

4V Drive Pch MOSFET

RSF010P03

●Structure

Silicon P-channel MOSFET

●Features

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

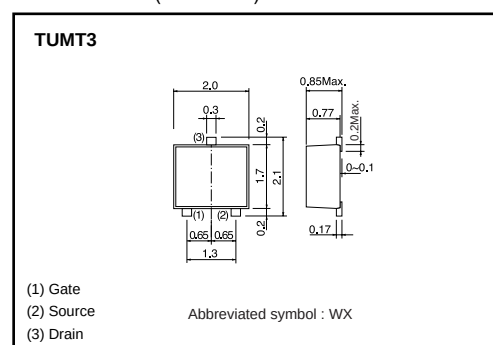
●Applications

Switching

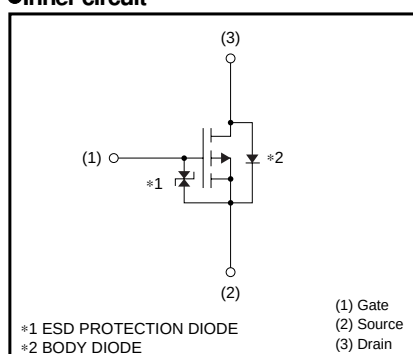
●Packaging specifications

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

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}	−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)} *	—	250	350	mΩ	I _D = −1A, V _{GS} = −10V
		—	400	560	mΩ	I _D = −0.5A, V _{GS} = −4.5V
		—	450	630	mΩ	I _D = −0.5A, V _{GS} = −4.0V
Forward transfer admittance	Y _{fs} *	0.5	—	—	S	V _{DS} = −10V, I _D = −0.5A
Input capacitance	C _{iss}	—	120	—	pF	V _{DS} = −10V
Output capacitance	C _{oss}	—	27	—	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	—	17	—	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	—	8	—	ns	V _{DD} ≒ −15V
Rise time	t _r *	—	11	—	ns	I _D = −0.5A
Turn-off delay time	t _{d (off)} *	—	20	—	ns	V _{GS} = −10V
Fall time	t _f *	—	12	—	ns	R _L =30Ω
Total gate charge	Q _g	—	1.9	—	nC	R _G =10Ω
Gate-source charge	Q _{gs}	—	0.7	—	nC	V _{DD} ≒ −15V, V _{GS} = −5V
Gate-drain charge	Q _{gd}	—	0.4	—	nC	I _D = −1A
						R _L =15Ω, 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 = −0.3A, V _{GS} =0V

Transistors

●Electrical characteristics curves

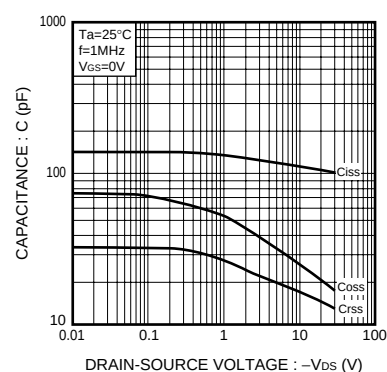


Fig.1 Typical Capacitance vs. Drain-Source Voltage

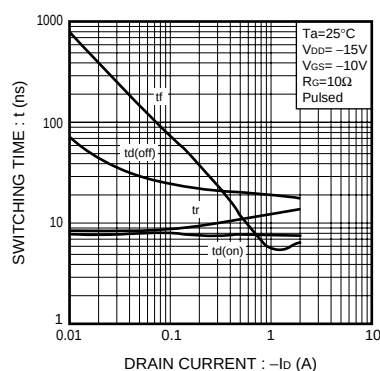


Fig.2 Switching Characteristics

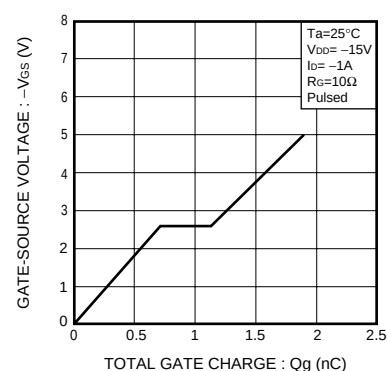


Fig.3 Dynamic Input Characteristics

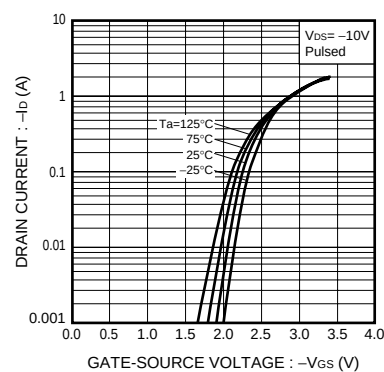


Fig.4 Typical Transfer Characteristics

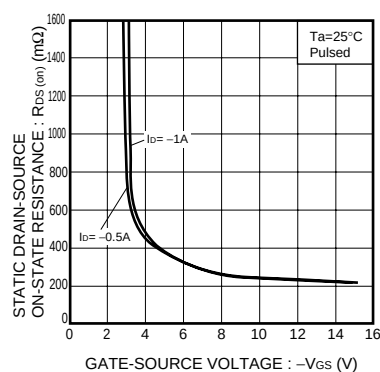


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

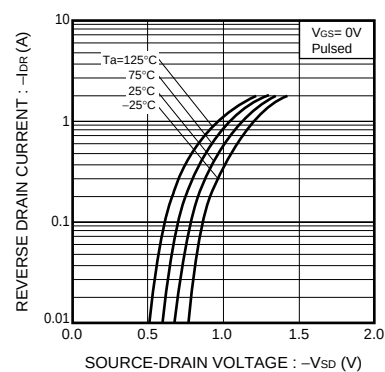


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

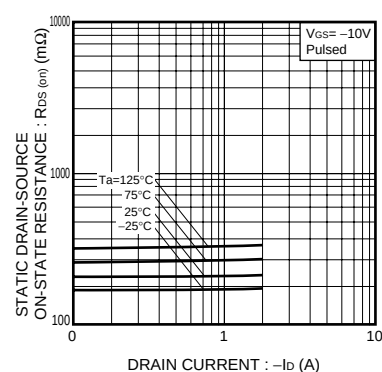


Fig.7 Static Drain-Source On-State Resistance vs. Drain current (I)

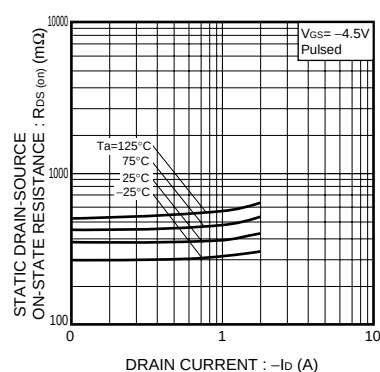


Fig.8 Static Drain-Source On-State Resistance vs. Drain current (II)

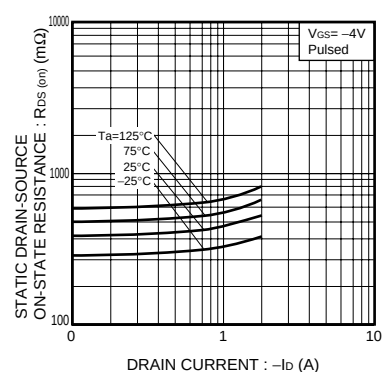


Fig.9 Static Drain-Source On-State Resistance vs. Drain current (III)

Transistors

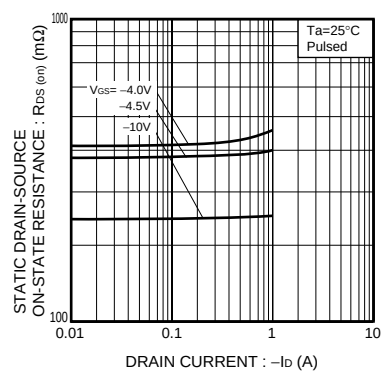


Fig.10 Static Drain-Source
On-State Resistance vs.
Drain current (I_D)

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