4V Drive Nch MOS FET RSS095N05

Structure

Silicon N-channel MOS FET

Features

- 1) Built-in G-S Protection Diode.
- 2) Small Surface Mount Package (SOP8).

Applications

Power switching , DC / DC converter , Inverter

Packaging dimensions

Package	Taping
Code	TB
Basic ordering unit(pieces)	2500

● 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	±9.5	Α
Dialii cuitetti	Pulsed	I _{DP} *	1 ±38	Α
Source current	Continuous	I _S	1.6	Α
(Body diode)	Pulsed	I _{SP} .	1 38	Α
Total power dissipation	P _D ∗	2 2	W	
Chanel temperature	T_{ch}	150	°C	
Range of Storage temperature		T_{stg}	-55 to +150	°C

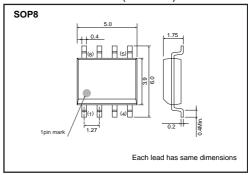
^{*1} PW≤10μs, Duty cycle≤1%

●Thermal resistance

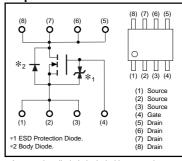
Parameter	Symbol	Limits	Unit
Chanel to ambient	R _{th(ch-a)} *	62.5	°C/W

^{*} Mounted on a ceramic board

●External dimensions (Unit : mm)



●Equivalent circuit



* 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 a protection circuit when the fixed voltage are exceeded.

^{*2} Mounted on a ceramic board

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	Igss	-	_	10	μΑ	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	IDSS	_	_	1	μΑ	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)} *	_	11	16	mΩ	I _D = 9.5A, V _{GS} = 10V
		-	14	20	mΩ	I _D = 9.5A, V _{GS} = 4.5V
		-	15	21	mΩ	I _D = 9.5A, V _{GS} = 4V
Forward transfer admittance	Y _{fs} *	10.0	_	_	S	V _{DS} = 10V, I _D = 9.5A
Input capacitance	Ciss	-	1830	_	pF	V _{DS} = 10V
Output capacitance	Coss	_	410	_	pF	V _{GS} =0V
Reverse transfer capacitance	Crss	-	210	_	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	-	20	_	ns	V _{DD} ≒ 25V
Rise time	tr *	-	35	_	ns	ID= 5.0A
Turn-off delay time	td (off) *	-	78	_	ns	V _{GS} = 10V R _L =5Ω
Fall time	t _f *	-	31	_	ns	R _G =10Ω
Total gate charge	Qg *	_	18.9	26.5	nC	V _{DD} =25V V _{GS} =5V
Gate-source charge	Q _{gs} *	_	4.9	_	nC	I _D = 9.5A
Gate-drain charge	Q _{gd} *	-	7.2	_	nC	R _L =2.6Ω R _G =10Ω

^{*}Pulsed

Body diode characteristics (Source-Drain) (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Forward voltage	Vsp*	_	_	1.2	V	I _S = 9.5A, V _{GS} =0V

^{*}Pulsed

Electrical characteristic curves

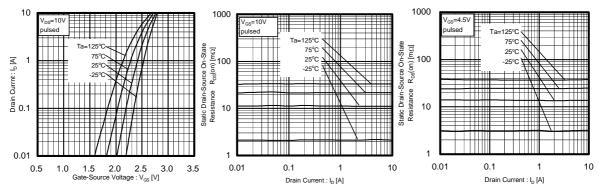
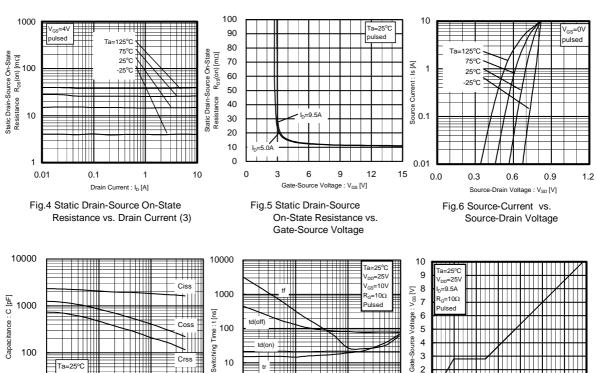


Fig.1 Typical Transfer Characteristics

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

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



Capacitance : C [pF] 0001 Switching Time : t [ns] 10 f=1MHz 10 0.01 0.1 10 100 1 Drain-Source Voltage : V_{DS} [V]

Fig.7 Typical capacitance vs. Source-Drain Voltage

Fig.8 Switching Characteristics

Fig.9 Dynamic Input Characteristics

10 15 20 25 Total Gate Charge : Qg [nC]

4 3

2

0

0

10

Measurement circuits

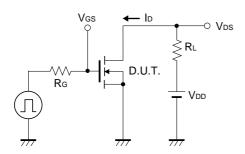


Fig.10 Switching Time Test Circuit

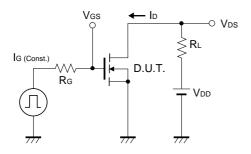


Fig.12 Gate Charge Test Circuit

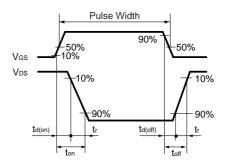


Fig.11 Switching Time Waveforms

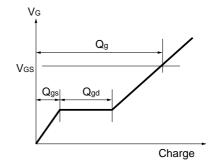


Fig.13 Gate Charge Waveform

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