

Transistors

# 4V Drive Pch MOSFET

## RSR015P03

●Structure

Silicon P-channel MOSFET

●Features

- 1) Low On-resistance
- 2) Space saving—small surface mount package (TSMT3)
- 3) 4V drive

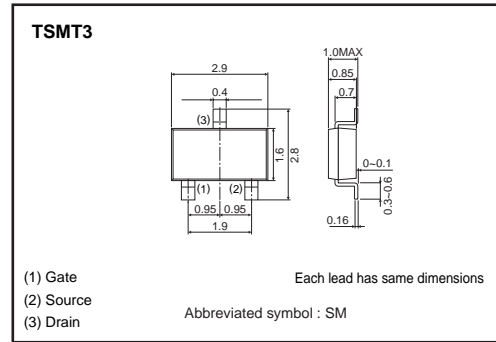
●Applications

Switching

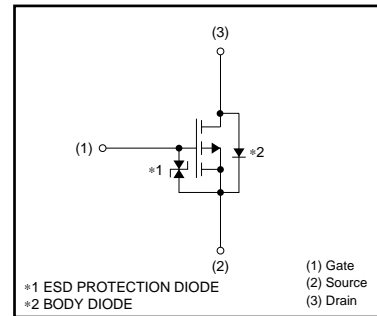
●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RSR015P03		○

●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>	±1.5 A
	Pulsed	I <sub>DP</sub> *1	±6 A
Source current (Body diode)	Continuous	I <sub>S</sub>	-0.5 A
	Pulsed	I <sub>SP</sub> *1	-6 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

## 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	$R_{DS(on)}$ *	–	170	235	mΩ	$I_D = -1.5A, V_{GS} = -10V$
		–	270	375	mΩ	$I_D = -0.8A, V_{GS} = -4.5V$
		–	320	440	mΩ	$I_D = -0.8A, V_{GS} = -4V$
Forward transfer admittance	$ Y_{fs} $ *	0.9	–	–	S	$V_{DS} = -10V, I_D = -0.8A$
Input capacitance	$C_{iss}$	–	190	–	pF	$V_{DS} = -10V$
Output capacitance	$C_{oss}$	–	45	–	pF	$V_{GS}=0V$
Reverse transfer capacitance	$C_{rss}$	–	30	–	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$ *	–	6	–	ns	$V_{DD} = -15V$
Rise time	$t_r$ *	–	8	–	ns	$I_D = -0.8A$
Turn-off delay time	$t_{d(off)}$ *	–	22	–	ns	$V_{GS} = -10V$
Fall time	$t_f$ *	–	6	–	ns	$R_L=19\Omega$
Total gate charge	$Q_g$ *	–	2.6	–	nC	$V_{DD} = -15V, V_{GS} = -5V$
Gate-source charge	$Q_{gs}$ *	–	1.0	–	nC	$I_D = -1.5A$
Gate-drain charge	$Q_{gd}$ *	–	0.7	–	nC	$R_L=10\Omega, R_G=10\Omega$

\*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_{SD}$	–	–	–1.2	V	$I_S = -0.5A, V_{GS}=0V$

Transistors

●Electrical characteristics curves

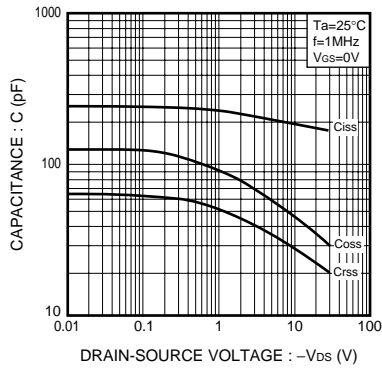


Fig.1 Typical Capacitance vs. Drain-Source Voltage

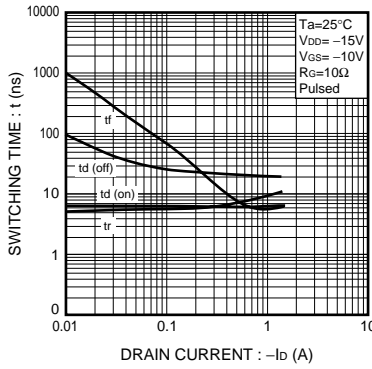


Fig.2 Switching Characteristics

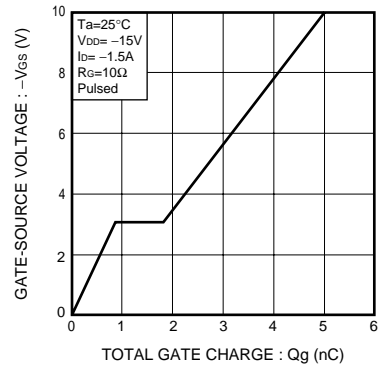


Fig.3 Dynamic Input Characteristics

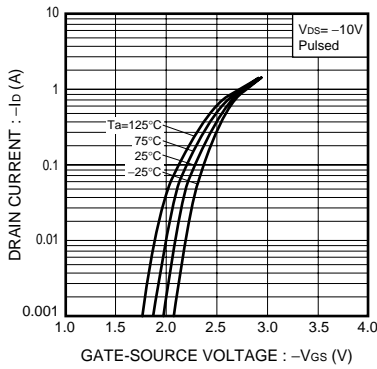


Fig.4 Typical Transfer Characteristics

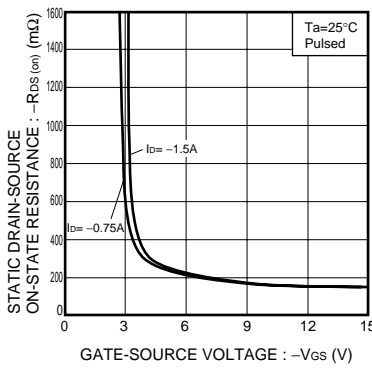


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

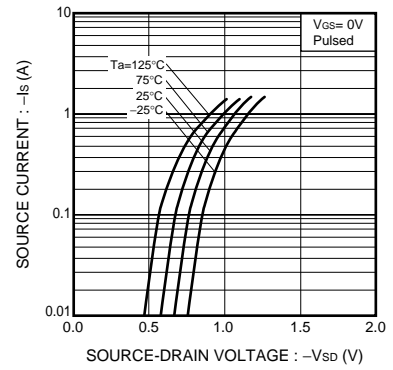


Fig.6 Source Current vs. Source-Drain Voltage

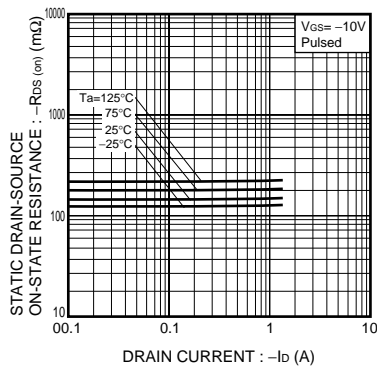


Fig.7 Static Drain-Source On-State Resistance vs. Drain current ( I )

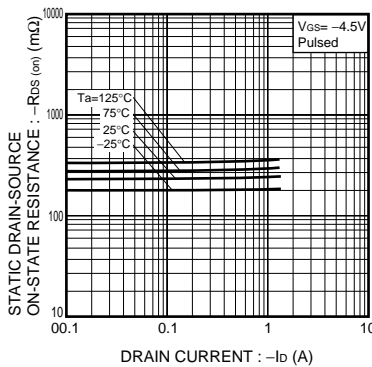


Fig.8 Static Drain-Source On-State Resistance vs. Drain current ( II )

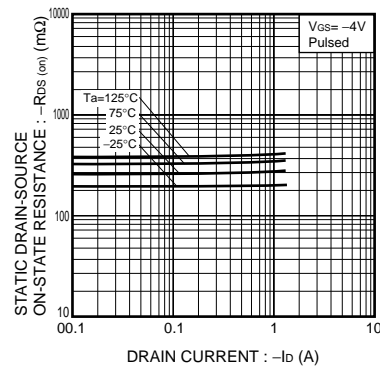


Fig.9 Static Drain-Source On-State Resistance vs. Drain current ( III )

Transistors

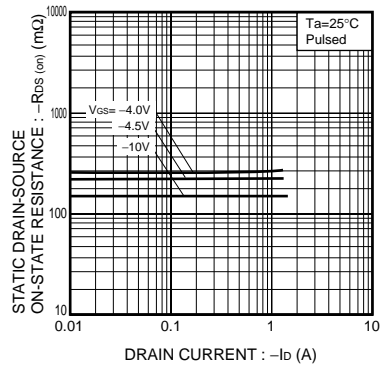


Fig.10 Static Drain-Source On-State Resistance vs. Drain current ( IV )

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