

1.5V Drive Pch MOSFET

RW1A020ZP

●Structure

Silicon P-channel MOSFET

● Features

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

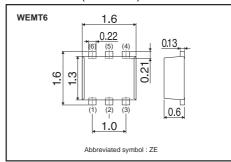
Applications

Switching

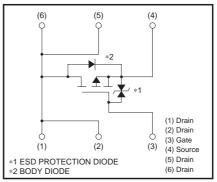
Packaging specifications

	Package	Taping
Type	Code	T2R
	Basic ordering unit (pieces)	8000
RW1A020Z	0	

●Dimensions (Unit : mm)



•Inner 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
Building	Continuous	I_D		±2	A
Drain current	Pulsed	I_{DP}	*1	±6	A
Source current	Continuous	Is		-0.5	А
(Body diode)	Pulsed	I _{SP}	*1	-6	Α
Total power dissipation		Po	*2	0.7	W
Channel temperature		Tch		150	°C
Range of Storage temperature		Tstg		-55 to +150	°C

*1 Pw≤10μs, Duty cycle≤1% *2 When mounted on a ceramic board

●Thermal resistance

Channel to ambient Rth	n(ch-a) * 179	°C/W

^{*} When mounted on a ceramic board.

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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	Igss	_	_	±10	μΑ	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	IDSS	_	_	-1	μΑ	V _{DS} = -12V, V _{GS} =0V
Gate threshold voltage	V _{GS (th)}	-0.3	_	-1.0	V	$V_{DS}=-6V$, $I_{D}=-1mA$
		ı	75	105	mΩ	I _D = -2A, V _G S= -4.5V
Static drain-source on-state resistance	Pro / *	1	105	145	mΩ	I _D = -1A, V _G s= -2.5V
	R _{DS} (on)	_	150	225	mΩ	I _D = -1A, V _G S= -1.8V
		-	200	400	mΩ	I _D = -0.4A, V _G S= -1.5V
Forward transfer admittance	Y _{fs} *	2	_	_	S	$V_{DS}=-6V$, $I_{D}=-2A$
Input capacitance	Ciss	-	770	_	pF	V _{DS} = -6V
Output capacitance	Coss	_	75	_	pF	V _{GS} =0V
Reverse transfer capacitance	Crss	_	60	_	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	_	10	_	ns	V _{DD} ≒ −6V
Rise time	tr *	-	17	_	ns	ID= -1A
Turn-off delay time	t _{d (off)} *	-	65	_	ns	Vgs= -4.5V Ri≒ 6Ω
Fall time	t _f *	_	35	_	ns	R _G =10Ω
Total gate charge	Qg *	_	6.5	_	nC	V _{DD} =-6V R _L =3Ω
Gate-source charge	Q _{gs} *	-	1.3	-	nC	I _D = -2A R _G =10Ω
Gate-drain charge	Q _{gd} *	_	0.8	_	nC	V _{GS} = -4.5V

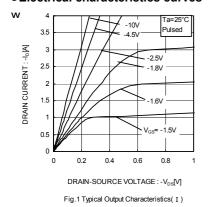
^{*}Pulsed

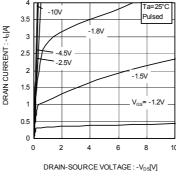
●Body diode characteristics (Source-drain) (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Forward voltage	Vsp *	_	_	-1.2	V	I _S = -2A, V _G S=0V

^{*}Pulsed

•Electrical characteristics curves





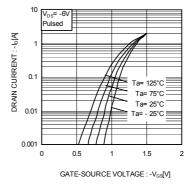


Fig.2 Typical Output Characteristics(II)

Fig.3 Typical Transfer Characteristics

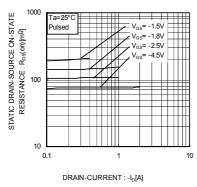


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current(I)

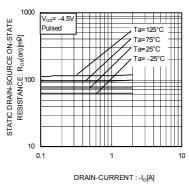


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current(${\scriptstyle \rm I\hspace{-.1em}I}$)

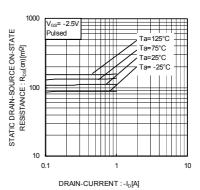
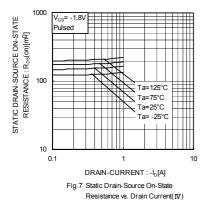
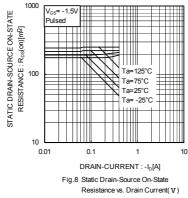


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(Ⅲ)





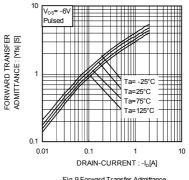
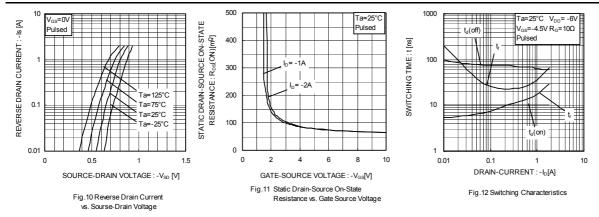
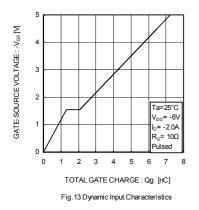
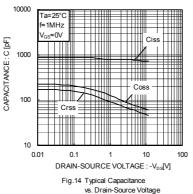


Fig.9 Forward Transfer Admittance vs. Drain Current

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●Measurement circuit

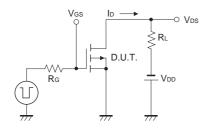


Fig.1-1 Switching Time Measurement Circuit

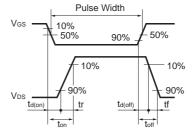


Fig.1-2 Switching Waveforms

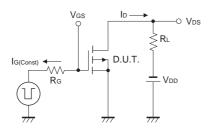


Fig.2-1 Gate Charge Measurement Circuit

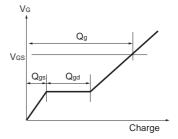


Fig.2-2 Gate Charge Waveform

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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