4V Drive Pch MOS FET

RSQ035P03

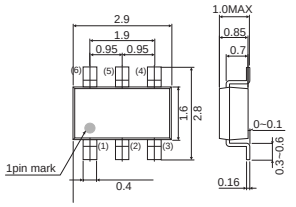
●Structure
Silicon P-channel MOSFET

●Features
1) Low On-resistance.(65mΩ at 4.5V)
2) High Power Package.
3) High speed switching.
4) Low voltage drive. (4V)

●Applications
DC-DC converter

●External dimensions (Unit : mm)

TSMT6



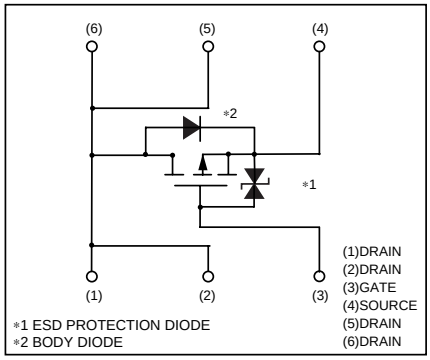
Each lead has same dimensions

Abbreviated symbol : TM

●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
RSQ035P03		○

●Equivalent circuit



∗1 ESD PROTECTION DIODE
∗2 BODY DIODE

●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	±3.5	A
	Pulsed	I_{DP} ∗1	±14	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		Tch	150	°C
Range of Strage 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) ∗	100	°C / W

∗ Mounted on a ceramic board.

●**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	$R_{DS(on)}$ *	–	45	65	mΩ	I_D=–3.5A, V_{GS}=–10V
		–	65	90	mΩ	I_D=–3.5A, V_{GS}=–4.5V
		–	70	95	mΩ	I_D=–1.75A, V_{GS}=–4.0V
Foward transfer admittance	$\|Y_{fs}\|$ *	2.0	–	–	S	V_{DS}=–10V, I_D=–1.75A
Input capacitance	C_{iss}	–	780	–	pF	V_{DS}=–10V,V_{GS}=0V f=1MHz
Output capacitance	C_{oss}	–	180	–	pF	
Reverse transfer capacitance	C_{rss}	–	130	–	pF	
Turn-on delay time	$t_{d(on)}$ *	–	15	–	ns	I_D=–1.75A V_{DD}≒–15V V_{GS}=–10V R_L=8.6Ω R_G=10Ω
Rise time	t_r *	–	35	–	ns	
Turn-off delay time	$t_{d(off)}$ *	–	45	–	ns	
Fall time	t_f *	–	25	–	ns	
Total gate charge	Qg	–	9.2	–	nC	V_{DD}≒–15V V_{GS}=–5V I_D=–3.5A
Gate-source charge	Qgs	–	2.2	–	nC	
Gate-drain charge	Qgd	–	3.4	–	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

●**Electrical characteristic curves**

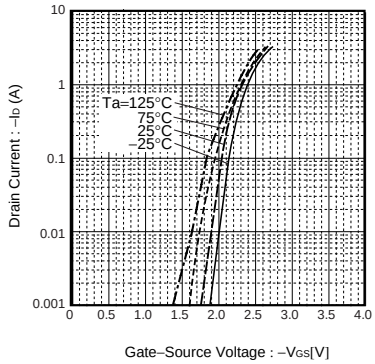


Fig.1 Typical Transfer Characteristics

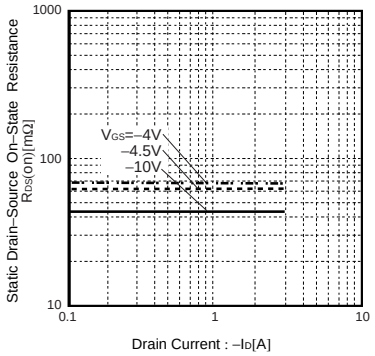


Fig.2 Static Drain–Source On–State Resistance vs.Drain Current

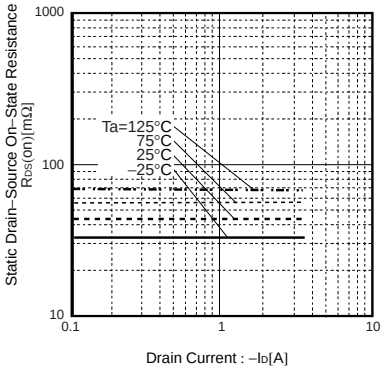


Fig.3 Static Drain–Source On–State Resistance vs.Drain Current

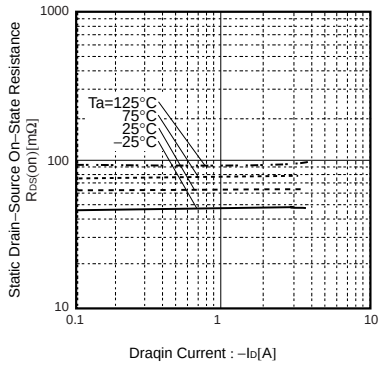


Fig.4 Static Drain–Source On–State vs.Drain–Current

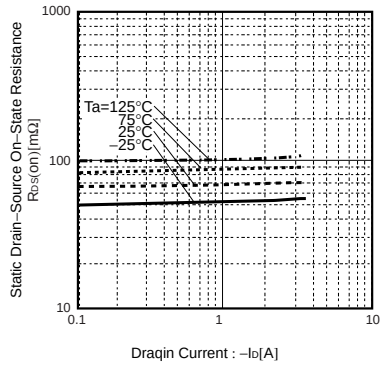


Fig.5 Static Drain–Source On–State vs.Drain–Current

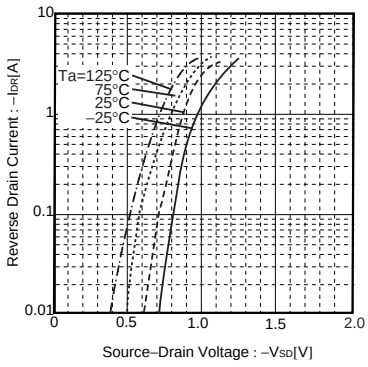


Fig.6 Reverse Drain Current Source-Drain Current

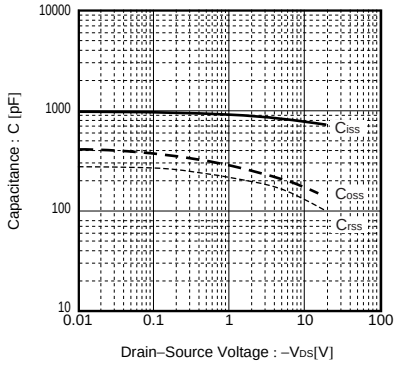


Fig.7 Typical Capactitance vs.Drain–Source Voltage

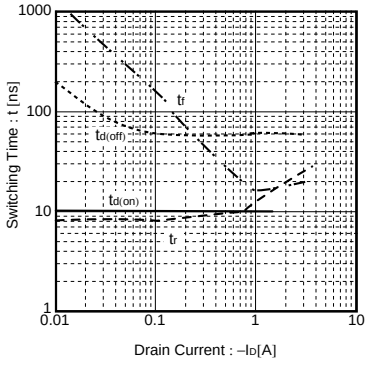


Fig.8 Switching Characteristics

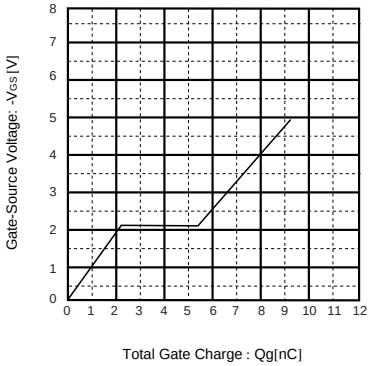


Fig.9 Dynamic Input Characteristics

●**Switching characteristics measurement circuits**

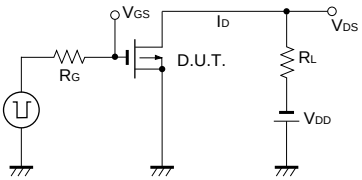


Fig.10 Switching Time Test Circuit

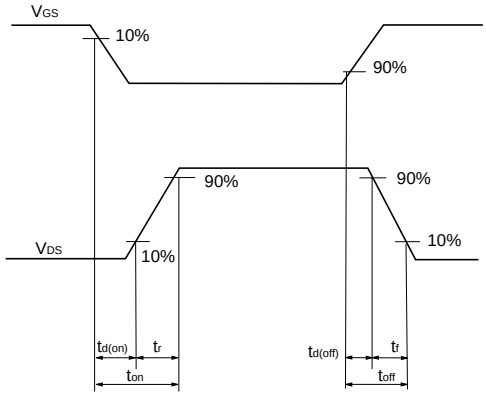


Fig.11 Switching Time Waveforms

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