

4V Drive Nch MOSFET

RSS065N06

●Structure
Silicon N-channel MOSFET

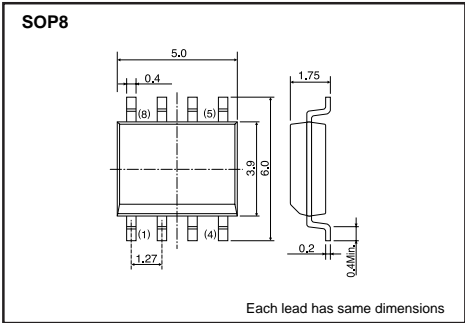
- Features
- 1) Low on-resistance.
 - 2) Built-in G-S Protection Diode.
 - 3) Small Surface Mount Package (SOP8).

●Application
Switching

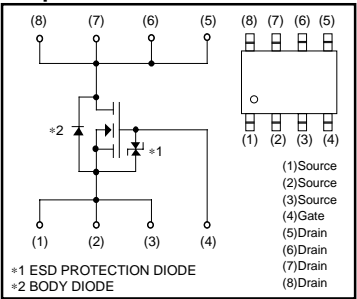
●Packaging specifications

Type	Package	Taping
	Code	TB
	Basic ordering unit (pieces)	2500
RSS065N06		○

●Dimensions (Unit : mm)



●Equivalent circuit



*1 ESD PROTECTION DIODE
*2 BODY DIODE
*A protection diode is included between the gate and the source terminals to protect the diode against static electricity when the product is in use. Use the protection circuit when the fixed voltages are exceeded.

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V _{DSS}	60	V
Gate-source voltage		V _{GSS}	20	V
Drain current	Continuous	I _D	±6.5	A
	Pulsed	I _{DP} *1	±26	A
Source current (Body diode)	Continuous	I _S	1.6	A
	Pulsed	I _{SP} *1	26	A
Total power dissipatio		P _D *2	2.0	W
Channel 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.

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	R _{th} (ch-A) *	62.5	°C / W

* Mounted on a ceramic board.

Transistors

●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}	60	–	–	V	I _D =1mA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	–	–	1	μA	V _{DS} =60V, 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)} *	–	24	37	mΩ	I _D =6.5A, V _{GS} =10V
		–	28	44		I _D =6.5A, V _{GS} =4.5V
		–	31	48		I _D =6.5A, V _{GS} =4.0V
Forward transfer admittance	Y _{fs} *	4	–	–	S	I _D =6.5A, V _{DS} =10V
Input capacitance	C _{iss}	–	900	–	pF	V _{DS} =10V
Output capacitance	C _{oss}	–	200	–	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	–	100	–	pF	f=1MHz
Turn-on delay time	t _{d(on)} *	–	13	–	ns	I _D =3.3A, V _{DD} ≒30V
Rise time	t _r *	–	25	–	ns	V _{GS} =10V
Turn-off delay time	t _{d(off)} *	–	60	–	ns	R _L =9.1Ω
Fall time	t _f *	–	20	–	ns	R _G =10Ω
Total gate charge	Q _g *	–	11	16	nC	I _D =6.5A, V _{DD} ≒30V
Gate-source charge	Q _{gs} *	–	2	–	nC	V _{GS} =5V
Gate-drain charge	Q _{gd} *	–	4	–	nC	R _L =4.6Ω, 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 =1.6A, V _{GS} =0V

*Pulsed

Transistors

●Electrical characteristic curves

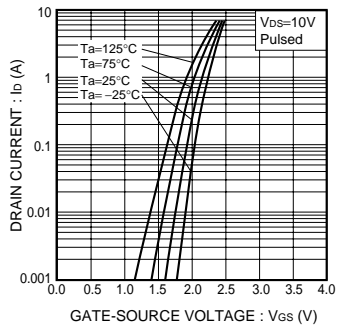


Fig.1 Typical Transfer Characteristics

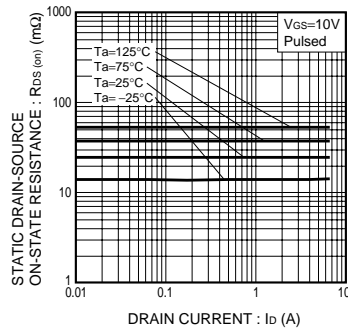


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current(I)

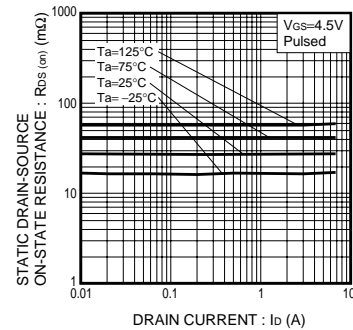


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current(II)

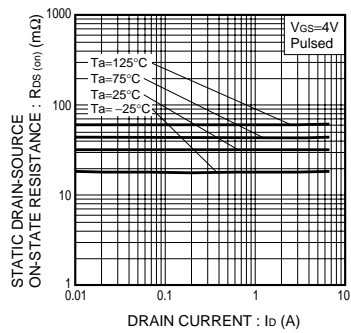


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current(III)

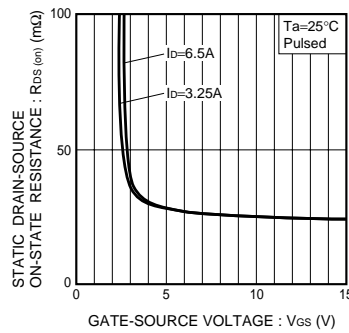


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

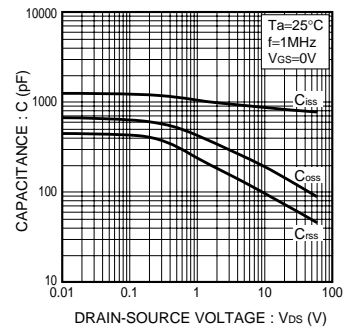


Fig.6 Typical Capacitance vs. Drain-Source Voltage

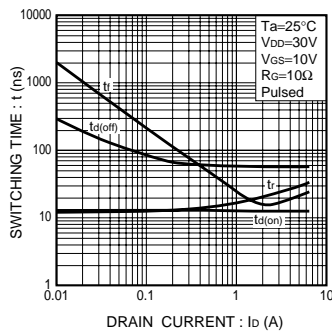


Fig.7 Switching Characteristics

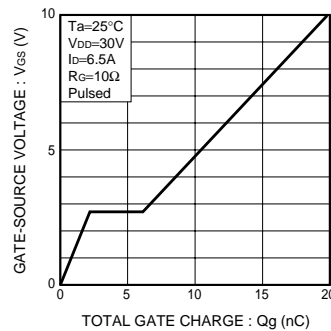


Fig.8 Dynamic Input Characteristics

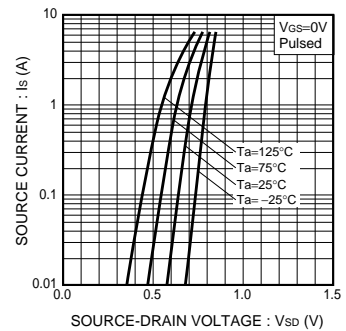


Fig.9 Source Current vs. Source-Drain Voltage

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●Measurement circuit

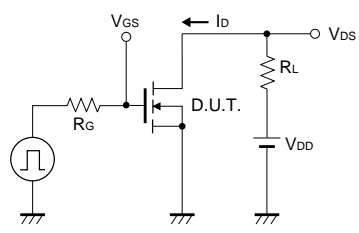


Fig.10 Switching Time Test Circuit

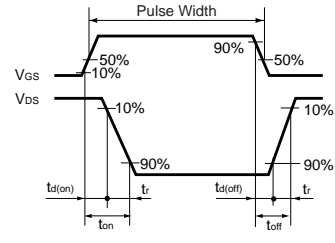


Fig.11 Switching Time Waveforms

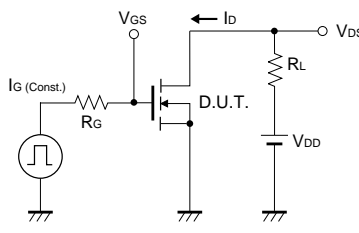


Fig.12 Gate Charge Test Circuit

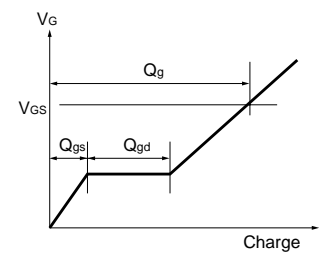


Fig.13 Gate Charge Waveform

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