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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

●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 $\leq 1\%$

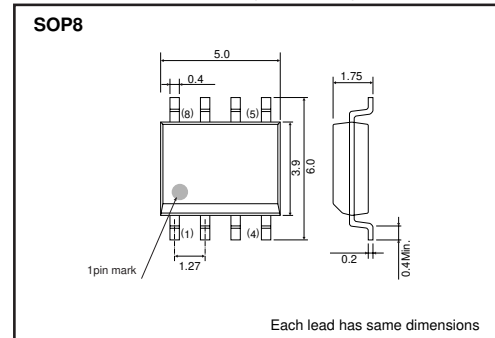
*2 Mounted on a ceramic board

●Thermal resistance

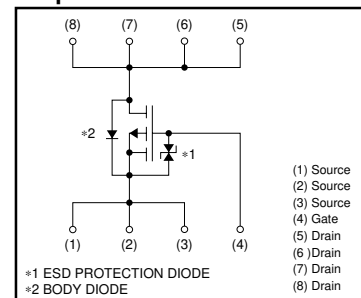
Parameter	Symbol	Limits	Unit
Chanel to ambient	$R_{th(ch-a)}$ *	62.5	°C/W

* Mounted on a ceramic board

●External dimensions (Unit : mm)



●Equivalent circuit



Transistor

●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
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 =–7Ω
Total gate charge	Q _g *	–	34.0	47.6	nC	R _G =10Ω
Gate-source charge	Q _{gs} *	–	9.5	–	nC	V _{DD} ≐ –25V V _{GS} = –5V
Gate-drain charge	Q _{gd} *	–	12	–	nC	I _D = –7A
						R _L =3.5Ω R _G =10Ω

*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

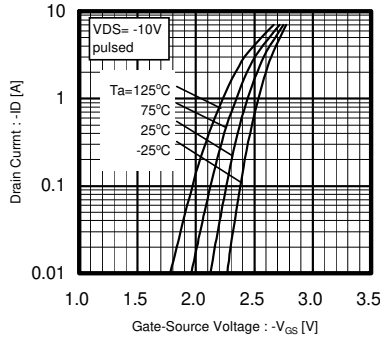


Fig.1 Typical Transfer Characteristics

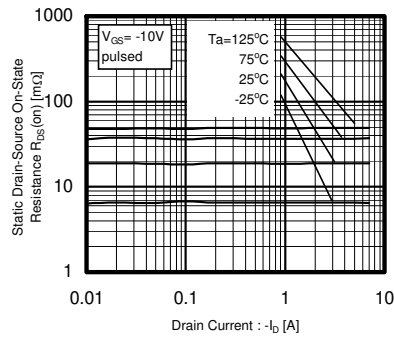


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

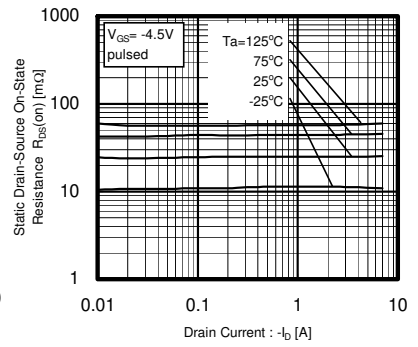


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

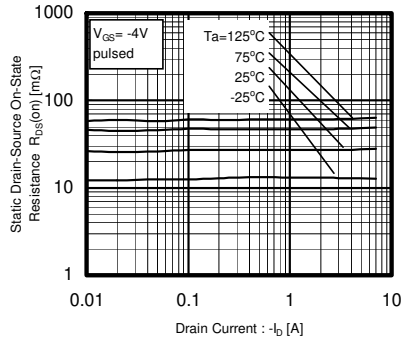


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

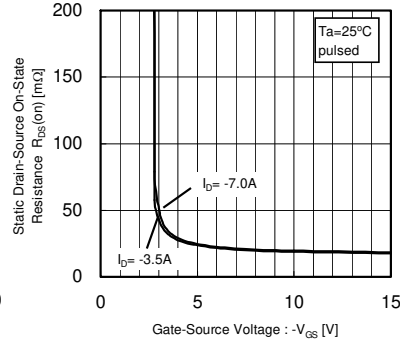


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

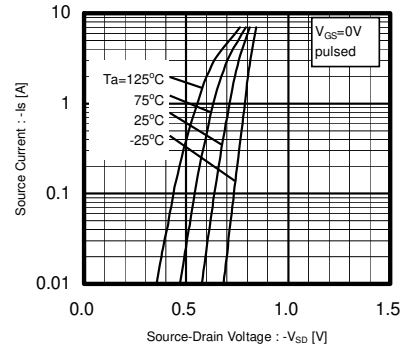


Fig.6 Source-Current vs. Source-Drain Voltage

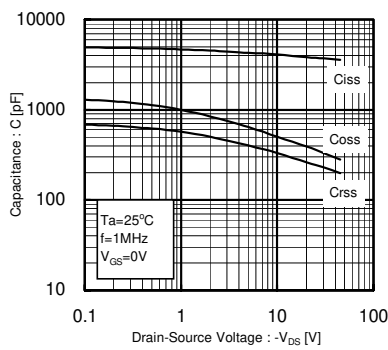


Fig.7 Typical capacitance vs. Source-Drain Voltage

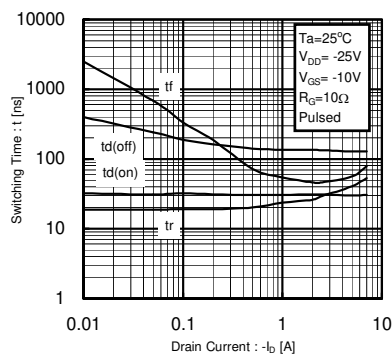


Fig.8 Switching Characteristics

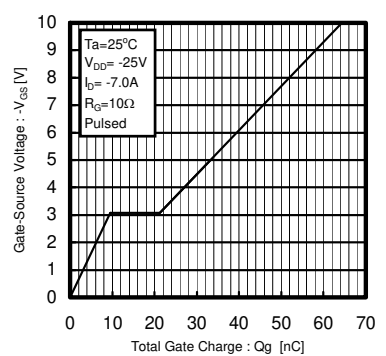


Fig.9 Dynamic Input Characteristics

Transistor

●Measurement circuits

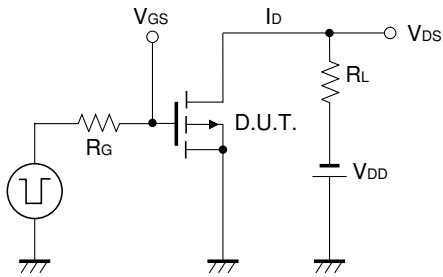


Fig.10 Switching Time Test Circuit

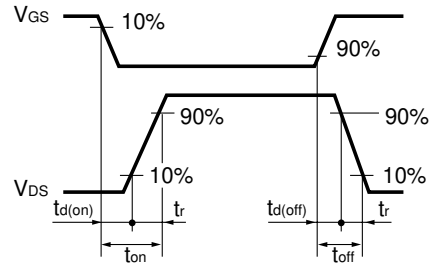


Fig.11 Switching Time Waveforms

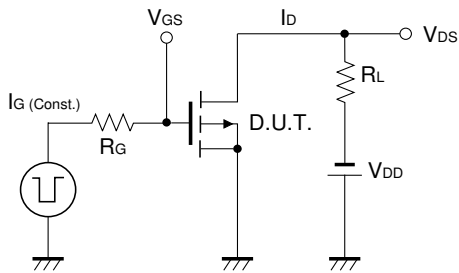


Fig.12 Gate Charge Test Circuit

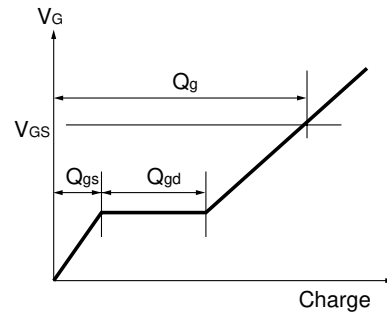


Fig.13 Gate Charge Waveform

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