

2.5V Drive Pch MOS FET

RTQ035P02FHA

●Structure

Silicon P-channel MOSFET

●Features

- 1) Low On-resistance.(80mΩ at 2.5V)
- 2) High Power Package.
- 3) High speed switching.
- 4) Low voltage drive.(2.5V)

●Applications

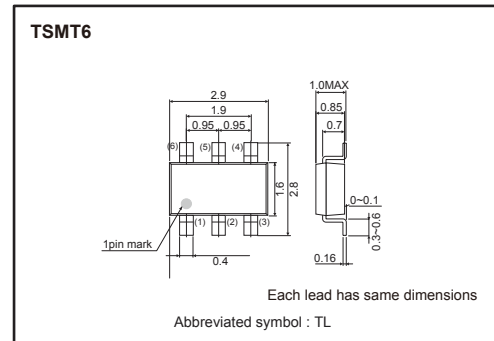
DC-DC converter

●Packaging specifications

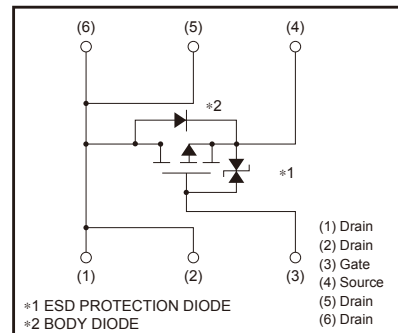
Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000

RTQ035P02FHA	○
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●External dimensions (Unit : mm)



●Equivalent circuit



●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	±3.5	A
	Pulsed	I_{DP} *1	±17.5	A
Source current (Body diode)	Continuous	I_S	-1	A
	Pulsed	I_{SP} *1	-4	A
Total power dissipation	P_D *2	1.25	W	
Channel temperature	T_{ch}	150	°C	
Range of Storage temperature	T_{stg}	-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	$R_{th}(ch-a)$ *	100	°C / W

* Mounted on a ceramic board.

Transistor

●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)} [*]	–	50	65	mΩ	I _D =–3.5A, V _{GS} =–4.5V
		–	55	70	mΩ	I _D =–3.5A, V _{GS} =–4V
		–	80	100	mΩ	I _D =–1.75A, V _{GS} =–2.5V
Forward transfer admittance	Y _{fs} [*]	3.5	–	–	S	V _{DS} =–10V, I _D =–3.5A
Input capacitance	C _{iss}	–	1200	–	pF	V _{DS} =–10V, V _{GS} =0V f=1MHz
Output capacitance	C _{oss}	–	200	–	pF	
Reverse transfer capacitance	C _{rss}	–	130	–	pF	
Turn-on delay time	t _{d(on)} [*]	–	16	–	ns	I _D =–2A V _{DD} =–15V V _{GS} =–4.5V R _L =7.5Ω R _G =10Ω
Rise time	t _r [*]	–	40	–	ns	
Turn-off delay time	t _{d(off)} [*]	–	55	–	ns	
Fall time	t _f [*]	–	30	–	ns	
Total gate charge	Q _g	–	10.5	–	nC	V _{DD} =–15V V _{GS} =–4.5V I _D =–3.5A
Gate-source charge	Q _{gs}	–	2.0	–	nC	
Gate-drain charge	Q _{gd}	–	3.5	–	nC	

*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 =–1A, V _{GS} =0V

Transistor

●Electrical characteristic curves

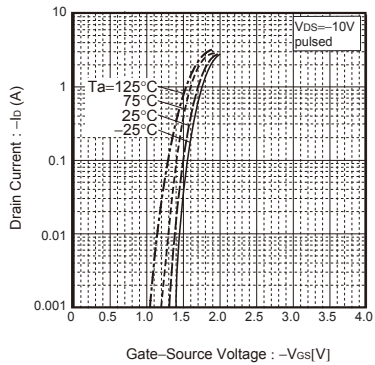


Fig.1 Typical Transfer Characteristics

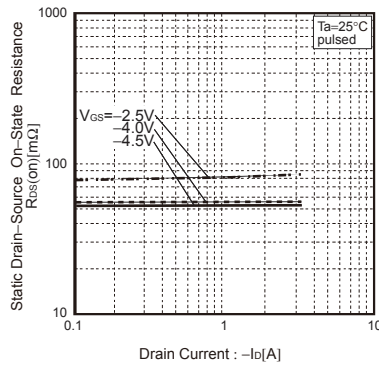


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current

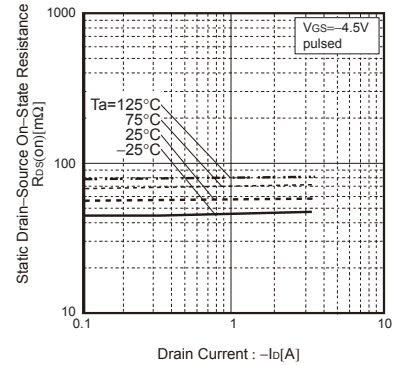


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current

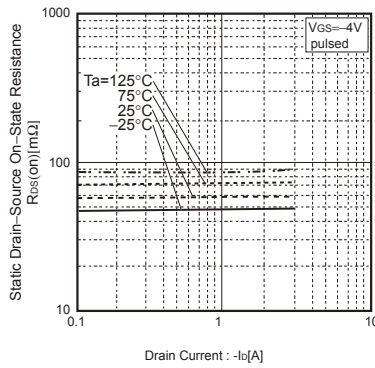


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current

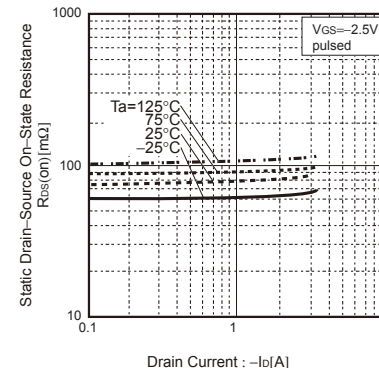


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

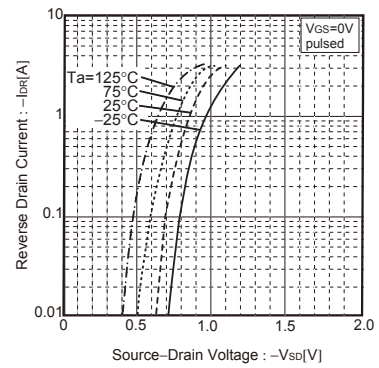


Fig.6 Reverse Drain Current vs. Source-Drain Voltage

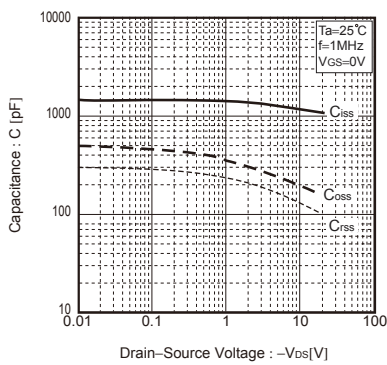


Fig.7 Typical Capacitance vs. Drain-Source Voltage

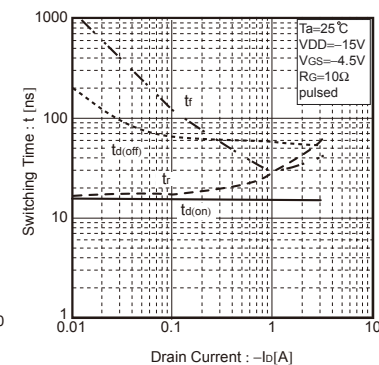


Fig.8 Switching Characteristics

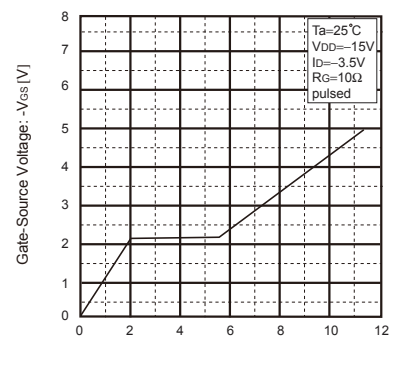


Fig.9 Dynamic Input Characteristics

Transistor

● Measurement circuits

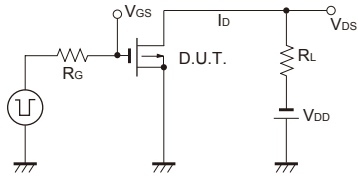


Fig.10 Switching Time Measurement Circuit

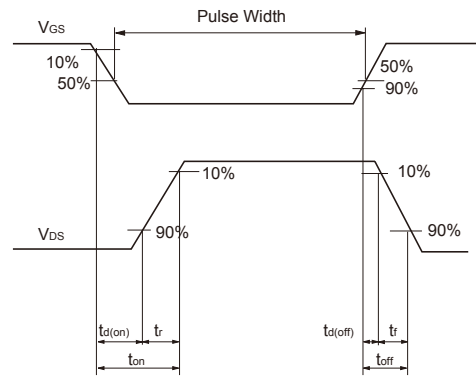


Fig.11 Switching Waveforms

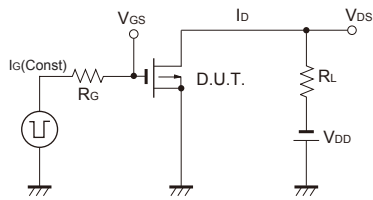


Fig.12 Gate Charge Measurement Circuit

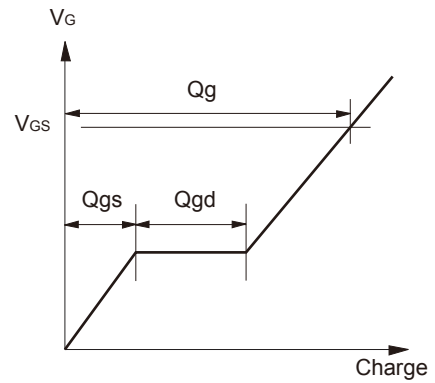


Fig.13 Gate Charge Waveforms

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JAPAN	USA	EU	CHINA
CLASS III	CLASS III	CLASS II b	CLASS III
CLASS IV		CLASS III	

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 - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Sealing or coating our Products with resin or other coating materials
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 - [h] Use of the Products in places subject to dew condensation
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5. Please verify and confirm characteristics of the final or mounted products in using the Products.
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7. De-rate Power Dissipation (Pd) depending on Ambient temperature (Ta). When used in sealed area, confirm the actual ambient temperature.
8. Confirm that operation temperature is within the specified range described in the product specification.
9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

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Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

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 - [d] the Products are exposed to high Electrostatic
2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
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RTQ035P02FHA - Web Page

Part Number	RTQ035P02FHA
Package	TSMT6
Unit Quantity	3000
Minimum Package Quantity	3000
Packing Type	Taping
Constitution Materials List	inquiry
RoHS	Yes

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