

Transistors

2.5V Drive Pch MOS FET

RTR025P02

●Features

- 1) Low On-resistance.
- 2) Built-in G-S Protection Diode.
- 3) Small and Surface Mount Package (TSMT3).

●Application

Power switching, DC / DC converter.

●Structure

Silicon P-channel
MOS FET

●Packaging specifications

Type	Package	Taping
	Code	TL
RTR025P02	3000	○

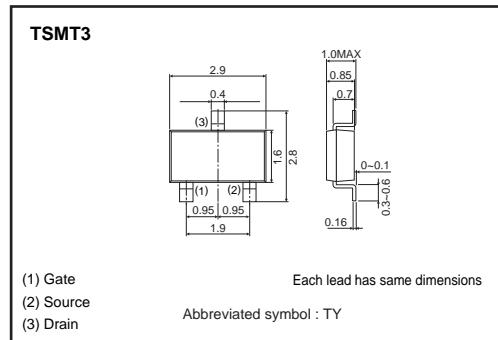
●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	V _{DSS}	-20	V
Gate-source voltage	V _{GSS}	±12	V
Drain current	Continuous I _D	±2.5	A
	Pulsed I _{DP} *1	±10	A
Source current (Body diode)	Continuous I _S	-0.8	A
	Pulsed I _{SP} *1	-3.2	A
Total power dissipation	P _D *2	1.0	W
Channel temperature	T _{CH}	150	°C
Range of Storage temperature	T _{STG}	-55 to +150	°C

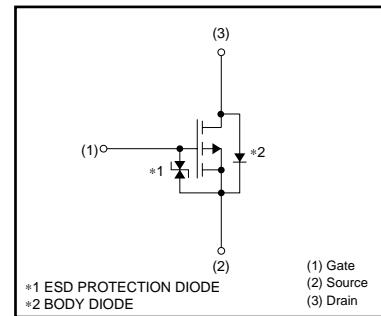
*1 Pw≤10μs, Duty cycle≤1%

*2 Mounted on a ceramic board

●External dimensions (Unit : mm)



●Equivalent circuit



●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	R _{th} (ch-a) *	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 _{GSS}	—	—	±10	µA	V _{GS} =±12V, V _{DS} =0V
Drain-source breakdown voltage	V _{(BR) DSS}	—20	—	—	V	I _D =—1mA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	—	—	—1	µA	V _{DS} =—20V, V _{GS} =0V
Gate threshold voltage	V _{GS (th)}	—0.7	—	—2.0	V	V _{DS} =—10V, I _D =—1mA
Static drain-source on-state resistance	R _{DS (on)} *	—	70	95	mΩ	I _D =—2.5A, V _{GS} =—4.5V
		—	75	105	mΩ	I _D =—2.5A, V _{GS} =—4.0V
		—	115	160	mΩ	I _D =—1.25A, V _{GS} =—2.5V
Forward transfer admittance	Y _{fs} *	2.3	—	—	S	V _{DS} =—10V, I _D =—1.2A
Input capacitance	C _{iss}	—	630	—	pF	V _{DS} =—10V
Output capacitance	C _{oss}	—	110	—	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	—	75	—	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	—	12	—	ns	I _D =—1.25A
Rise time	t _r *	—	18	—	ns	V _{DD} =—15V
Turn-off delay time	t _{d (off)} *	—	50	—	ns	V _{GS} =—4.5V
Fall time	t _f *	—	20	—	ns	R _L =12Ω
Total gate charge	Q _g	—	7	—	nC	V _{DD} =—15V
Gate-source charge	Q _{gs}	—	1.5	—	nC	V _{GS} =—4.5V
Gate-drain charge	Q _{gd}	—	2.0	—	nC	I _D =—2.5A

*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

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●Electrical characteristic curves

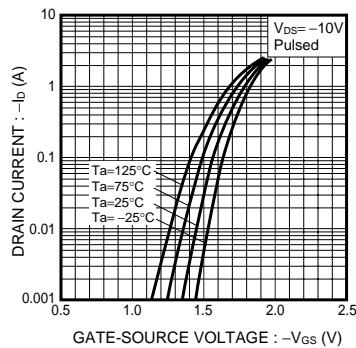


Fig.1 Typical Transfer Characteristics

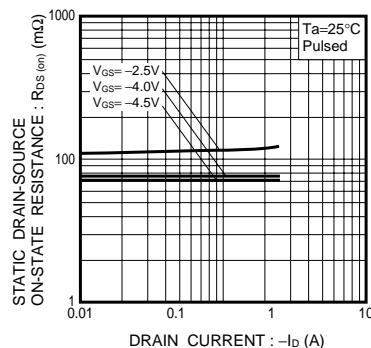


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current

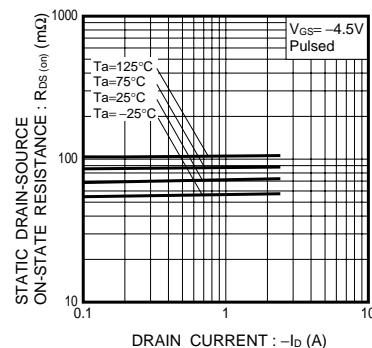


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current

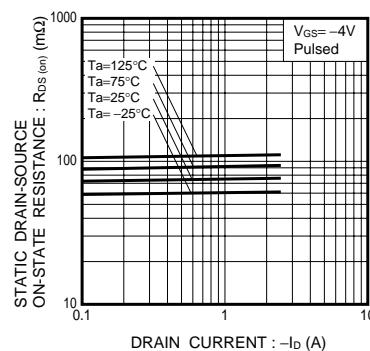


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current

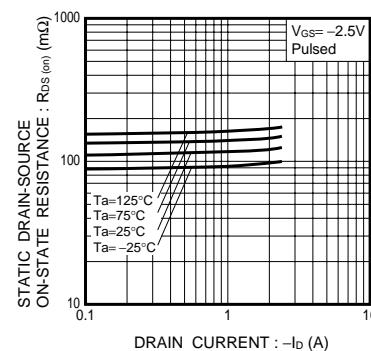


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

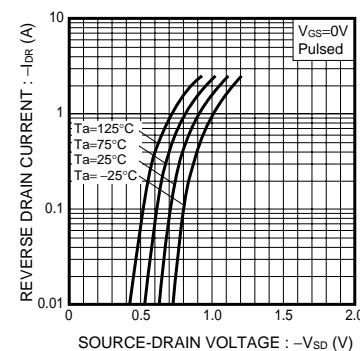


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

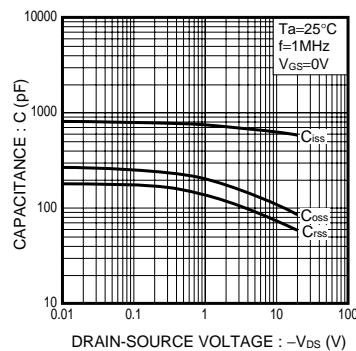


Fig.7 Typical Capacitance vs. Drain-Source Voltage

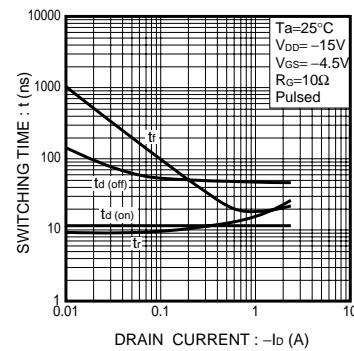


Fig.8 Switching Characteristics

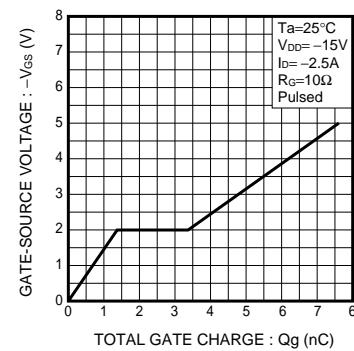


Fig.9 Dynamic Input Characteristics

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● Measurement circuits

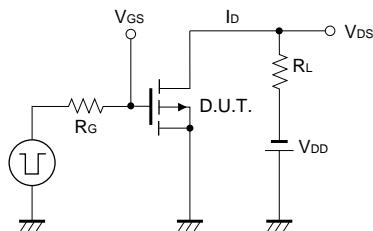


Fig.10 Switching Time Test Circuit

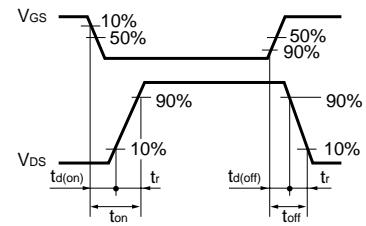


Fig.11 Switching Time Waveforms

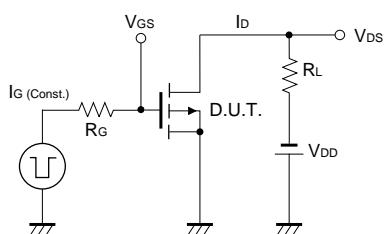


Fig.12 Gate Charge Test Circuit

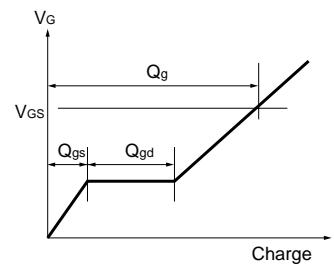


Fig.13 Gate Charge Waveform

Appendix

Notes

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RTR025P02 - Web Page[Distribution Inventory](#)

Part Number	RTR025P02
Package	TSMT3
Unit Quantity	3000
Minimum Package Quantity	3000
Packing Type	Taping
Constitution Materials List	inquiry
RoHS	Yes