

1.5V Drive Pch MOSFET

RZF030P01

●Structure

Silicon P-channel
MOSFET

●Features

- 1) Low on-resistance.
- 2) High power package.
- 3) Low voltage drive. (1.5V)

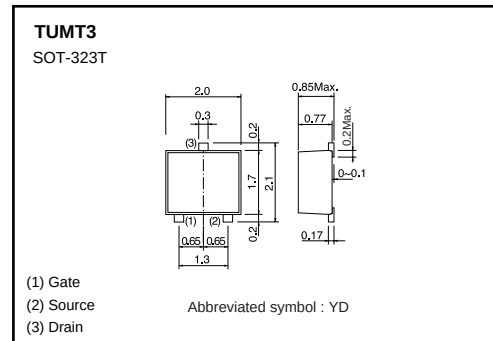
●Applications

Switching

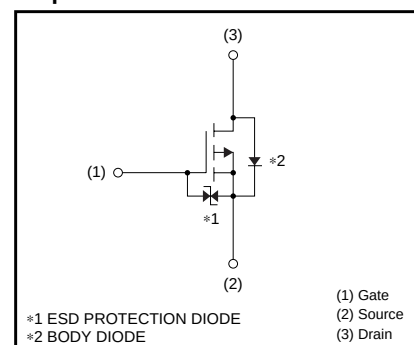
●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RZF030P01		○

●Dimensions (Unit : mm)



●Equivalent circuit



●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DS}	-12	V
Gate-source voltage		V_{GS}	±10	V
Drain current	Continuous	I_D	±3	A
	Pulsed	I_{DP} *1	±12	A
Source current (Body diode)	Continuous	I_S *1	-0.65	A
	Pulsed	I_{SP}	-12	A
Total power dissipation		P_D *2	0.8	W
Channel temperature		T_{ch}	150	°C
Range of Storage temperature		T_{stg}	-55 to +150	°C

*1 $P_{ws} \leq 10 \mu s$, Duty cycle ≤ 1%

*2 Mounted on a ceramic board

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	$R_{th(ch-a)}$ *	156	°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	$V_{GS}=\pm 10V$, $V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	-12	—	—	V	$I_D = -1mA$, $V_{GS}=0V$
Zero gate voltage drain current	I_{DSS}	—	—	-1	μA	$V_{DS} = -12V$, $V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	-0.3	—	-1.0	V	$V_{DS} = -6V$, $I_D = -1mA$
Static drain-source on-state resistance	$R_{DS(on)}$ *	—	28	39	m Ω	$I_D = -3A$, $V_{GS} = -4.5V$
		—	39	54	m Ω	$I_D = -1.5A$, $V_{GS} = -2.5V$
		—	51	76	m Ω	$I_D = -1.5A$, $V_{GS} = -1.8V$
		—	72	144	m Ω	$I_D = -0.6A$, $V_{GS} = -1.5V$
Forward transfer admittance	$ Y_{fs} $ *	5	—	—	S	$V_{DS} = -6V$, $I_D = -3A$
Input capacitance	C_{iss}	—	1860	—	pF	$V_{DS} = -6V$
Output capacitance	C_{oss}	—	210	—	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	—	200	—	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$ *	—	9	—	ns	$I_D = -1.5A$
Rise time	t_r *	—	40	—	ns	$V_{DD} \div -6V$
Turn-off delay time	$t_{d(off)}$ *	—	210	—	ns	$V_{GS} = -4.5V$
Fall time	t_f *	—	120	—	ns	$R_L \div 4\Omega$
Total gate charge	Q_g *	—	18	—	nC	$V_{DD} \div -6V$ $R_L \div 2\Omega$
Gate-source charge	Q_{gs} *	—	3.0	—	nC	$I_D = -3A$ $R_G=10\Omega$
Gate-drain charge	Q_{gd} *	—	2.5	—	nC	$V_{GS} = -4.5V$

*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{SD} *	—	—	-1.2	V	$I_S = -3A$, $V_{GS}=0V$

*Pulsed

●Electrical characteristic curves

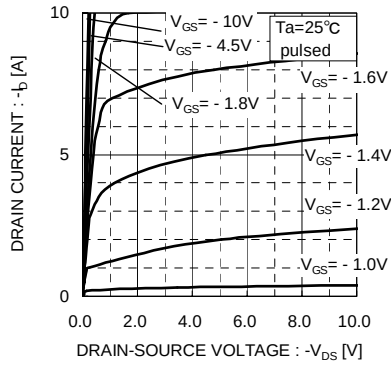


Fig.1 Typical Output Characteristics (I)

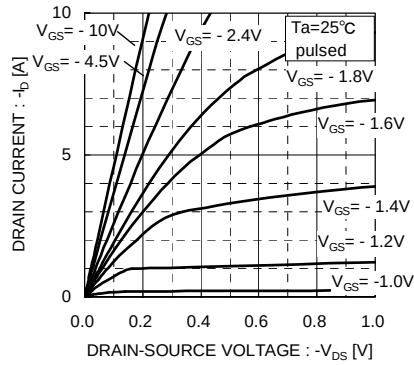


Fig.2 Typical Output Characteristics (II)

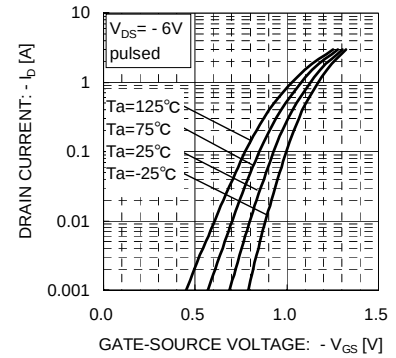


Fig.3 Typical Transfer Characteristics

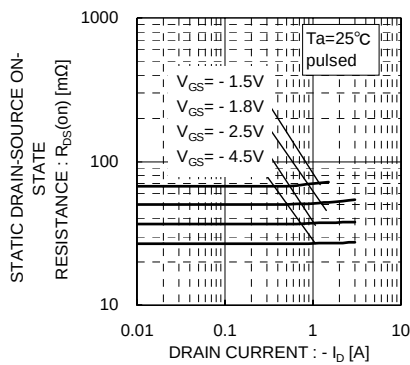


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current

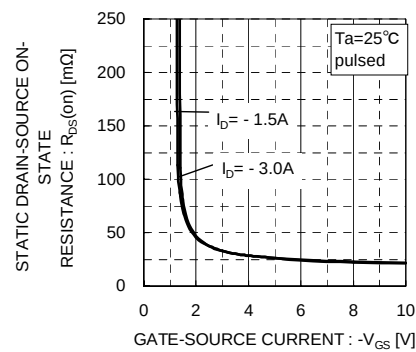


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

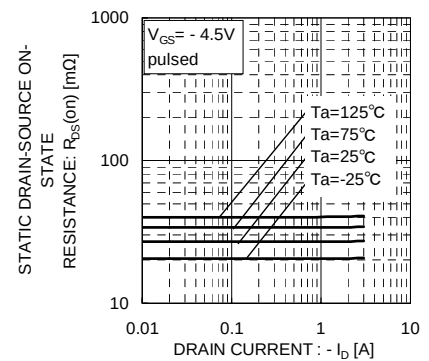


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current

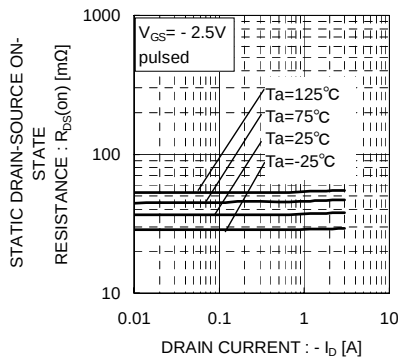


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current

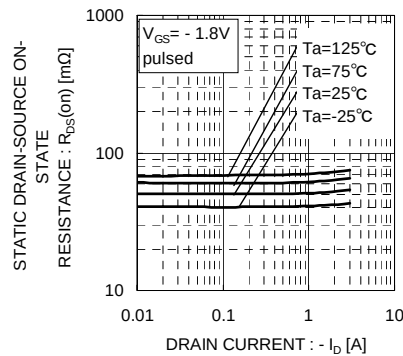


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current

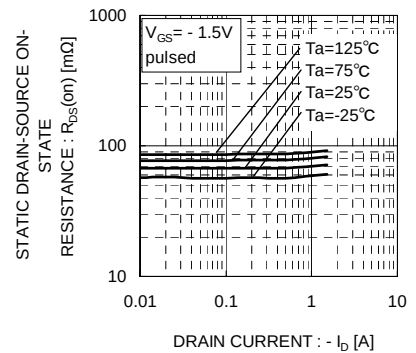


Fig.9 Static Drain-Source On-State Resistance vs. Drain Current

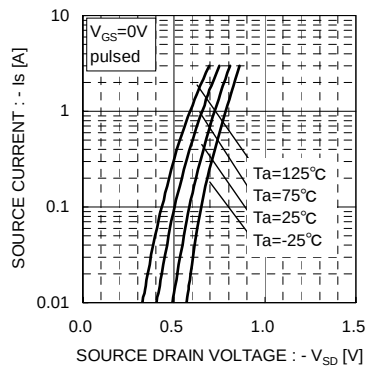


Fig.10 Source Current vs.
Source-Drain Voltage

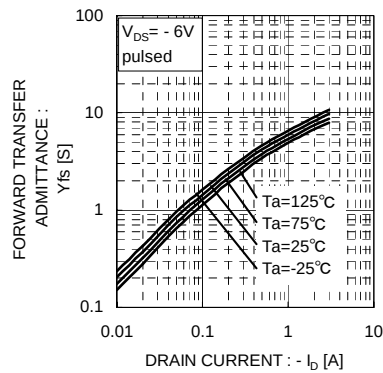


Fig.11 Forward Transfer Admittance
vs. Drain Current

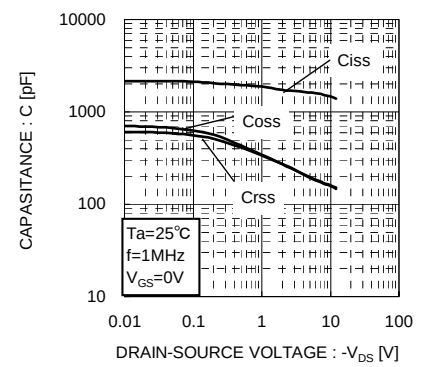


Fig.12 Typical Capacitance
vs. Drain-Source Voltage

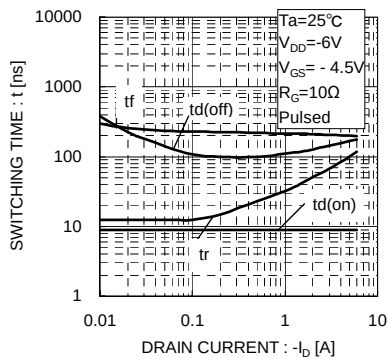


Fig.13 Switching Characteristics

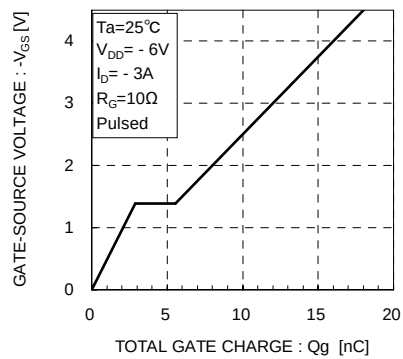


Fig.14 Dynamic Input Characteristics

●Measurement circuits

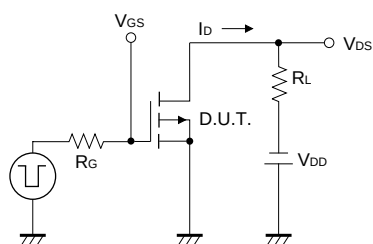


Fig.1-1 Switching Time Measurement Circuit

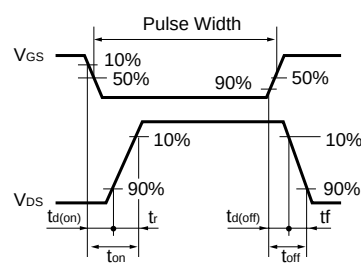


Fig.1-2 Switching Waveforms

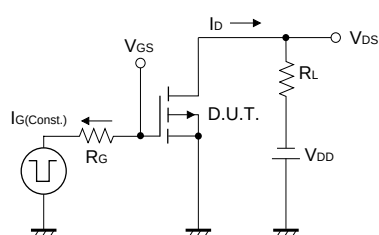


Fig.2-1 Gate Charge Measurement Circuit

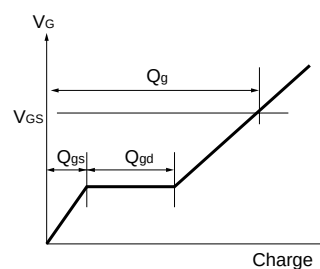


Fig.2-2 Gate Charge Waveforms

●Notice

This product might cause chip aging and breakdown under the large electrified environment. Please consider to design ESD protection circuit.

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