

4V Drive Pch MOSFET

RSF010P03

●Structure

Silicon P-channel MOSFET

●Features

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

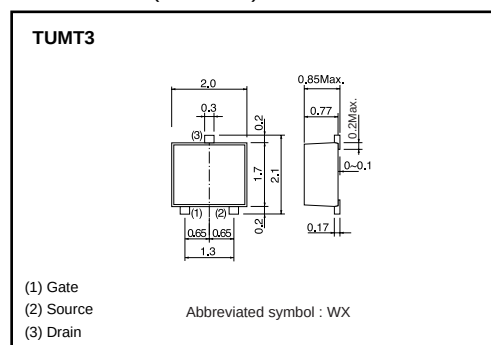
●Applications

Switching

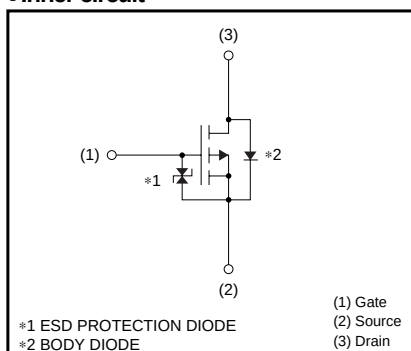
●Packaging specifications

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	$V_{GS} = \pm 20V$, $V_{DS} = 0V$
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	$V_{DD} \doteq -15V$
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	$R_L = 30\Omega$ $R_G = 10\Omega$
Total gate charge	Q_g	—	1.9	—	nC	$V_{DD} \doteq -15V$, $V_{GS} = -5V$
Gate-source charge	Q_{gs}	—	0.7	—	nC	$I_D = -1A$
Gate-drain charge	Q_{gd}	—	0.4	—	nC	$R_L = 15\Omega$, $R_G = 10\Omega$

*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

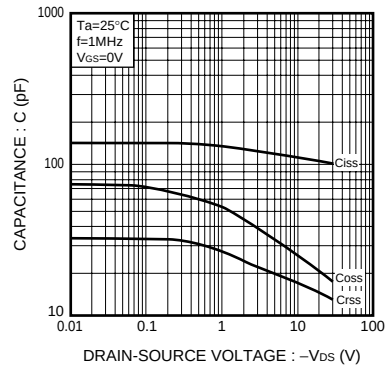


Fig.1 Typical Capacitance vs. Drain-Source Voltage

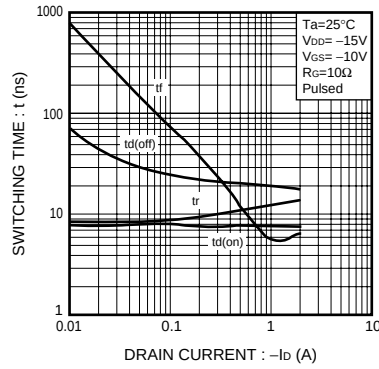


Fig.2 Switching Characteristics

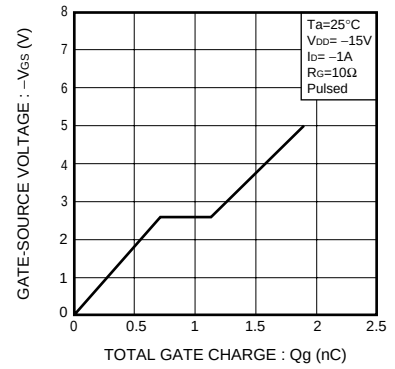


Fig.3 Dynamic Input Characteristics

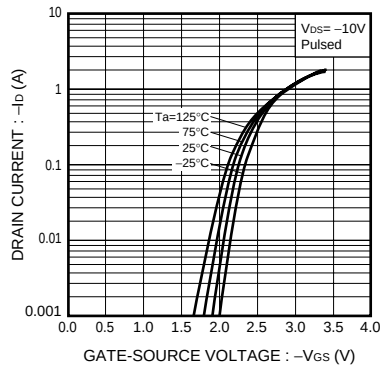


Fig.4 Typical Transfer Characteristics

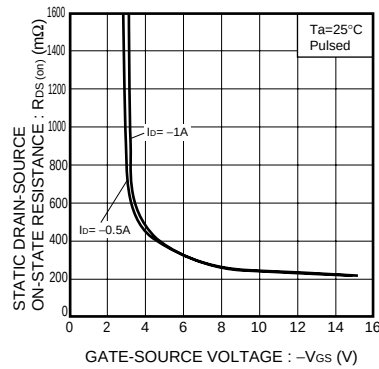


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

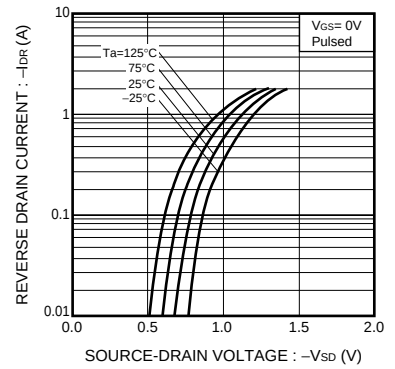


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

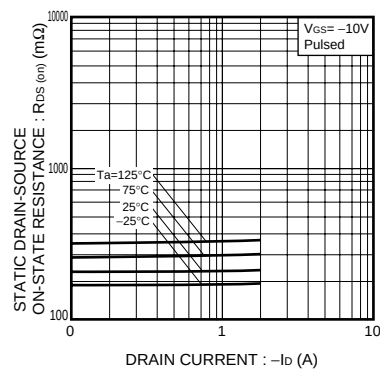


Fig.7 Static Drain-Source On-State Resistance vs. Drain current (I)

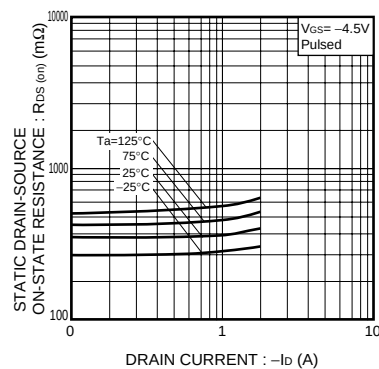


Fig.8 Static Drain-Source On-State Resistance vs. Drain current (II)

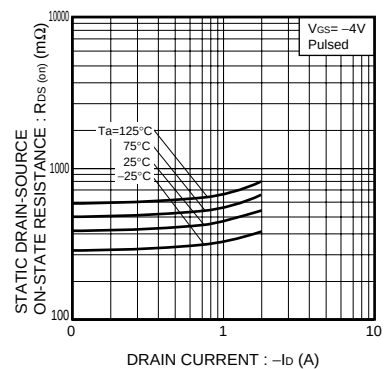


Fig.9 Static Drain-Source On-State Resistance vs. Drain current (III)

Transistors

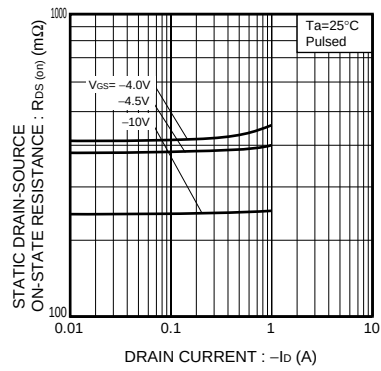


Fig.10 Static Drain-Source
On-State Resistance vs.
Drain current (I_D)

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