4V Drive Nch MOS FET

RSS090N03

Structure

Silicon N-channel MOS FET

Features

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

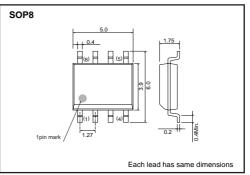
Application

Power switching, DC/DC converter.

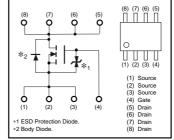
Packaging specifications

	Package	Taping	
Туре	Code	TB	
	Basic ordering unit (pieces)	2500	
RSS090N03		0	

•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.

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		Vdss	30	V
Gate-Source Voltage		Vgss	20	V
Drain Current	Continuous	lo	±9.0	А
	Pulsed	IDP ^{*1}	±36	А
Source Current (Body Diode)	Continuous	ls	1.6	А
	Pulsed	lsp *1	18	А
Total Power Dissipation		Po ^{*2}	2	W
Channel Temperature		Tch	150	°C
Storage Temperature		Tstg	-55 to +150	°C
		- 5		-

*1 Pw≤10µs, Duty cycle≤1%*2 Mounted on a ceramic board.

•Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to Ambient	Rth (ch-a)*	62.5	°C / W
* Mounted on a ceramic board.			



Transistors

Electrical	characteristics	$(Ta = 25^{\circ}C)$
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Parameter	Symbol	Min.	Тур.	Max.	Unit	Test Conditions
Gate-Source Leakage	lgss	_	_	10	μΑ	Vgs=20V, Vds=0V
Drain-Source Breakdown Voltage	V (BR)DSS	30	_	-	V	ID=1mA, VGs=0V
Zero Gate Voltage Drain Current	Ibss	_	_	1	μΑ	Vds=30V, Vgs=0V
Gate Threshold Voltage	VGS (th)	1.0	_	2.5	V	Vds=10V, Id=1mA
		-	11	16		ID=9A, VGs=10V
Static Drain-Source On-State Resistance	RDS (on)*	-	15	22	mΩ	Id=9A, Vgs=4.5V
		_	17	24		Id=9A, Vgs=4V
Forward Transfer Admittance	I Y _{fs} I*	6.0	-	-	S	Id=9A, Vds=10V
Input Capacitance	Ciss	_	810	-	pF	Vds=10V
Output Capacitance	Coss	_	225	-	pF	Vgs=0V
Reverse Transfer Capacitance	Crss	-	160	-	pF	f=1MHz
Turn-On Delay Time	td(on) *	-	10	-	ns	I⊳=4.5A, V⊳⊳≒ 15V
Rise Time	tr *	_	13	_	ns	Vgs=10V
Turn-Off Delay Time	td(off) *	_	46	-	ns	R∟=3.33Ω
Fall Time	tr *	_	15	_	ns	Rg=10Ω
Total Gate Charge	Qg *	_	11	15	nC	Vdd≒15V
Gate-Source Charge	Qgs *	_	2.5	_	nC	Vgs=5V
Gate-Drain Charge	Qgd *	_	4.5	-	nC	Id=9A

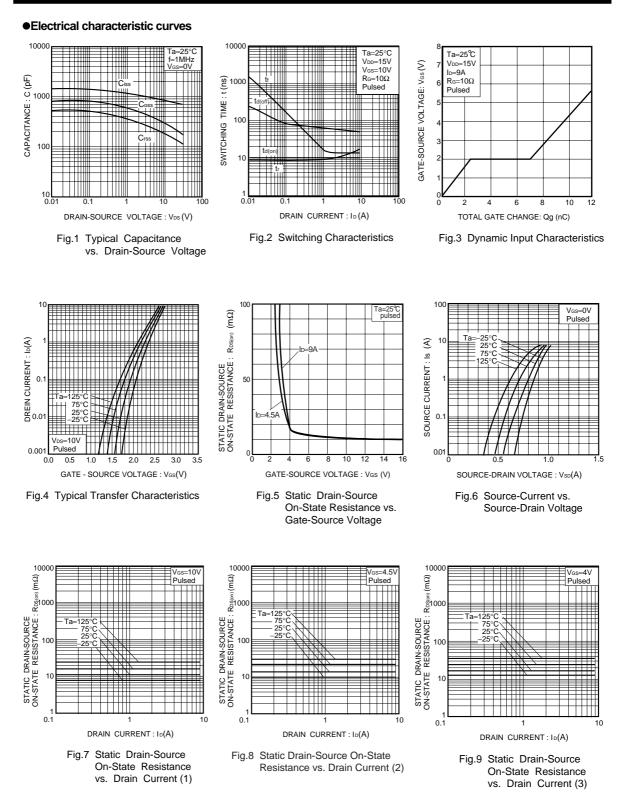
*Pulsed

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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Test Conditions
Forward Voltage	Vsd *	-	-	1.2	V	Is=6.4A, Vgs=0V

*Pulsed

Transistors



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