

Transistor

4V Drive Pch MOS FET

RSS070P05

●Structure

Silicon P-channel
MOS FET

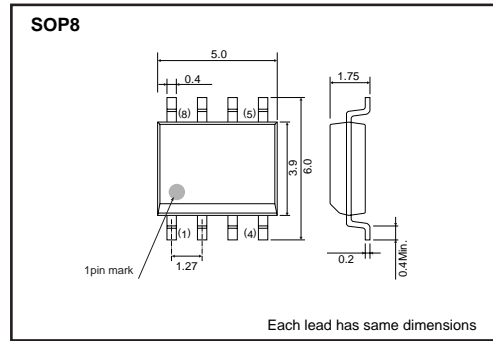
●Features

- 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

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

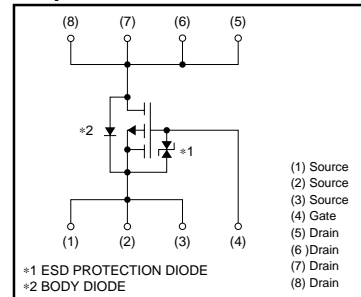
●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	V_{DS}	-45	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	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	$R_{DS(on)}^*$	–	19	27	mΩ	$I_D = -7A, V_{GS} = -10V$
		–	25	35	mΩ	$I_D = -7A, V_{GS} = -4.5V$
		–	28	39	mΩ	$I_D = -7A, V_{GS} = -4.0V$
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	$V_{DD} \doteq -25V$
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	$V_{DD} \doteq -25V, V_{GS} = -5V$
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

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●Electrical characteristic curves

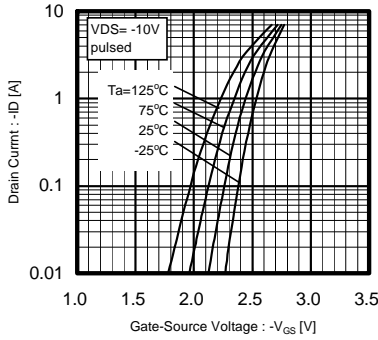


Fig.1 Typical Transfer Characteristics

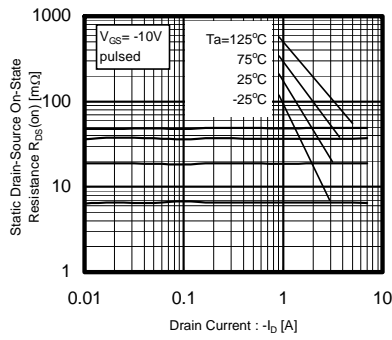


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

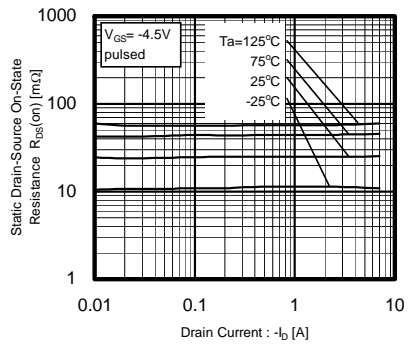


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

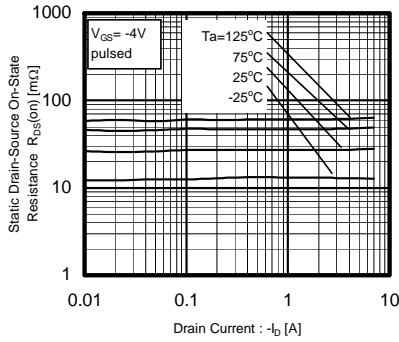


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

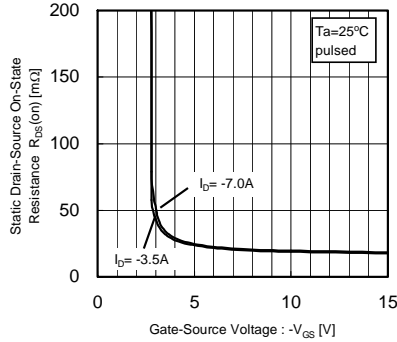


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

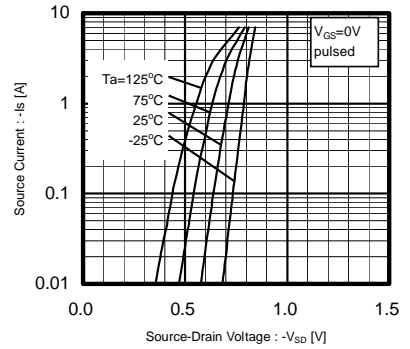


Fig.6 Source-Current vs. Source-Drain Voltage

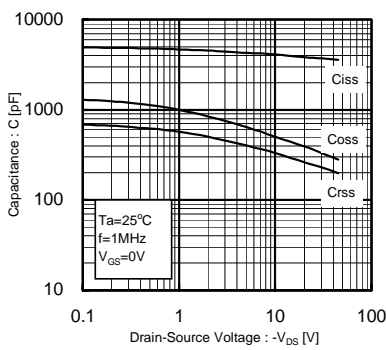


Fig.7 Typical capacitance vs. Source-Drain Voltage

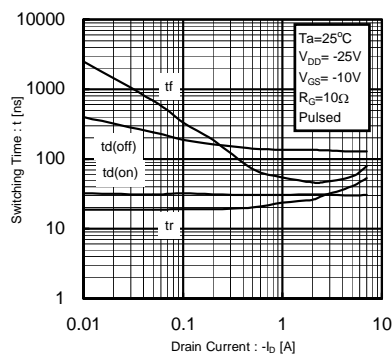


Fig.8 Switching Characteristics

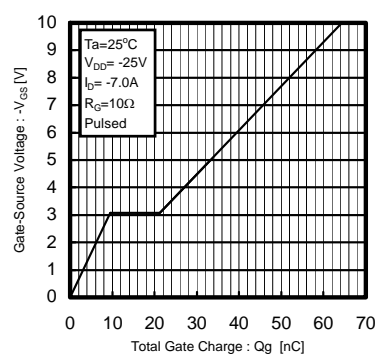


Fig.9 Dynamic Input Characteristics

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● Measurement circuits

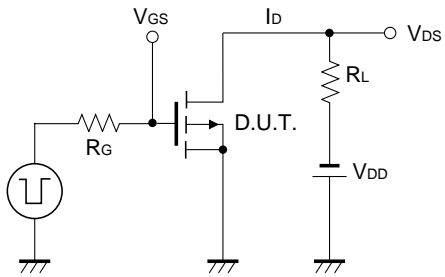


Fig.10 Switching Time Test Circuit

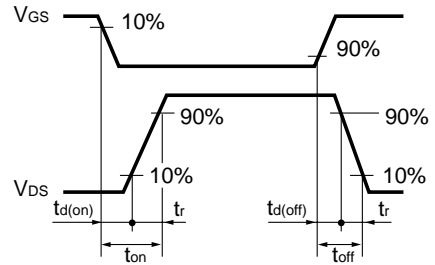


Fig.11 Switching Time Waveforms

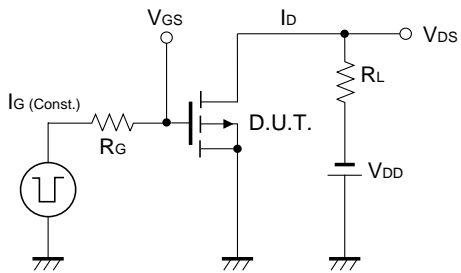


Fig.12 Gate Charge Test Circuit

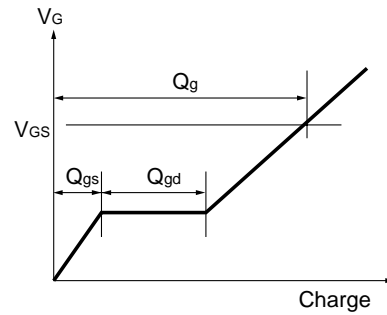


Fig.13 Gate Charge Waveform

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