

# 4V Drive Pch MOSFET

## RSL020P03

### ●Structure

Silicon P-channel MOSFET

### ●Features

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

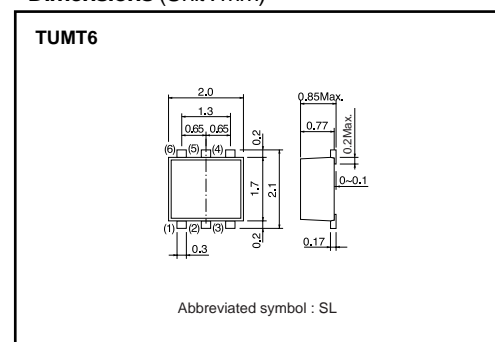
### ●Applications

Switching

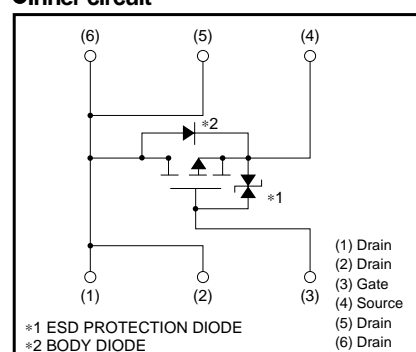
### ●Packaging specifications

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>sta</sub>	−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	$R_{th(ch-a)}$ *	125	°C/W

\* Mounted on a ceramic board

## Transistors

## ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	$I_{GSS}$	—	—	$\pm 10$	$\mu A$	$V_{GS} = \pm 20V, V_{DS} = 0V$
Drain-source breakdown voltage	$V_{(BR) DSS}$	-30	—	—	V	$I_D = -1mA, V_{GS} = 0V$
Zero gate voltage drain current	$I_{DSS}$	—	—	-1	$\mu A$	$V_{DS} = -30V, V_{GS} = 0V$
Gate threshold voltage	$V_{GS(th)}$	-1.0	—	-2.5	V	$V_{DS} = -10V, I_D = -1mA$
Static drain-source on-state resistance	$R_{DS(on)}^*$	—	80	120	m $\Omega$	$I_D = -2A, V_{GS} = -10V$
		—	125	190	m $\Omega$	$I_D = -1A, V_{GS} = -4.5V$
		—	140	210	m $\Omega$	$I_D = -1A, V_{GS} = -4.0V$
Forward transfer admittance	$ Y_{fs} ^*$	1.4	—	—	S	$V_{DS} = -10V, I_D = -1A$
Input capacitance	$C_{iss}$	—	350	—	pF	$V_{DS} = -10V$
Output capacitance	$C_{oss}$	—	80	—	pF	$V_{GS} = 0V$
Reverse transfer capacitance	$C_{rss}$	—	50	—	pF	$f = 1MHz$
Turn-on delay time	$t_{d(on)}^*$	—	11	—	ns	$V_{DD} = -15V$
Rise time	$t_r^*$	—	11	—	ns	$I_D = -1A$
Turn-off delay time	$t_{d(off)}^*$	—	35	—	ns	$V_{GS} = -10V$
Fall time	$t_f^*$	—	11	—	ns	$R_L = 15\Omega$ $R_G = 10\Omega$
Total gate charge	$Q_g$	—	3.9	—	nC	$V_{DD} = -15V, V_{GS} = -5V$
Gate-source charge	$Q_{gs}$	—	1.3	—	nC	$I_D = -2A$
Gate-drain charge	$Q_{gd}$	—	1.1	—	nC	$R_L = 7.5\Omega, R_G = 10\Omega$

\*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_{SD}$	—	—	-1.2	V	$I_S = -0.8A, V_{GS} = 0V$

## Transistors

## ●Electrical characteristics curves

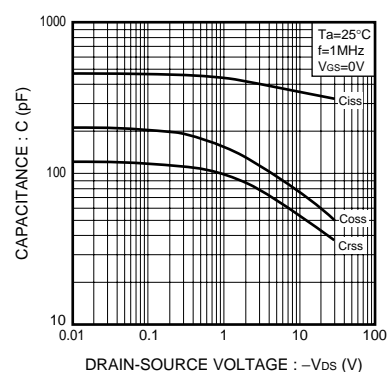


Fig.1 Typical Capacitance vs. Drain-Source Voltage

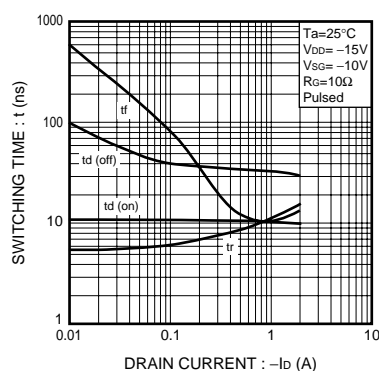


Fig.2 Switching Characteristics

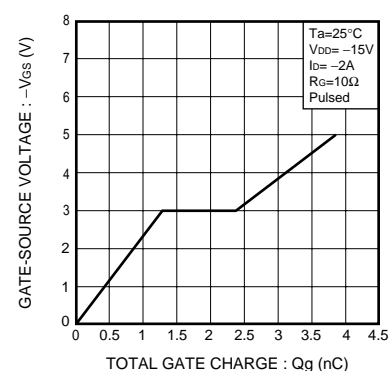


Fig.3 Dynamic Input Characteristics

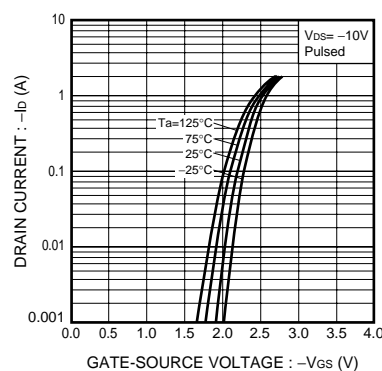


Fig.4 Typical Transfer Characteristics

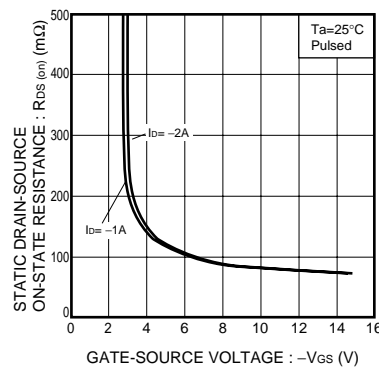


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

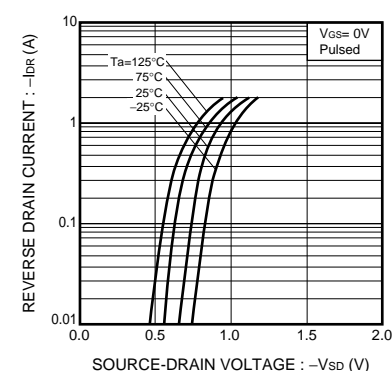


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

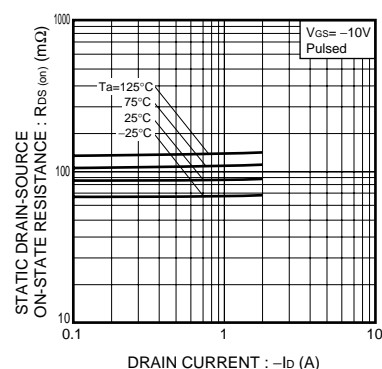


Fig.7 Static Drain-Source On-State Resistance vs. Drain current ( I )

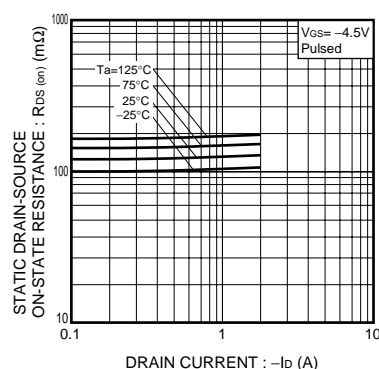


Fig.8 Static Drain-Source On-State Resistance vs. Drain current ( II )

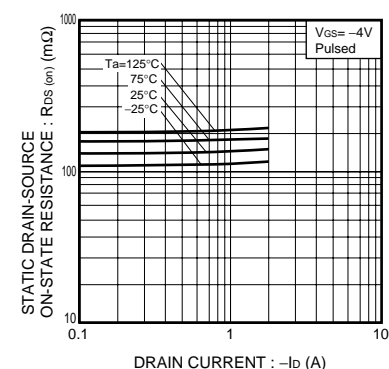


Fig.9 Static Drain-Source On-State Resistance vs. Drain current ( III )

## Transistors

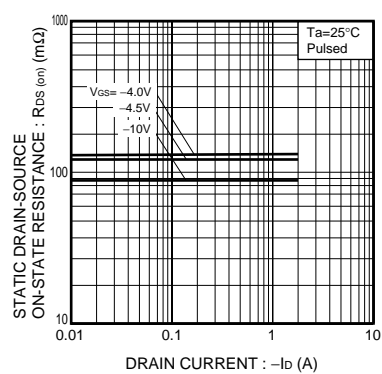


Fig.10 Static Drain-Source  
On-State Resistance vs.  
Drain current (  $I_D$  )

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