

Transistors

4V Drive Nch MOSFET

RSF014N03

●Structure

Silicon N-channel MOSFET

●Features

- 1) Low On-resistance.
- 2) Space saving, small surface mount package (TUMT3).
- 3) 4V drive.

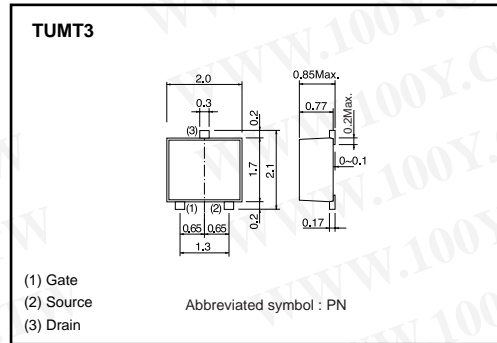
●Applications

Switching

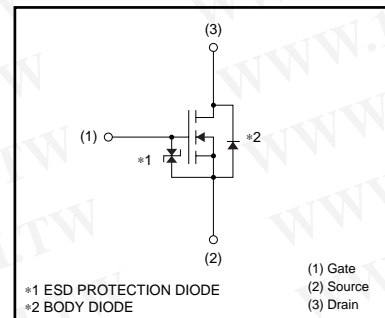
●Packaging specifications

Type	Package	Taping
		Code
	Basic ordering unit (pieces)	3000
RSF014N03		○

●Dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	V _{DSS}	30	V
Gate-source voltage	V _{GSS}	20	V
Drain current	Continuous	I _D	±1.4
	Pulsed	I _{DP} *1	±5.6
Source current (Body diode)	Continuous	I _S	0.6
	Pulsed	I _{SP} *1	5.6
Total power dissipation	P _D *2	0.8	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)} *	156	°C/W

* Mounted on a ceramic board

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●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}	30	-	-	V	I _D =1mA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	-	-	1	μA	V _{DS} =30V, 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)*}	-	170	240	mΩ	I _D =1.4A, V _{GS} =10V
		-	250	350	mΩ	I _D =1.4A, V _{GS} =4.5V
		-	270	380	mΩ	I _D =1.4A, V _{GS} =4V
Forward transfer admittance	Y _{fs} *	1	-	-	S	V _{DS} =10V, I _D =1.4A
Input capacitance	C _{iss}	-	70	-	pF	V _{DS} =10V
Output capacitance	C _{oss}	-	15	-	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	-	12	-	pF	f=1MHz
Turn-on delay time	t _{d(on)*}	-	6	-	ns	V _{DD} ≐15V I _D =0.7A
Rise time	t _r *	-	6	-	ns	V _{GS} =10V
Turn-off delay time	t _{d(off)*}	-	13	-	ns	R _L =21Ω
Fall time	t _f *	-	8	-	ns	R _G =10Ω
Total gate charge	Q _g *	-	1.4	2.0	nC	V _{DD} ≐15V R _L =11Ω
Gate-source charge	Q _{gs} *	-	0.6	-	nC	V _{GS} =5V R _G =10Ω
Gate-drain charge	Q _{gd} *	-	0.3	-	nC	I _D =1.4A

*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 =0.6A, V _{GS} =0V

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●Electrical characteristics curves

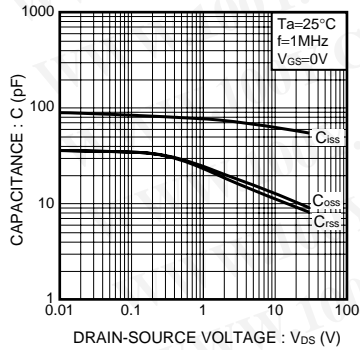


Fig.1 Typical Capacitance vs. Drain-Source Voltage

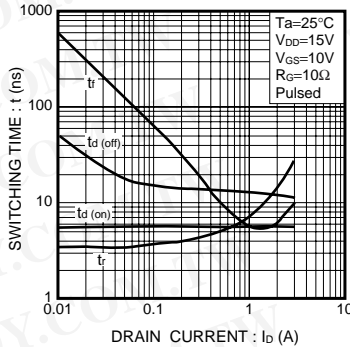


Fig.2 Switching Characteristics

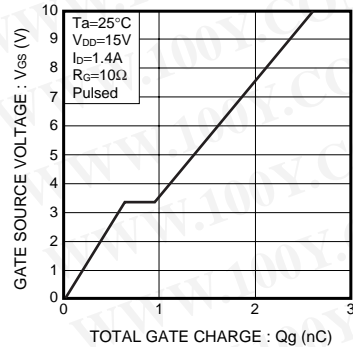


Fig.3 Dynamic Input Characteristics

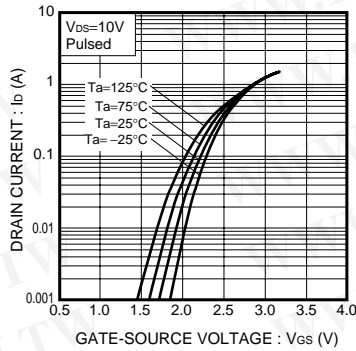


Fig.4 Typical Transfer Characteristics

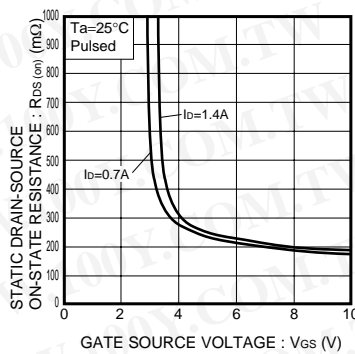


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

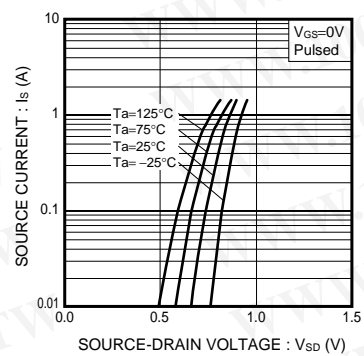


Fig.6 Source Current vs. Source-Drain Voltage

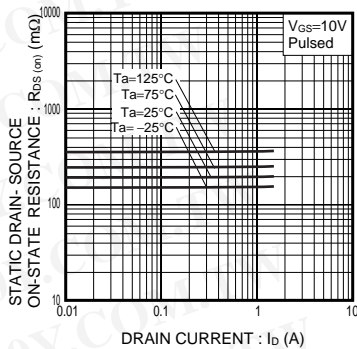


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current (I)

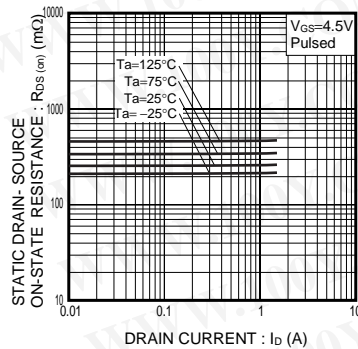


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current (II)

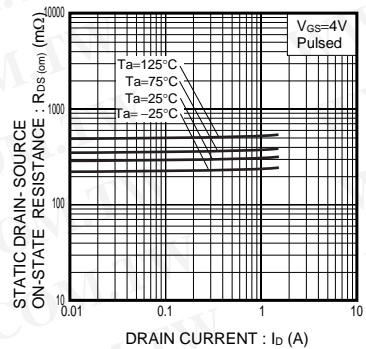


Fig.9 Static Drain-Source On-State Resistance vs. Drain Current (III)

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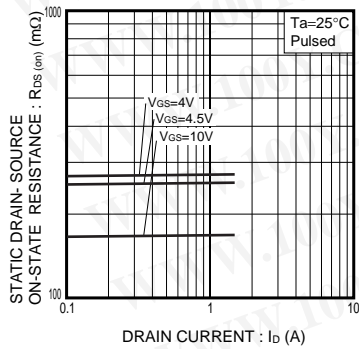


Fig.10 Static Drain-Source
On-State Resistance vs.
Drain Current (IV)

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