

4V Drive Pch MOSFET

RSH070P05

●Structure

Silicon P-channel MOSFET

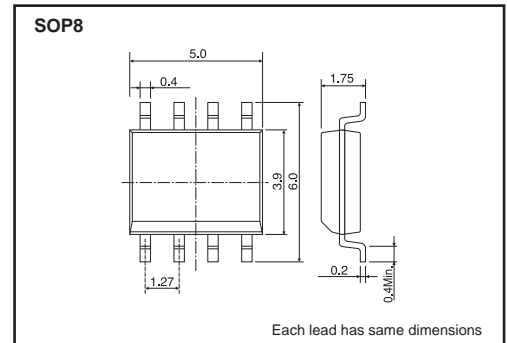
●Features

- 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		○

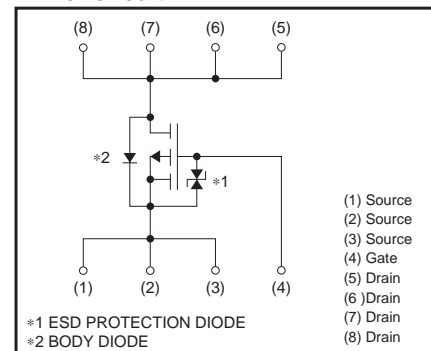
●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	V_{DSS}	-45	V	
Gate-source voltage	V_{GSS}	± 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

●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}	-	-	±10	μA	V _{GS} =±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} =-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 =-7Ω
Fall time	t _f *	-	50	-	ns	R _G =10Ω
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 =3.5Ω R _G =10Ω

*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

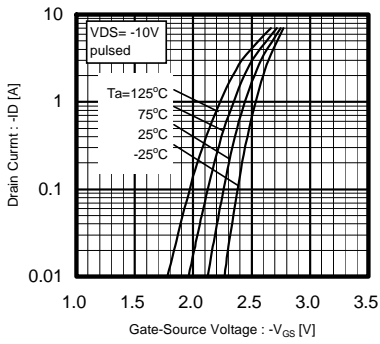


Fig.1 Typical Transfer Characteristics

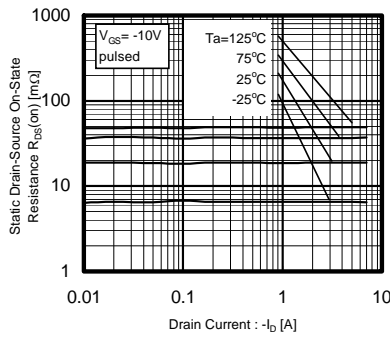


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

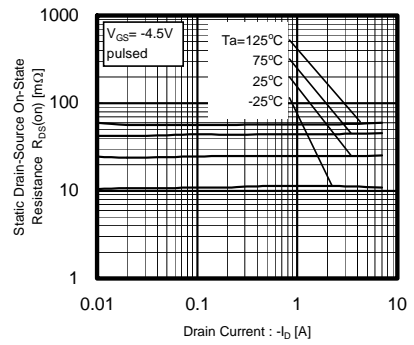


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

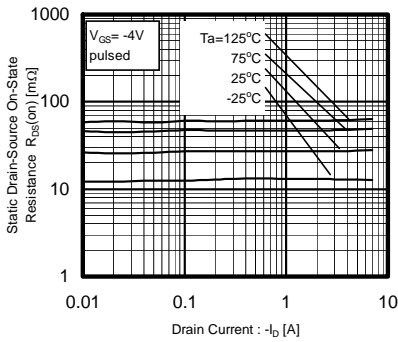


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

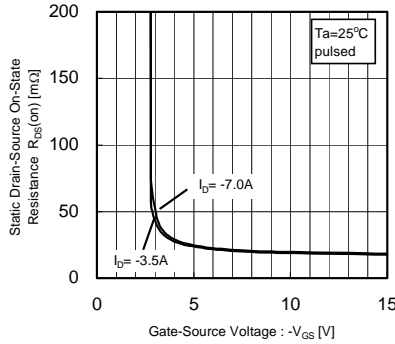


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

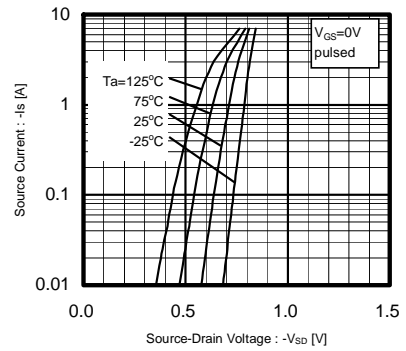


Fig.6 Source-Current vs. Source-Drain Voltage

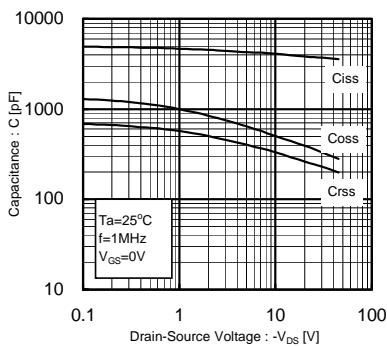


Fig.7 Typical capacitance vs. Source-Drain Voltage

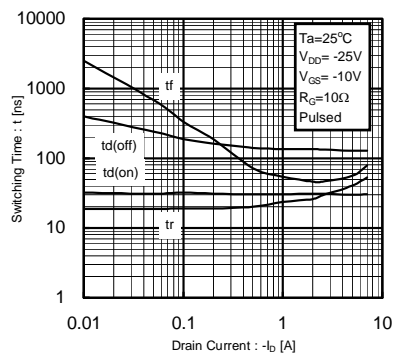


Fig.8 Switching Characteristics

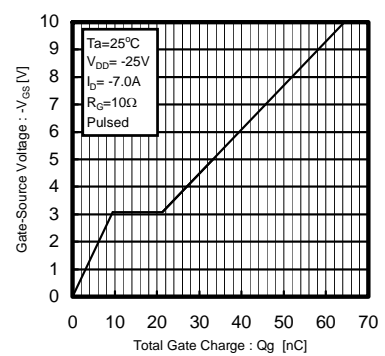


Fig.9 Dynamic Input Characteristics

●Measurement circuits

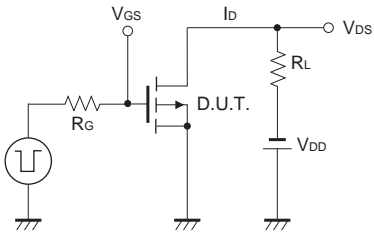


Fig.10 Switching Time Test Circuit

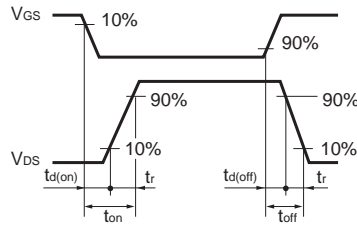


Fig.11 Switching Time Waveforms

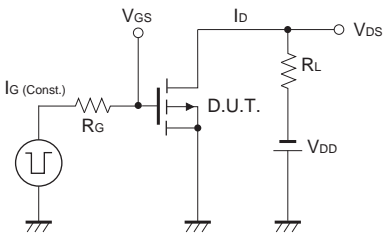


Fig.12 Gate Charge Test Circuit

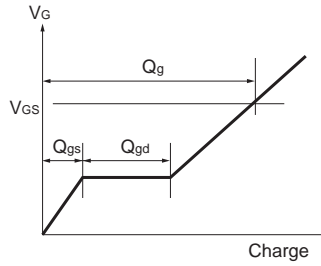


Fig.13 Gate Charge Waveform

Notes

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