

# 4V Drive Pch MOSFET

## RSH070P05

### ●Structure

Silicon P-channel MOSFET

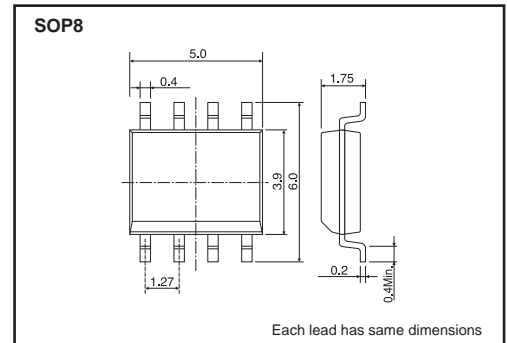
### ●Features

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

### ●Application

Power switching, DC / DC converter, Inverter

### ●Dimensions (Unit : mm)



### ●Packaging specifications

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

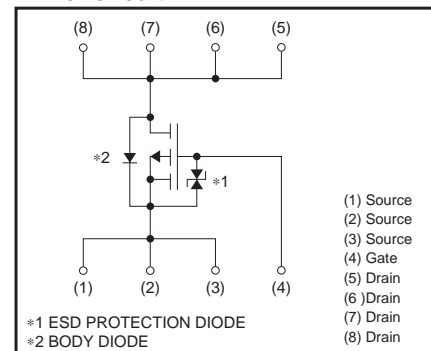
### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	$V_{DSS}$	-45	V	
Gate-source voltage	$V_{GSS}$	$\pm 20$	V	
Drain current	Continuous	$I_D$	$\pm 7.0$	A
	Pulsed	$I_{DP}$ *1	$\pm 28$	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

### ●Inner circuit



### ●Thermal resistance

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

\* Mounted on a ceramic board

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

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	$V_{(BR)DSS}$	-45	-	-	V	$I_D=-1mA, V_{GS}=0V$
Zero gate voltage drain current	$I_{DSS}$	-	-	-1	$\mu A$	$V_{DS}=-45V, V_{GS}=0V$
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	$m\Omega$	$I_D=-7A, V_{GS}=-10V$
		-	25	35	$m\Omega$	$I_D=-7A, V_{GS}=-4.5V$
		-	28	39	$m\Omega$	$I_D=-7A, V_{GS}=-4.0V$
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

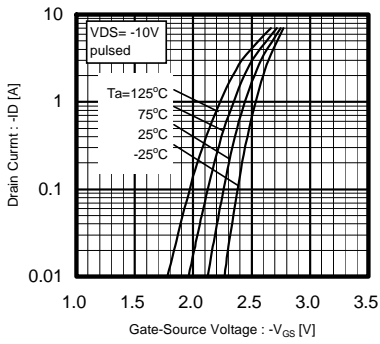


Fig.1 Typical Transfer Characteristics

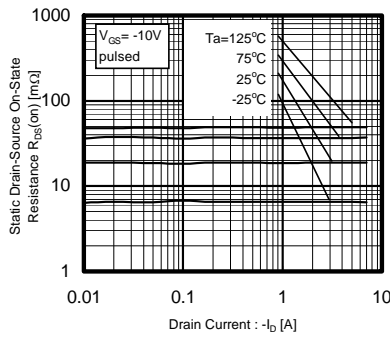


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

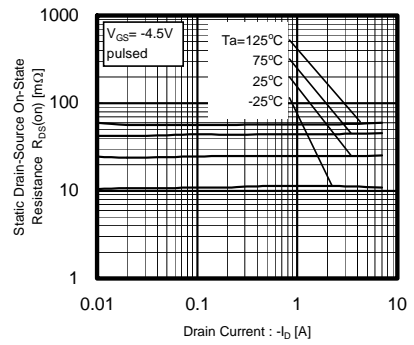


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

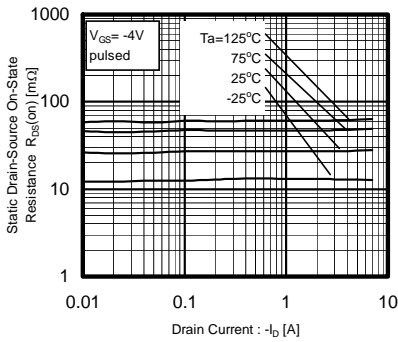


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

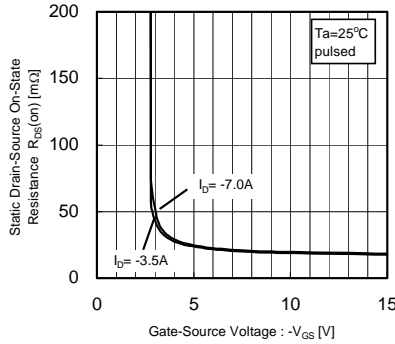


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

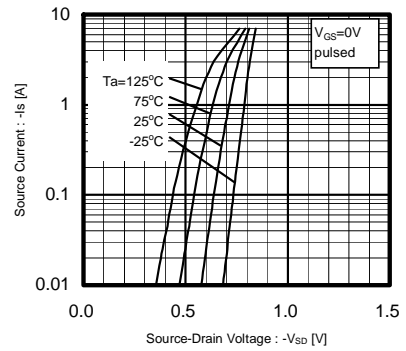


Fig.6 Source-Current vs. Source-Drain Voltage

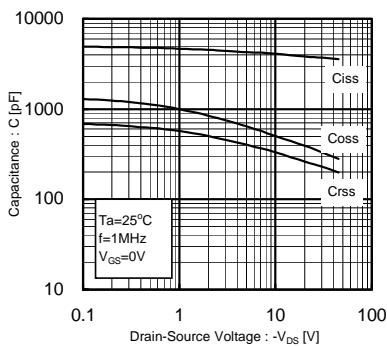


Fig.7 Typical capacitance vs. Source-Drain Voltage

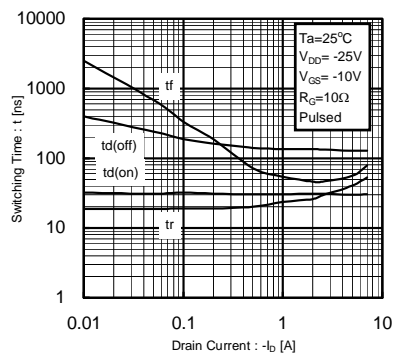


Fig.8 Switching Characteristics

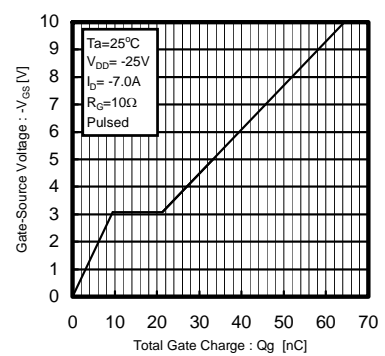


Fig.9 Dynamic Input Characteristics

●Measurement circuits

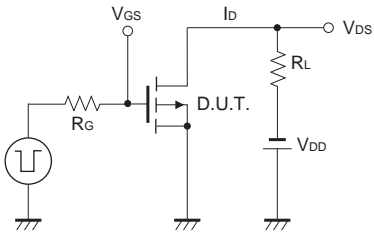


Fig.10 Switching Time Test Circuit

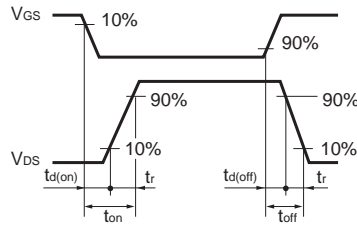


Fig.11 Switching Time Waveforms

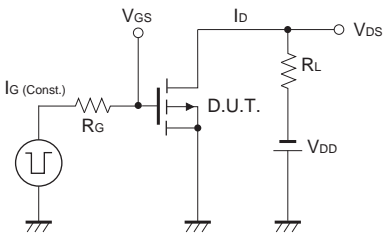


Fig.12 Gate Charge Test Circuit

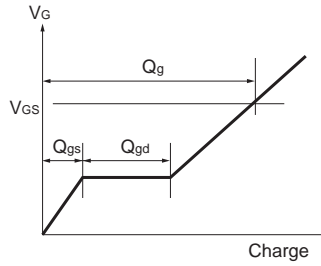


Fig.13 Gate Charge Waveform

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Part Number	RSH070P05
Package	SOP8
Unit Quantity	2500
Minimum Package Quantity	2500
Packing Type	Taping
Constitution Materials List	inquiry
RoHS	Yes

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