

4V Drive Pch MOS FET

**RSS070P05**

## ● Structure

## Silicon P-channel MOS FET

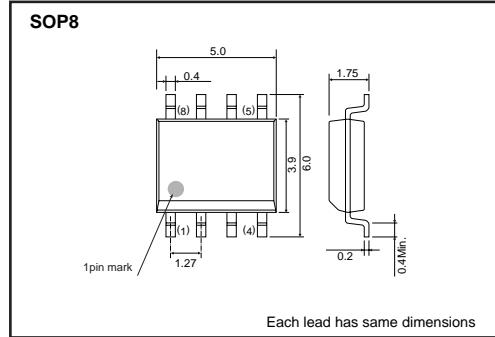
## ● Features

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

## ● Applications

## Power switching , DC / DC converter , Inverter

● **External dimensions** (Unit : mm)



### ● Packaging dimensions

Packaging dimensions		
Type	Package	Taping
	Code	TB
	Basic ordering unit (pieces)	2500
RSS070P05		○

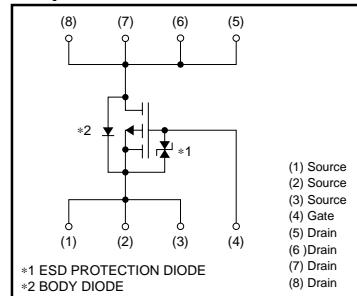
- **Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Drain-source voltage	$V_{DSS}$	-45	V
Gate-source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	Continuous	$I_D$	$\pm 7.0$
	Pulsed	$I_{DP}$	$\pm 28$
Source current (Body diode)	Continuous	$I_S$	-1.6
	Pulsed	$I_{SP}$	-28
Total power dissipation	$P_D$	2	W
Chanel temperature	$T_{ch}$	150	°C
Range of Storage temperature	$T_{stg}$	-55 to +150	°C

\*1 PW≤10μs, Duty cycle≤1%

\*2 Mounted on a ceramic board

### ● Equivalent circuit



## ● Thermal resistance

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

\* Mounted on a ceramic board

## Transistor

## ●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	$V_{DD} = -25V$
Rise time	$t_r^*$	—	35	—	ns	$I_D = -3.5A$
Turn-off delay time	$t_{d(off)}^*$	—	135	—	ns	$V_{GS} = -10V$
Fall time	$t_f^*$	—	50	—	ns	$R_L = 7\Omega$
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)

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

\*Pulsed

## Transistor

## ● Electrical characteristic curves

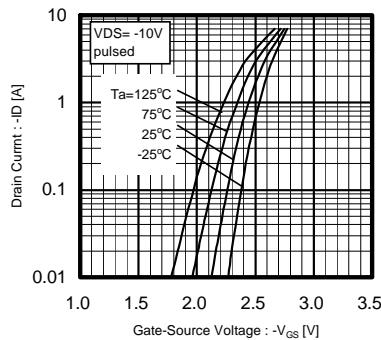


Fig.1 Typical Transfer Characteristics

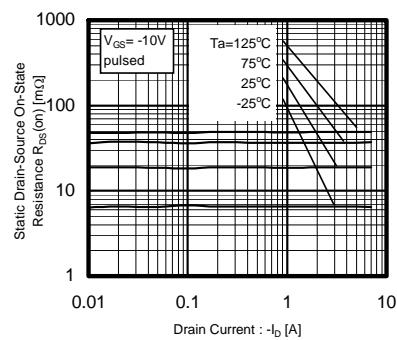


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

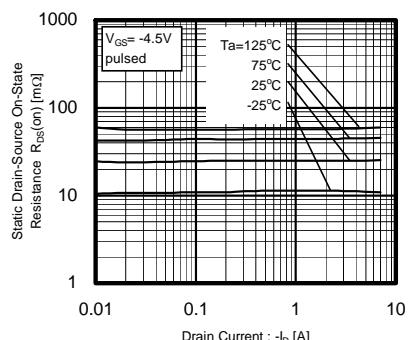


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

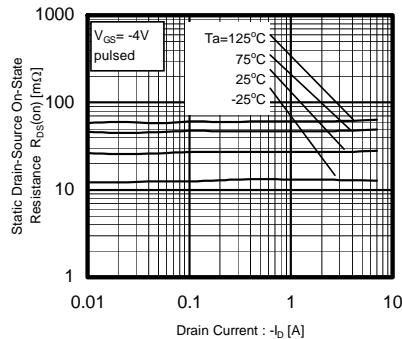


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

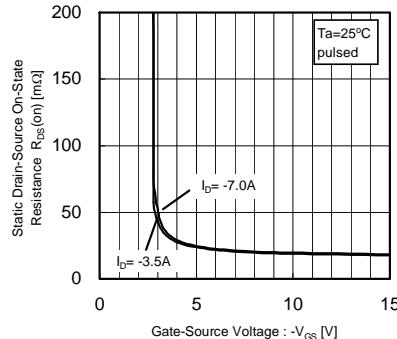


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

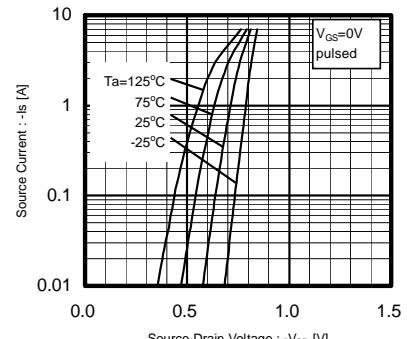


Fig.6 Source-Current vs. Source-Drain Voltage

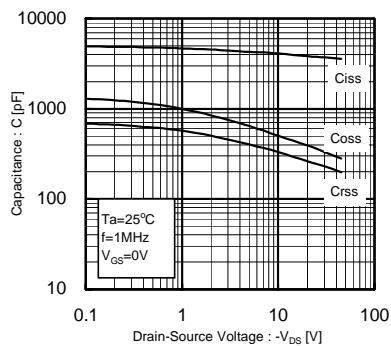


Fig.7 Typical capacitance vs. Source-Drain Voltage

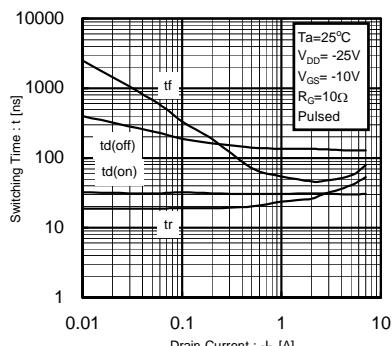


Fig.8 Switching Characteristics

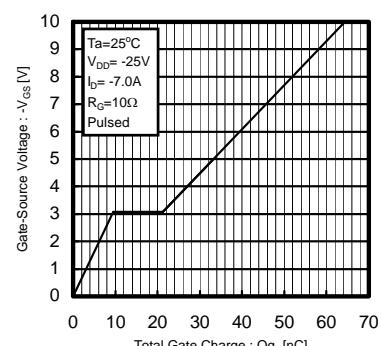


Fig.9 Dynamic Input Characteristics

## Transistor

## ● Measurement circuits

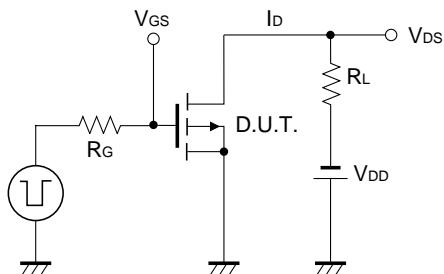


Fig.10 Switching Time Test Circuit

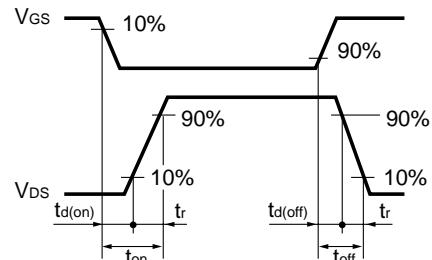


Fig.11 Switching Time Waveforms

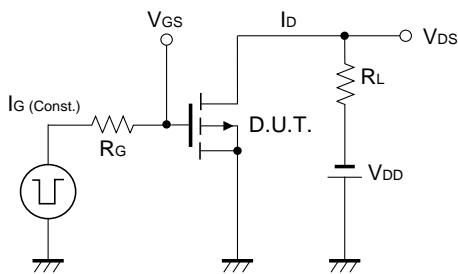


Fig.12 Gate Charge Test Circuit

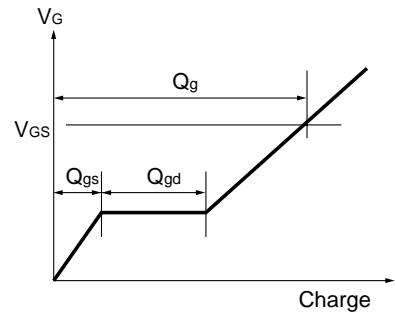


Fig.13 Gate Charge Waveform

## Appendix

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