4V Drive Pch MOSFET

RSR020P03

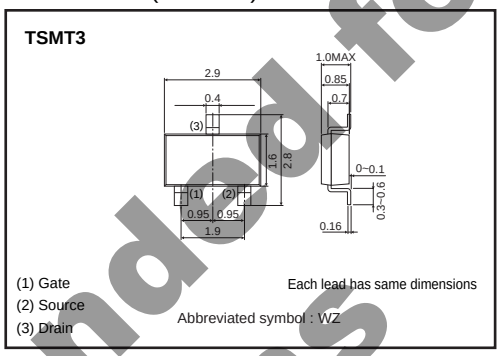
Not Recommended for New Designs

●Structure
Silicon P-channel MOSFET

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

●Applications
Switching

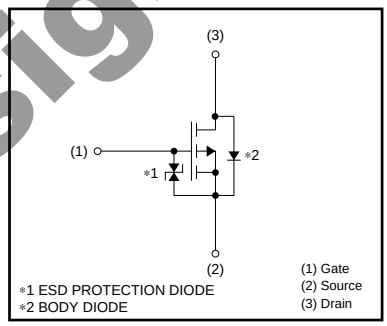
●Dimensions (Unit : mm)



●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RSR020P03		◯

●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	–30	V
Gate-source voltage		V_{GSS}	±20	V
Drain current	Continuous	I_D	±2	A
	Pulsed	I_{DP} ∗1	±8	A
Source current (Body diode)	Continuous	I_S	–0.8	A
	Pulsed	I_{SP} ∗1	–8	A
Total power dissipation		P_D ∗2	1	W
Channel temperature		Tch	150	°C
Range of storage temperature		Tstg	–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	Rth(ch-a) ∗	125	°C/W

∗ Mounted on a ceramic board

Downloaded from Arrow.com.

●**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	$R_{DS\ (on)}$*	–	85	120	mΩ	I_D= –2A, V_{GS}= –10V
		–	135	190	mΩ	I_D= –1A, V_{GS}= –4.5V
		–	150	210	mΩ	I_D= –1A, V_{GS}= –4V
Forward transfer admittance	$\|Y_{fs}\|$ *	1.4	–	–	S	V_{DS}= –10V, I_D= –1A
Input capacitance	C_{iss}	–	370	–	pF	V_{DS}= –10V
Output capacitance	C_{oss}	–	80	–	pF	V_{GS}=0V
Reverse transfer capacitance	C_{rss}	–	55	–	pF	f=1MHz
Turn-on delay time	$t_{d\ (on)}$ *	–	8	–	ns	V_{DD}≒ –15V
Rise time	t_r *	–	10	–	ns	I_D= –1A
Turn-off delay time	$t_{d\ (off)}$ *	–	35	–	ns	V_{GS}= – 10V
Fall time	t_f *	–	11	–	ns	R_L=15Ω
						R_G=10Ω
Total gate charge	Q_g *	–	4.3	–	nC	V_{DD}≒ –15V V_{GS}= –5V
Gate-source charge	Q_{gs} *	–	1.4	–	nC	I_D= –2A
Gate-drain charge	Q_{gd} *	–	1.5	–	nC	R_L=7.5Ω 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= –0.8A, V_{GS}=0V

*Pulsed

Not Recommended for New Designs

Downloaded from Arrow.com.

●Electrical characteristics curves

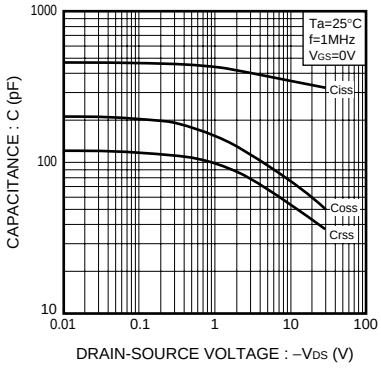


Fig.1 Typical Capacitance vs. Drain-Source Voltage

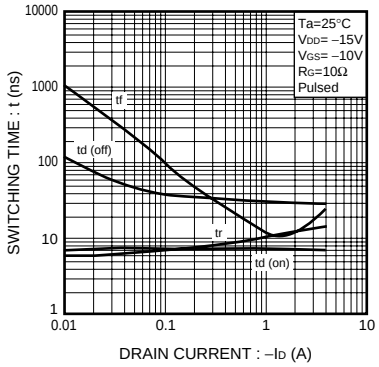


Fig.2 Switching Characteristics

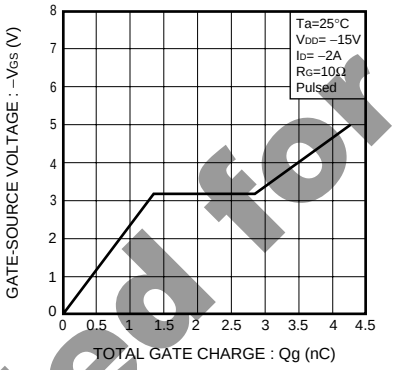


Fig.3 Dynamic Input Characteristics

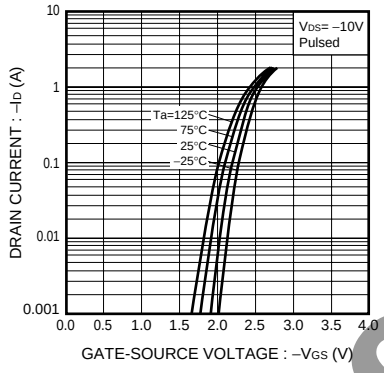


Fig.4 Typical Transfer Characteristics

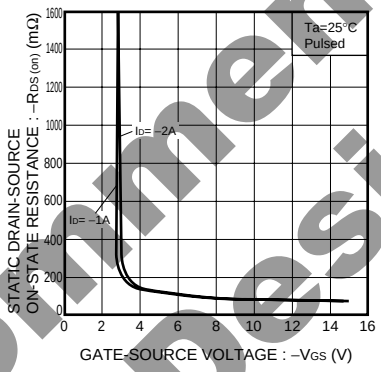


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

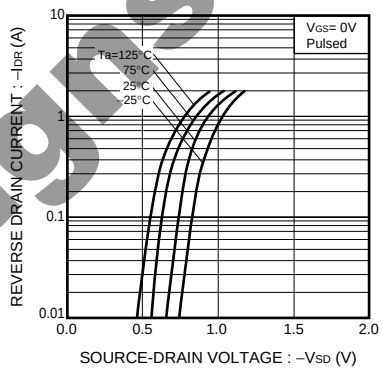


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

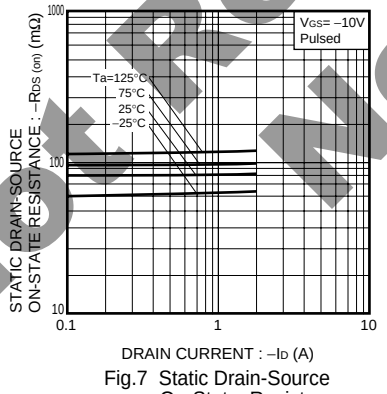


Fig.7 Static Drain-Source On-State Resistance vs. Drain current (I)

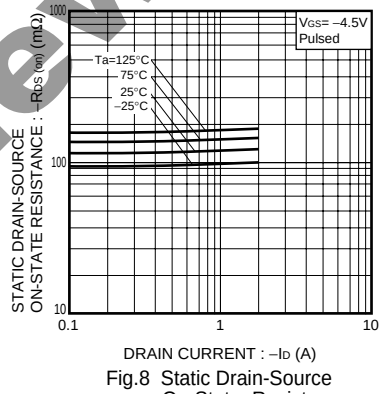


Fig.8 Static Drain-Source On-State Resistance vs. Drain current (II)

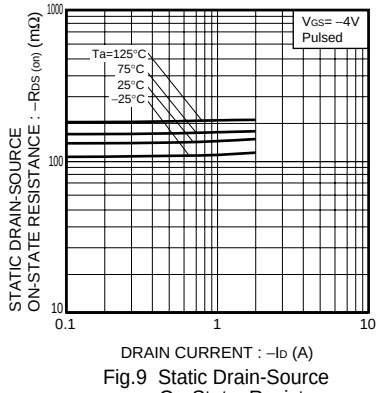


Fig.9 Static Drain-Source On-State Resistance vs. Drain current (III)

Not Recommended for New Designs

Downloaded from Arrow.com.

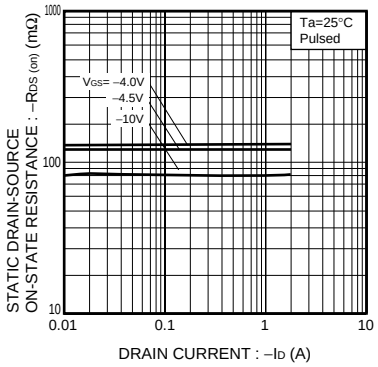


Fig.10 Static Drain-Source On-State Resistance vs. Drain current (Ⅳ)

Not Recommended for New Designs

Downloaded from Arrow.com.

Notes

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications :

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Poducts beyond the rating specified by ROHM.

4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.

6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.

7) The Products specified in this document are not designed to be radiation tolerant.

8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.

9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.

10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.

11) ROHM has used reasonable care to ensur the accuracy of the information contained in this document. However, ROHM does not warrants that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.

12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.

13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.

14) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.

Not Recommended for New Designs

ROHM SEMICONDUCTOR

Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

http://www.rohm.com/contact/

© 2013 ROHM Co., Ltd. All rights reserved.

Downloaded from Arrow.com.