

1.2V Drive Pch MOSFET

RZE002P02

●Structure

Silicon P-channel MOSFET

●Features

- 1) High speed switching.
- 2) Small package (EMT3).
- 3) 1.2V drive.

●Applications

Switching

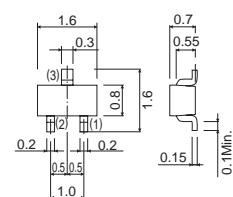
●Package specifications

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

RZE002P02

●Dimensions (Unit : mm)

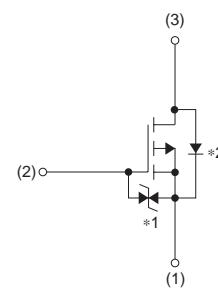
EMT3



(1)Source
(2)Gate
(3)Drain

Abbreviated symbol : YK

●Inner circuit



*1 ESD PROTECTION DIODE
*2 BODY DIODE

(1) Source
(2) Gate
(3) Drain

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	V _{DSS}	-20	V
Gate-source voltage	V _{GSS}	±10	V
Drain current	Continuous	I _D	mA
	Pulsed	I _{DP} *1	mA
Source current (Body diode)	Continuous	I _S	mA
	Pulsed	I _{SP} *1	mA
Total power dissipation	P _D *2	150	mW
Channel temperature	T _{ch}	150	°C
Range of storage temperature	T _{stg}	-55 to +150	°C

*1 P_W≤10μs, Duty cycle≤1%

*2 Each terminal mounted on a recommended land

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	R _{th(ch-a)} *	833	°C/W

* Each terminal mounted on a recommended land

●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}	-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)}	-0.3	—	-1.0	V	V _{DS} = -10V, I _D = -100μA
Static drain-source on-state resistance	R _{DSS (on)} *	—	0.8	1.2	Ω	I _D = -200mA, V _{GS} = -4.5V
		—	1.0	1.5	Ω	I _D = -100mA, V _{GS} = -2.5V
		—	1.3	2.2	Ω	I _D = -100mA, V _{GS} = -1.8V
		—	1.6	3.5	Ω	I _D = -40mA, V _{GS} = -1.5V
		—	2.4	9.6	Ω	I _D = -10mA, V _{GS} = -1.2V
Forward transfer admittance	Y _{fs} *	0.2	—	—	S	V _{DS} = -10V, I _D = -200mA
Input capacitance	C _{iss}	—	115	—	pF	V _{DS} = -10V
Output capacitance	C _{oss}	—	10	—	pF	V _{GS} = 0V
Reverse transfer capacitance	C _{rss}	—	6	—	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	—	6	—	ns	V _{DD} = -10V I _D = -100mA V _{GS} = -4.5V
Rise time	t _r *	—	4	—	ns	V _{GS} = -4.5V R _L = 100Ω
Turn-off delay time	t _{d (off)} *	—	17	—	ns	R _L = 100Ω R _G = 10Ω
Fall time	t _f *	—	17	—	ns	
Total gate charge	Q _g *	—	1.4	—	nC	V _{DD} = -10V R _L = 50Ω
Gate-source charge	Q _{gs} *	—	0.3	—	nC	I _D = -200mA R _G = 10Ω
Gate-drain charge	Q _{gd} *	—	0.3	—	nC	V _{GS} = -4.5V

*Pulsed

●Body diode characteristics (Source-drain)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V _{SD} *	—	—	-1.2	V	I _S = -200mA, V _{GS} =0V

*Pulsed

●Electrical characteristics curves

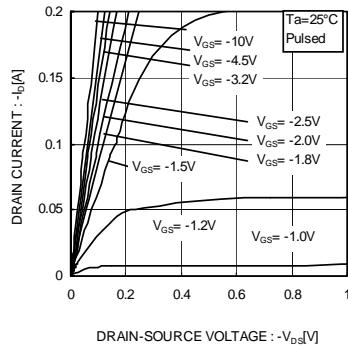
DRAIN-SOURCE VOLTAGE : $-V_{DS}$ [V]

Fig.1 Typical Output Characteristics (I)

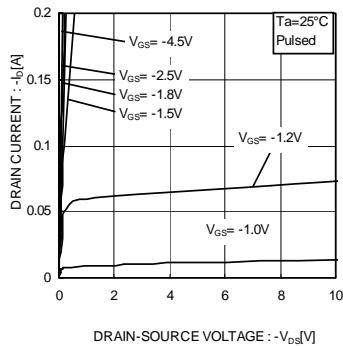
DRAIN-SOURCE VOLTAGE : $-V_{DS}$ [V]

Fig.2 Typical Output Characteristics (II)

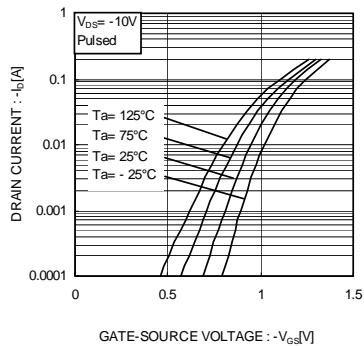
DRAIN CURRENT : $-I_D$ [A]

Fig.3 Typical Transfer Characteristics

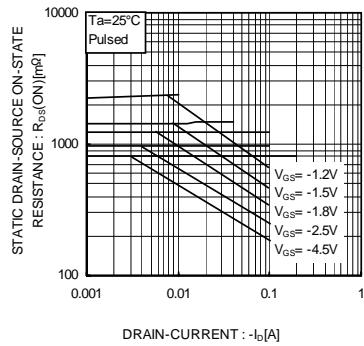
DRAIN-CURRENT : $-I_D$ [A]

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

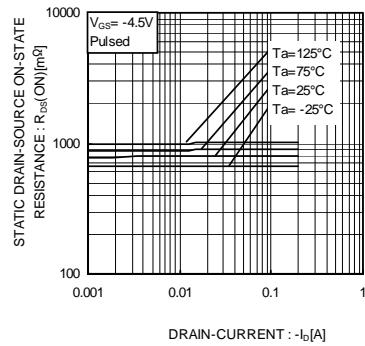
DRAIN-CURRENT : $-I_D$ [A]

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

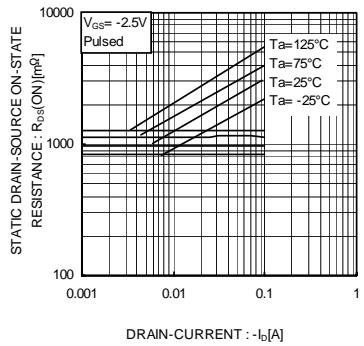
DRAIN-CURRENT : $-I_D$ [A]

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

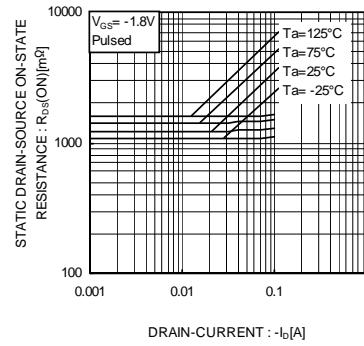
DRAIN-CURRENT : $-I_D$ [A]

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

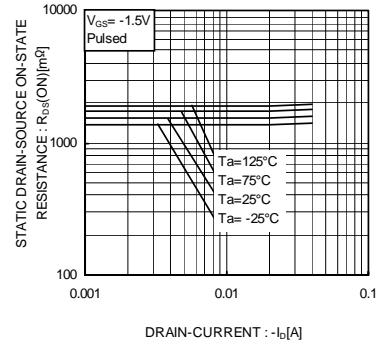
DRAIN-CURRENT : $-I_D$ [A]

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

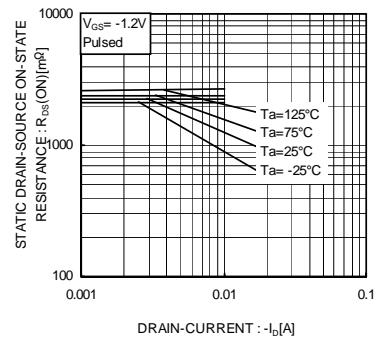
DRAIN-CURRENT : $-I_D$ [A]

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

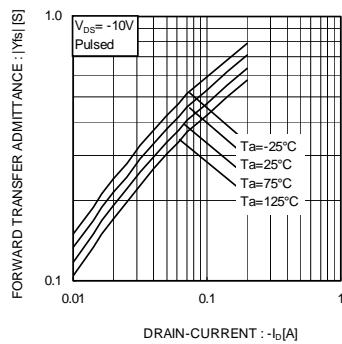


Fig.10 Forward Transfer Admittance vs. Drain Current

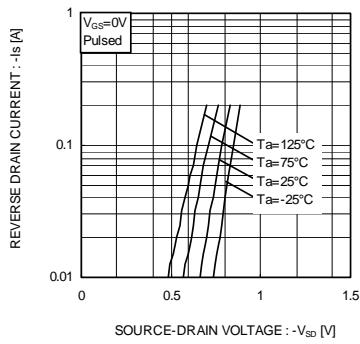


Fig.11 Reverse Drain Current vs. Source-Drain Voltage

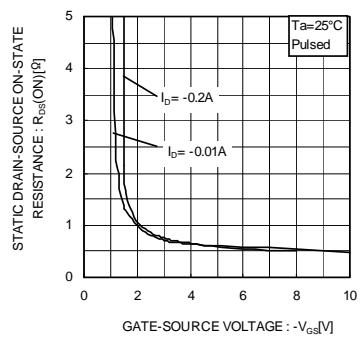


Fig.12 Static Drain-Source On-State Resistance vs. Gate Source Voltage

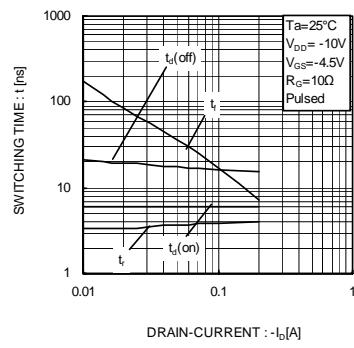


Fig.13 Switching Characteristics

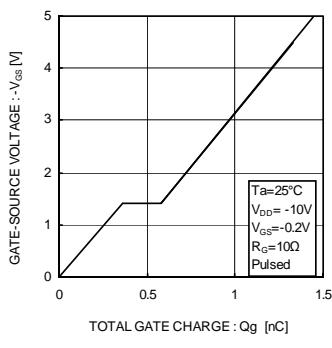


Fig.14 Dynamic Input Characteristics

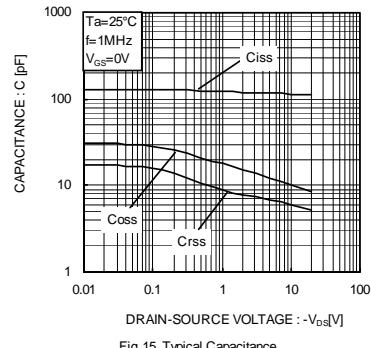


Fig.15 Typical Capacitance vs. Drain-Source Voltage

●Measurement circuit

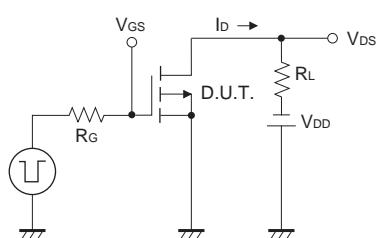


Fig.1-1 Switching Time Measurement Circuit

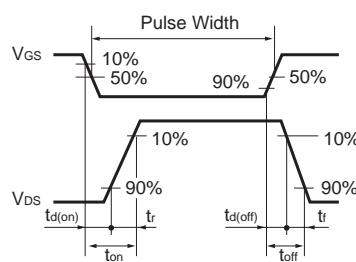


Fig.1-2 Switching Waveforms

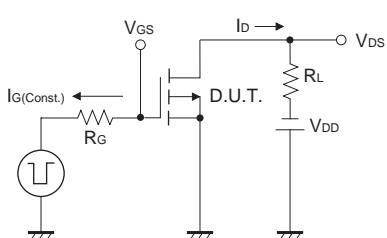


Fig.2-1 Gate Charge Measurement Circuit

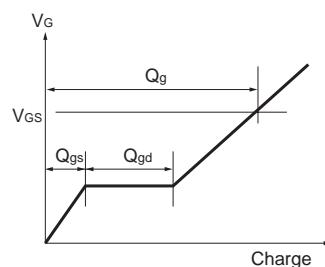


Fig.2-2 Gate Charge Waveform

●Notice

This product might cause chip aging and breakdown under the large electrified environment.

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