

Transistors

# 4V Drive Pch MOSFET

## RSL020P03

### ●Structure

Silicon P-channel MOSFET

### ●Features

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

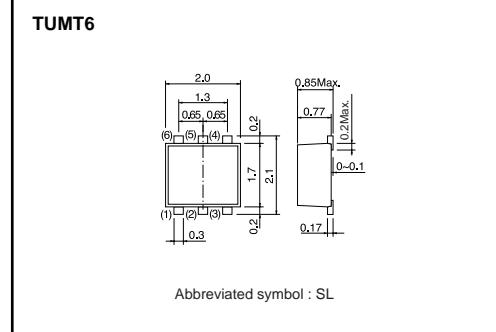
### ●Applications

Switching

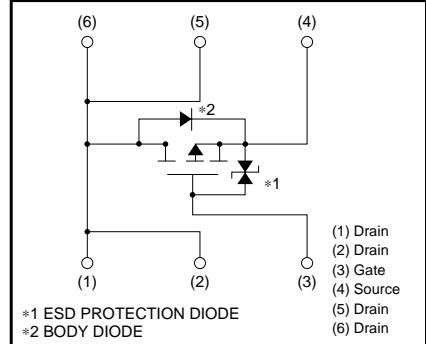
### ●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
RSL020P03		○

### ●Dimensions (Unit : mm)



### ●Inner circuit



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

Parameter	Symbol	Limits	Unit
Drain-source voltage	V <sub>DSS</sub>	-30	V
Gate-source voltage	V <sub>GSS</sub>	±20	V
Drain current	Continuous I <sub>D</sub>	±2	A
	Pulsed I <sub>DP</sub> *1	±8	A
Source current (Body diode)	Continuous I <sub>S</sub>	-0.8	A
	Pulsed I <sub>SP</sub> *1	-8	A
Total power dissipation	P <sub>D</sub> *2	1	W
Channel temperature	T <sub>ch</sub>	150	°C
Range of storage temperature	T <sub>stg</sub>	-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 <sub>th(ch-a)</sub> *	125	°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>	—	80	120	mΩ	I <sub>D</sub> = -2A, V <sub>GS</sub> = -10V
		—	125	190	mΩ	I <sub>D</sub> = -1A, V <sub>GS</sub> = -4.5V
		—	140	210	mΩ	I <sub>D</sub> = -1A, V <sub>GS</sub> = -4.0V
Forward transfer admittance	Y <sub>fs</sub>   *	1.4	—	—	S	V <sub>DS</sub> = -10V, I <sub>D</sub> = -1A
Input capacitance	C <sub>iss</sub>	—	350	—	pF	V <sub>DS</sub> = -10V
Output capacitance	C <sub>oss</sub>	—	80	—	pF	V <sub>GS</sub> =0V
Reverse transfer capacitance	C <sub>rss</sub>	—	50	—	pF	f=1MHz
Turn-on delay time	t <sub>d (on)</sub> *	—	11	—	ns	V <sub>DD</sub> = -15V I <sub>D</sub> = -1A
Rise time	t <sub>r</sub> *	—	11	—	ns	V <sub>GS</sub> = -10V
Turn-off delay time	t <sub>d (off)</sub> *	—	35	—	ns	R <sub>L</sub> =15Ω R <sub>G</sub> =10Ω
Fall time	t <sub>f</sub> *	—	11	—	ns	
Total gate charge	Q <sub>g</sub>	—	3.9	—	nC	V <sub>DD</sub> = -15V V <sub>GS</sub> = -5V
Gate-source charge	Q <sub>gs</sub>	—	1.3	—	nC	I <sub>D</sub> = -2A
Gate-drain charge	Q <sub>gd</sub>	—	1.1	—	nC	R <sub>L</sub> =7.5Ω 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> = -0.8A, V <sub>GS</sub> =0V

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## ●Electrical characteristics curves

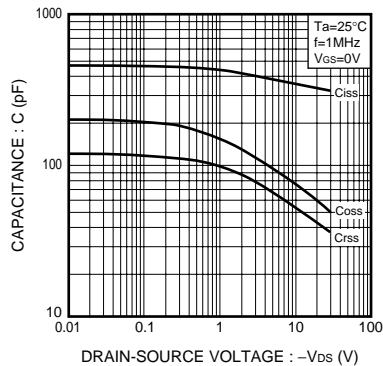


Fig.1 Typical Capacitance vs. Drain-Source Voltage

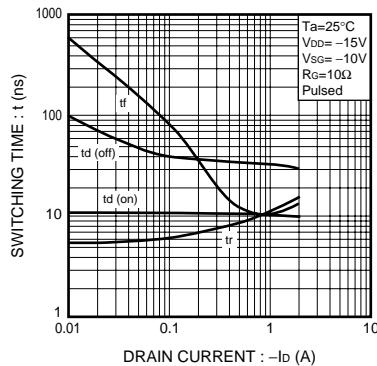


Fig.2 Switching Characteristics

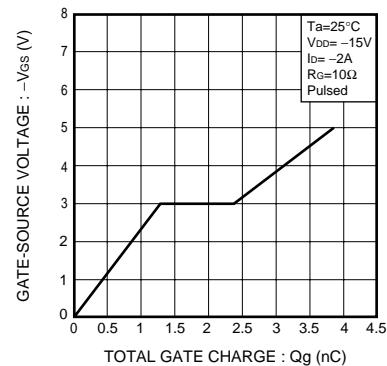


Fig.3 Dynamic Input Characteristics

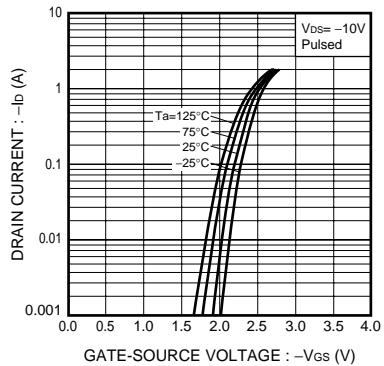


Fig.4 Typical Transfer Characteristics

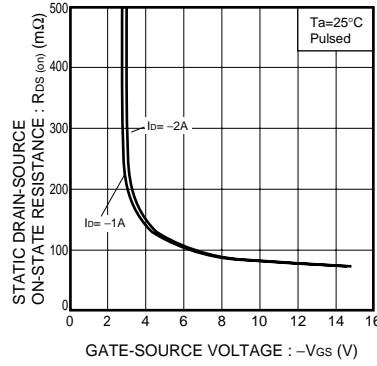


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

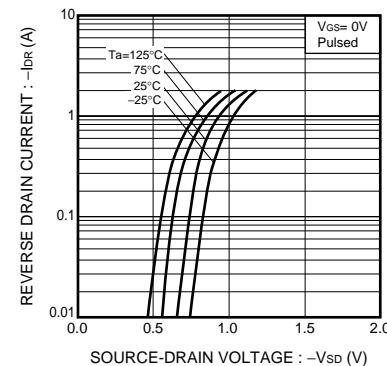


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

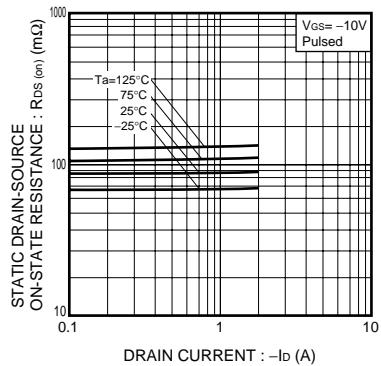


Fig.7 Static Drain-Source On-State Resistance vs. Drain current (I)

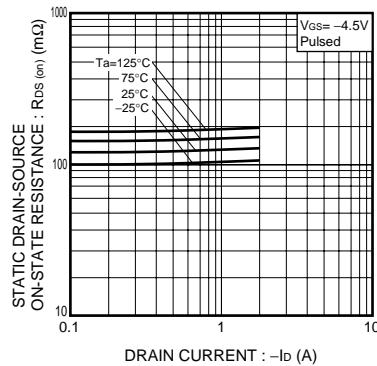


Fig.8 Static Drain-Source On-State Resistance vs. Drain current (II)

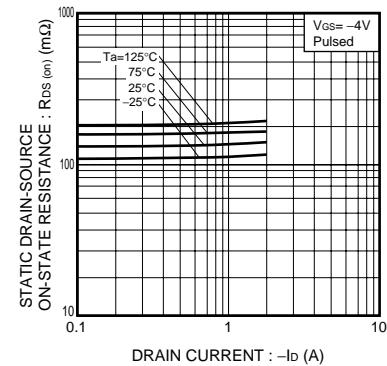


Fig.9 Static Drain-Source On-State Resistance vs. Drain current (III)

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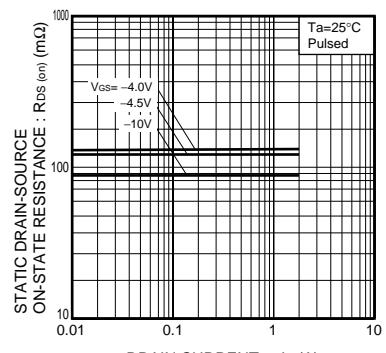


Fig.10 Static Drain-Source  
On-State Resistance vs.  
Drain current ( IV )

## Appendix

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