

## Transistors

## 4V Drive Pch MOSFET

## RSF010P03

## ●Structure

Silicon P-channel MOSFET

## ●Features

- 1) Low on-resistance.
- 2) High speed switching.

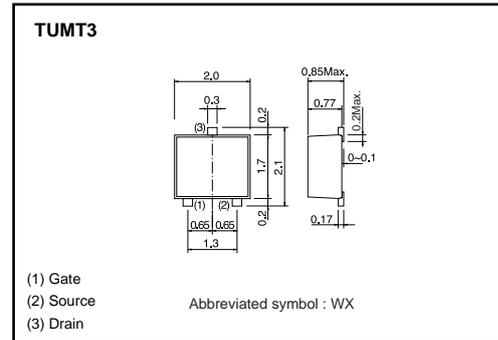
## ●Applications

Switching

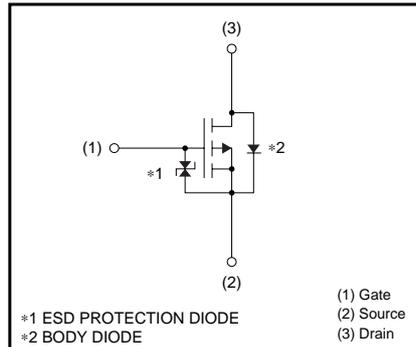
## ●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RSF010P03		○

## ●Dimensions (Unit : mm)



## ●Inner circuit



## ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	$V_{DS}$	-30	V	
Gate-source voltage	$V_{GS}$	±20	V	
Drain current	Continuous	$I_D$	±1	A
	Pulsed	$I_{DP}$ *1	±4	A
Source current (Body diode)	Continuous	$I_S$	-0.3	A
	Pulsed	$I_{SP}$ *1	-4	A
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  $P_w \leq 10 \mu s$ , Duty cycle  $\leq 1\%$ 

\*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 <sub>GSS</sub>	–	–	±10	μA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> =0V
Drain-source breakdown voltage	V <sub>(BR) DSS</sub>	–30	–	–	V	I <sub>D</sub> = –1mA, V <sub>GS</sub> =0V
Zero gate voltage drain current	I <sub>DSS</sub>	–	–	–1	μA	V <sub>DS</sub> = –30V, V <sub>GS</sub> =0V
Gate threshold voltage	V <sub>GS(th)</sub>	–1.0	–	–2.5	V	V <sub>DS</sub> = –10V, I <sub>D</sub> = –1mA
Static drain-source on-state resistance	R <sub>DS(on)</sub> *	–	250	350	mΩ	I <sub>D</sub> = –1A, V <sub>GS</sub> = –10V
		–	400	560	mΩ	I <sub>D</sub> = –0.5A, V <sub>GS</sub> = –4.5V
		–	450	630	mΩ	I <sub>D</sub> = –0.5A, V <sub>GS</sub> = –4.0V
Forward transfer admittance	Y <sub>fs</sub>  *	0.5	–	–	S	V <sub>DS</sub> = –10V, I <sub>D</sub> = –0.5A
Input capacitance	C <sub>iss</sub>	–	120	–	pF	V <sub>DS</sub> = –10V
Output capacitance	C <sub>oss</sub>	–	27	–	pF	V <sub>GS</sub> =0V
Reverse transfer capacitance	C <sub>rss</sub>	–	17	–	pF	f=1MHz
Turn-on delay time	t <sub>d(on)</sub> *	–	8	–	ns	V <sub>DD</sub> ≐ –15V
Rise time	t <sub>r</sub> *	–	11	–	ns	I <sub>D</sub> = –0.5A
Turn-off delay time	t <sub>d(off)</sub> *	–	20	–	ns	V <sub>GS</sub> = –10V
Fall time	t <sub>f</sub> *	–	12	–	ns	R <sub>L</sub> =30Ω R <sub>G</sub> =10Ω
Total gate charge	Q <sub>g</sub>	–	1.9	–	nC	V <sub>DD</sub> ≐ –15V, V <sub>GS</sub> = –5V
Gate-source charge	Q <sub>gs</sub>	–	0.7	–	nC	I <sub>D</sub> = –1A
Gate-drain charge	Q <sub>gd</sub>	–	0.4	–	nC	R <sub>L</sub> =15Ω, R <sub>G</sub> =10Ω

\*Pulsed

## ●Body diode characteristics (Source-drain) (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V <sub>SD</sub>	–	–	–1.2	V	I <sub>S</sub> = –0.3A, V <sub>GS</sub> =0V

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●Electrical characteristics curves

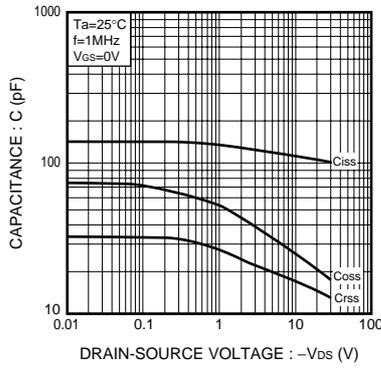


Fig.1 Typical Capacitance vs. Drain-Source Voltage

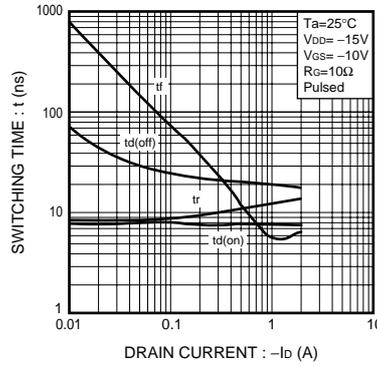


Fig.2 Switching Characteristics

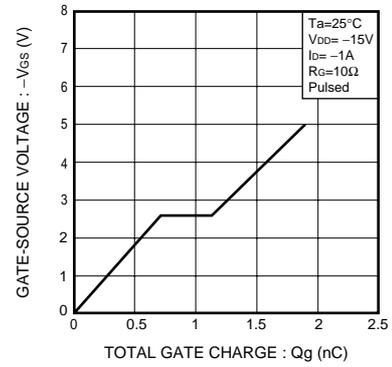


Fig.3 Dynamic Input Characteristics

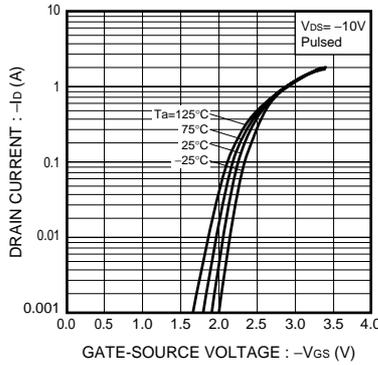


Fig.4 Typical Transfer Characteristics

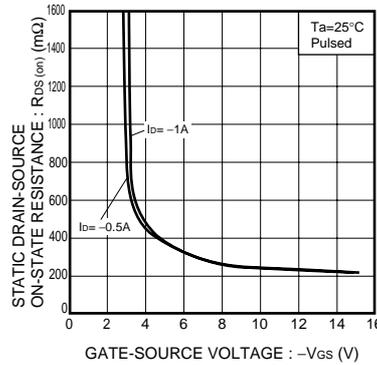


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

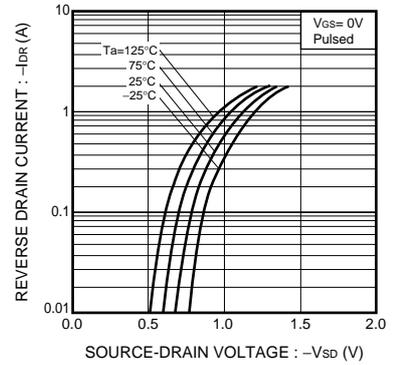


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

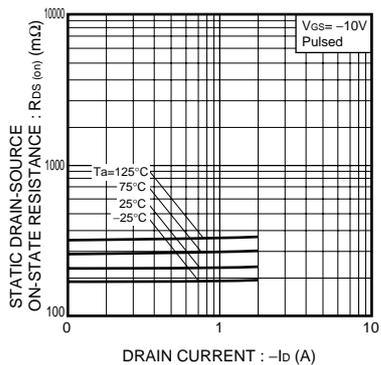


Fig.7 Static Drain-Source On-State Resistance vs. Drain current ( I )

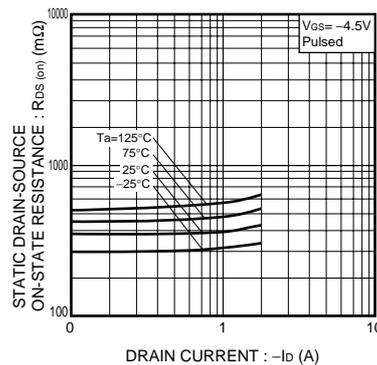


Fig.8 Static Drain-Source On-State Resistance vs. Drain current ( II )

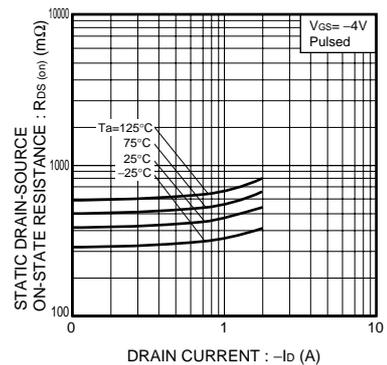


Fig.9 Static Drain-Source On-State Resistance vs. Drain current ( III )

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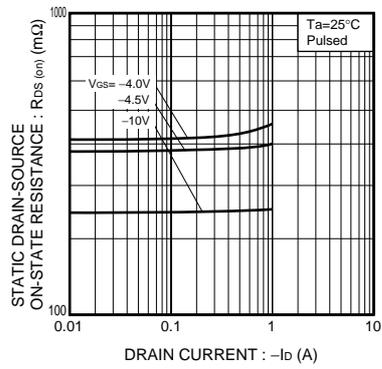


Fig.10 Static Drain-Source On-State Resistance vs. Drain current ( I<sub>V</sub> )

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