

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)

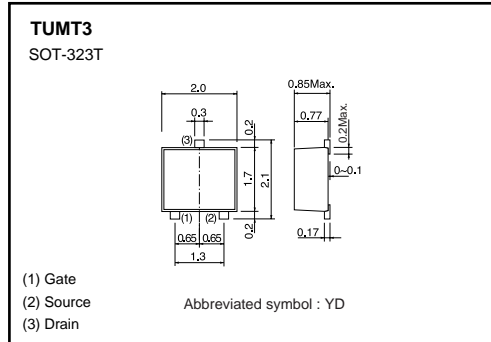
●Applications

Switching

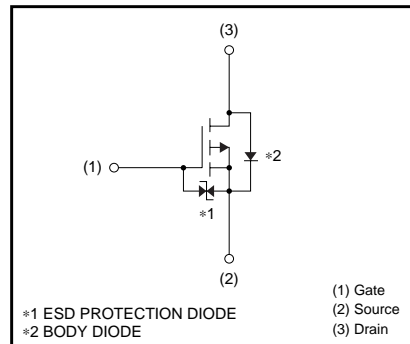
●Packaging specifications

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 _{DSS}	-12	V
Gate-source voltage	V _{GSS}	±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 Pw≤10μs, Duty cycles≤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} =±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	mΩ	I _D = -3A, V _{GS} = -4.5V
		-	39	54	mΩ	I _D = -1.5A, V _{GS} = -2.5V
		-	51	76	mΩ	I _D = -1.5A, V _{GS} = -1.8V
		-	72	144	mΩ	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 _{riss}	-	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} ≐ -6V
Turn-off delay time	t _{d(off)} *	-	210	-	ns	V _{GS} = -4.5V
Fall time	t _f *	-	120	-	ns	R _L ≐ 4Ω
Total gate charge	Q _g *	-	18	-	nC	V _{DD} ≐ -6V R _L ≐ 2Ω
Gate-source charge	Q _{gs} *	-	3.0	-	nC	I _D = -3A R _G =10Ω
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

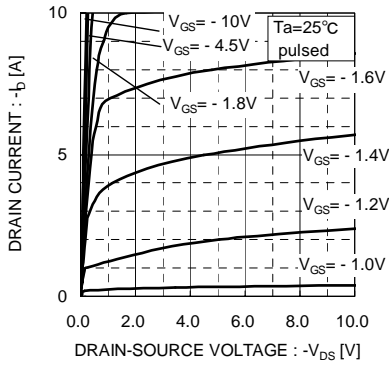


Fig.1 Typical Output Characteristics (I)

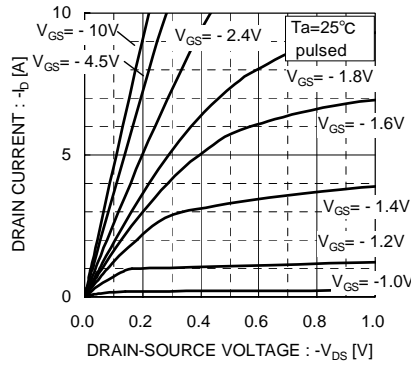


Fig.2 Typical Output Characteristics (II)

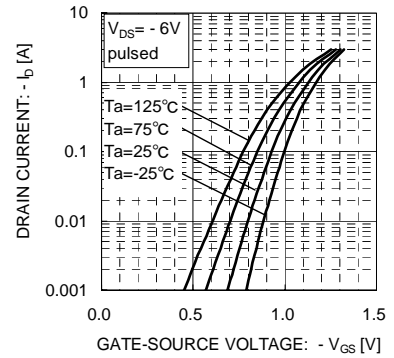


Fig.3 Typical Transfer Characteristics

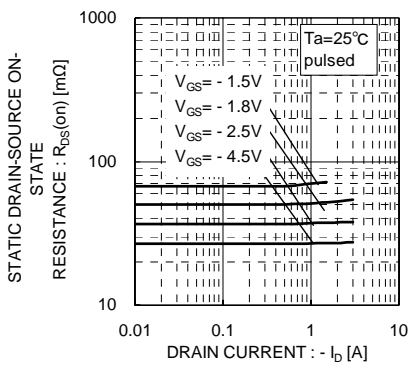


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current

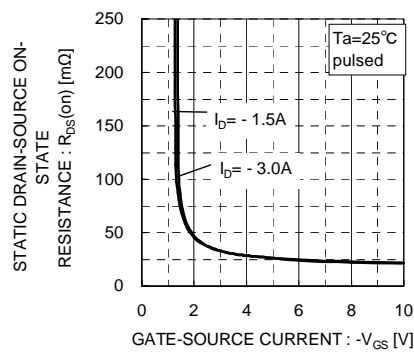


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

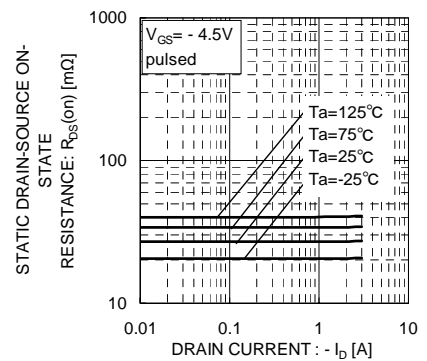


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current

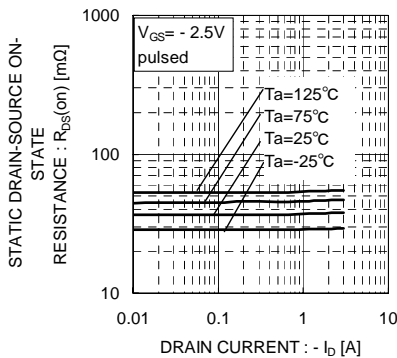


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current

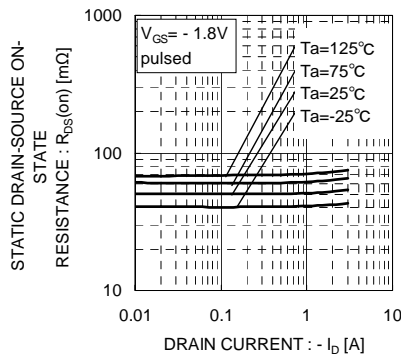


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current

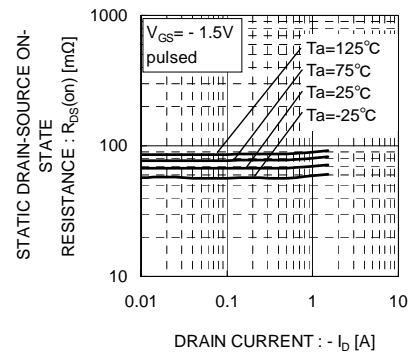


Fig.9 Static Drain-Source On-State Resistance vs. Drain Current

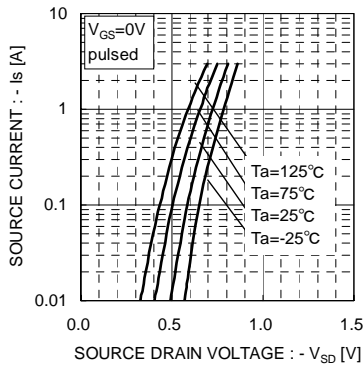


Fig.10 Source Current vs. Source-Drain Voltage

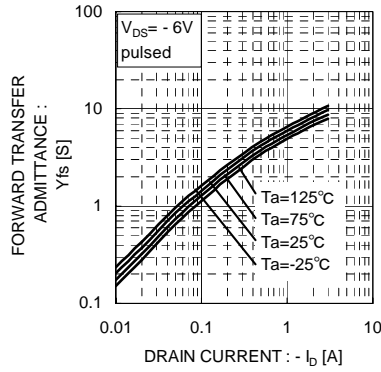


Fig.11 Forward Transfer Admittance vs. Drain Current

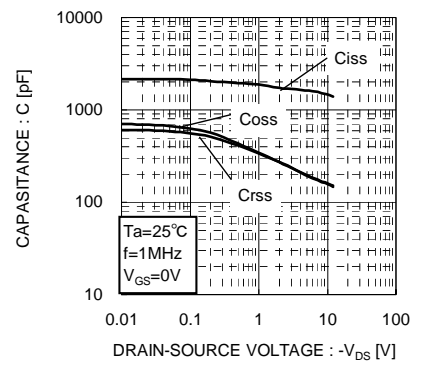


Fig.12 Typical Capacitance vs. Drain-Source Voltage

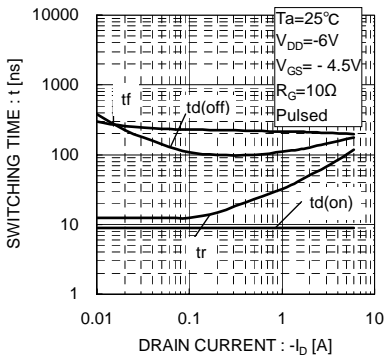


Fig.13 Switching Characteristics

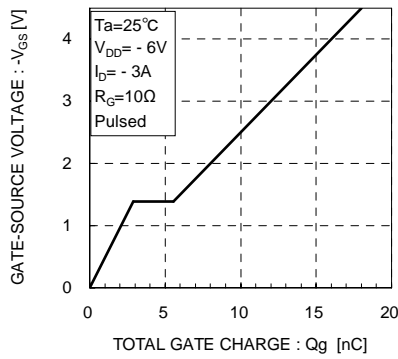


Fig.14 Dynamic Input Characteristics

●Measurement circuits

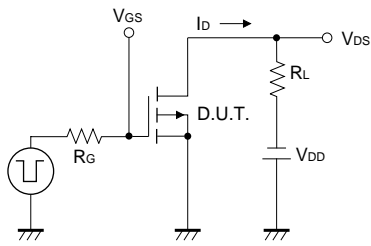


Fig.1-1 Switching Time Measurement Circuit

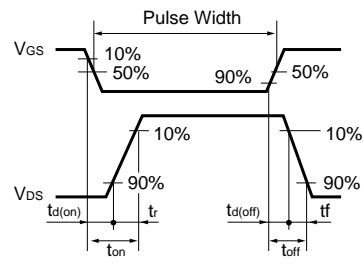


Fig.1-2 Switching Waveforms

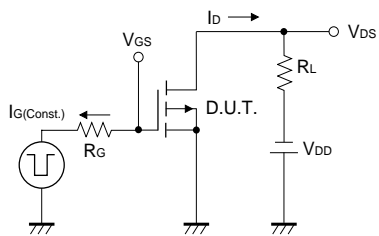


Fig.2-1 Gate Charge Measurement Circuit

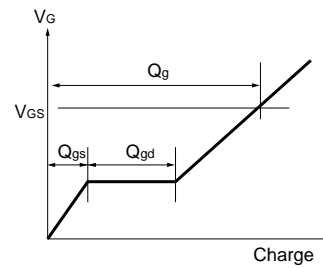


Fig.2-2 Gate Charge Waveforms

●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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