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RSS060P05

Transistor

# 4V Drive Pch MOS FET

## RSS060P05

### ●Structure

Silicon P-channel  
 MOS FET

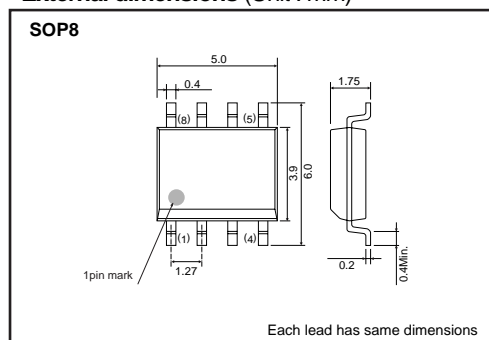
### ●Features

- 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

Type	Package	Taping
	Code	TB
	Basic ordering unit (pieces)	2500
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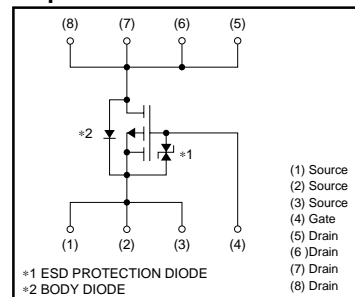
### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	$V_{DSS}$	-45	V
Gate-source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	Continuous	$I_D$	$\pm 6.0$ A
	Pulsed	$I_{DP}$ *1	$\pm 24$ A
Source current (Body diode)	Continuous	$I_S$	-1.6 A
	Pulsed	$I_{SP}$ *1	-24 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

### ●Equivalent circuit



### ●Thermal resistance

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

\* Mounted on a ceramic board

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#### ●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	$R_{DS(on)}^*$	–	26	36	mΩ	$I_D=-6A, V_{GS}=-10V$
		–	35	49	mΩ	$I_D=-6A, V_{GS}=-4.5V$
		–	38	53	mΩ	$I_D=-6A, V_{GS}=-4.0V$
Forward transfer admittance	$ Y_{fs} ^*$	8.0	–	–	S	$V_{DS}=-10V, I_D=-6A$
Input capacitance	$C_{iss}$	–	2700	–	pF	$V_{DS}=-10V$
Output capacitance	$C_{oss}$	–	360	–	pF	$V_{GS}=0V$
Reverse transfer capacitance	$C_{rss}$	–	230	–	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}^*$	–	25	–	ns	$V_{DD}=-25V$
Rise time	$t_r^*$	–	28	–	ns	$I_D=-3.0A$
Turn-off delay time	$t_{d(off)}^*$	–	100	–	ns	$V_{GS}=-10V$
Fall time	$t_f^*$	–	28	–	ns	$R_L=-8.3\Omega$
Total gate charge	$Q_g^*$	–	23.0	32.2	nC	$V_{DD}=-25V, V_{GS}=-5V$
Gate-source charge	$Q_{gs}^*$	–	6.6	–	nC	$I_D=-6.0A$
Gate-drain charge	$Q_{gd}^*$	–	8.0	–	nC	$R_L=4.2\Omega, R_G=10\Omega$

\*Pulsed

#### ●Body diode characteristics (Source-Drain)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_{SD}^*$	–	–	–1.2	V	$I_S=-6A, V_{GS}=0V$

\*Pulsed

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● **Electrical characteristic curves**

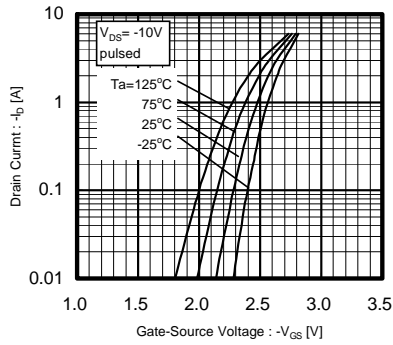


Fig.1 Typical Transfer Characteristics

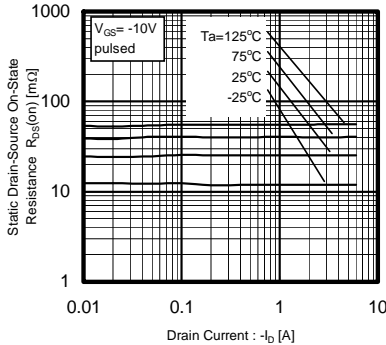


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

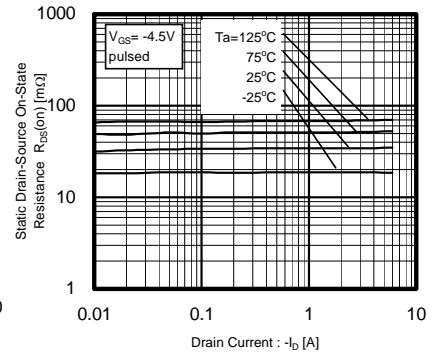


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

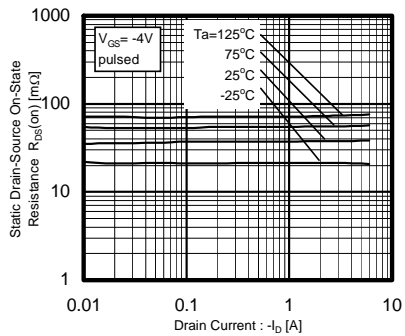


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

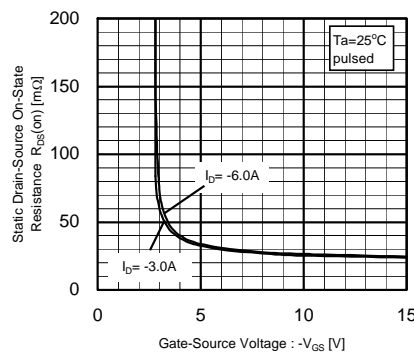


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

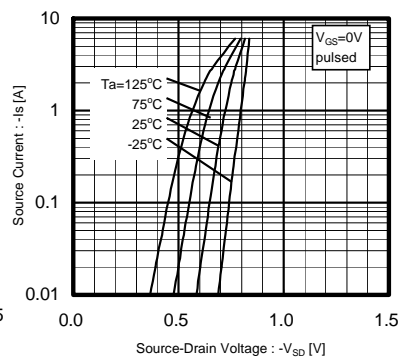


Fig.6 Source-Current vs. Source-Drain Voltage

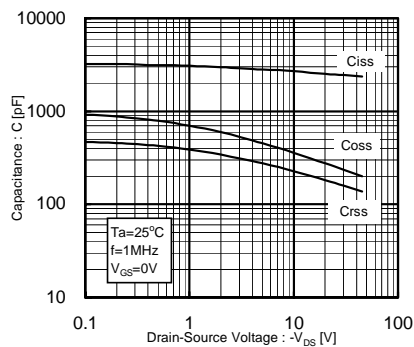


Fig.7 Typical capacitance vs. Source-Drain Voltage

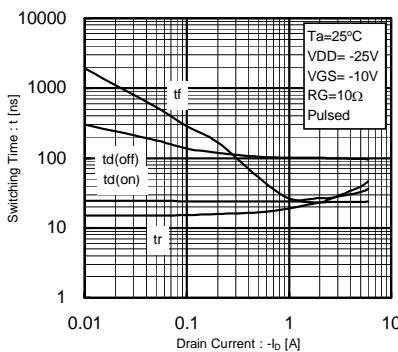


Fig.8 Switching Characteristics

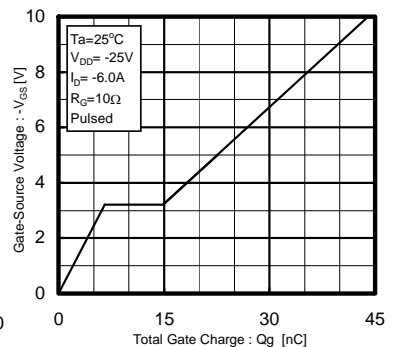


Fig.9 Dynamic Input Characteristics

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● **Measurement circuits**

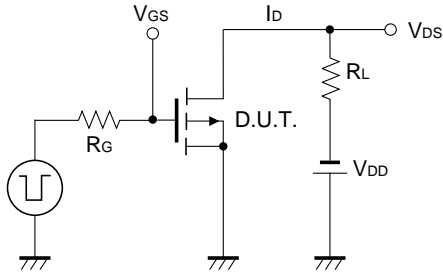


Fig.10 Switching Time Test Circuit

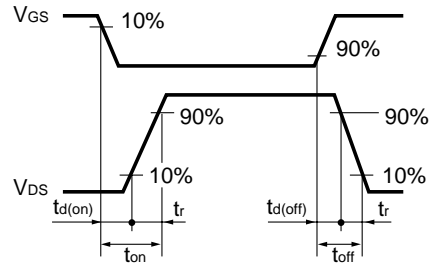


Fig.11 Switching Time Waveforms

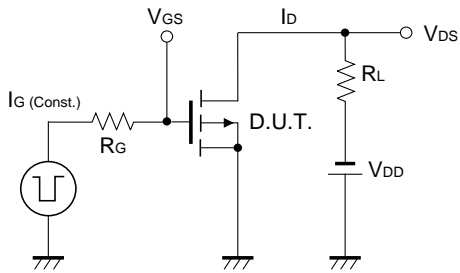


Fig.12 Gate Charge Test Circuit

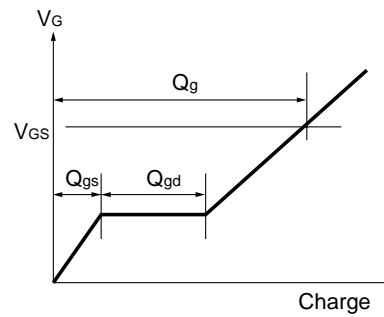


Fig.13 Gate Charge Waveform

## Appendix

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