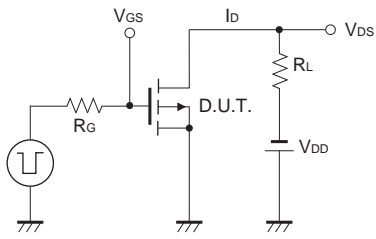


Fig.10 Switching Time Test Circuit

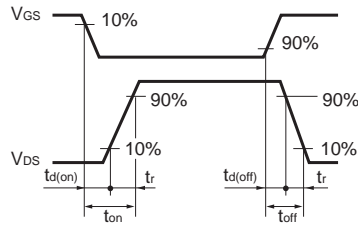


Fig.11 Switching Time Waveforms

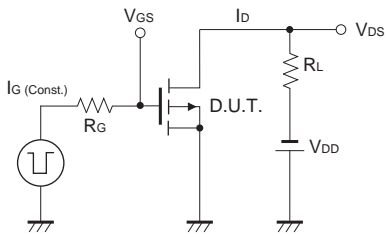


Fig.12 Gate Charge Test Circuit

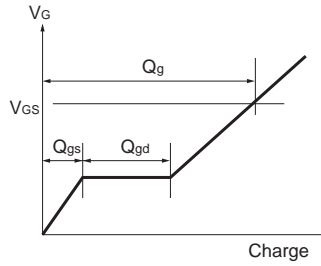


Fig.13 Gate Charge Waveform

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