

**RZR020P01**

●Structure

TY P-channel MOSFET

●Features

- 1) Low on-resistance.
- 2) Built-in G-S Protection Diode.
- 3) Small and Surface Mount Package (TSMT3).
- 4) Low voltage drive (1.5V).

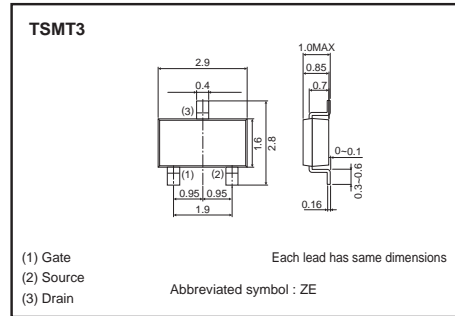
●Applications

Switching

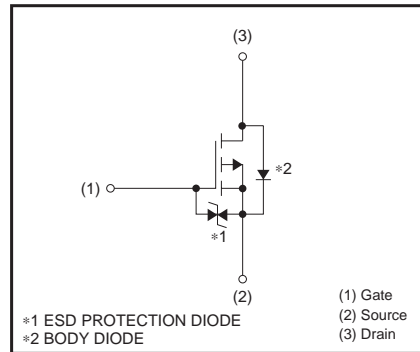
●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RZR020P01		○

●Dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	V <sub>DSS</sub>	-12	V
Gate-source voltage	V <sub>GSS</sub>	±10	V
Drain current	Continuous	I <sub>D</sub>	±2 A
	Pulsed	I <sub>DP</sub> *1	±6 A
Source current (Body diode)	Continuous	I <sub>S</sub>	-0.8 A
	Pulsed	I <sub>SP</sub> *1	-6 A
Total power dissipation	P <sub>D</sub> *2	1.0	W
Channel temperature	T <sub>ch</sub>	150	°C
Range of storage temperature	T <sub>stg</sub>	-55 to +150	°C

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

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	R <sub>th</sub> (ch-a) *	125	°C / W

\* When mounted on a ceramic board.

**●Electrical characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	$I_{GSS}$	-	-	$\pm 10$	$\mu A$	$V_{GS}=\pm 10V, V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	-12	-	-	V	$I_D = -1mA, V_{GS}=0V$
Zero gate voltage drain current	$I_{DSS}$	-	-	-1	$\mu A$	$V_{DS} = -12V, V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	-0.3	-	-1.0	V	$V_{DS} = -6V, I_D = -1mA$
Static drain-source on-state resistance	$R_{DS(on)}$ *	-	75	105	m $\Omega$	$I_D = -2A, V_{GS} = -4.5V$
		-	105	145	m $\Omega$	$I_D = -1A, V_{GS} = -2.5V$
		-	150	225	m $\Omega$	$I_D = -1A, V_{GS} = -1.8V$
		-	200	400	m $\Omega$	$I_D = -0.4A, V_{GS} = -1.5V$
Forward transfer admittance	$ Y_{fs} $ *	2	-	-	S	$V_{DS} = -6V, I_D = -2A$
Input capacitance	$C_{iss}$	-	770	-	pF	$V_{DS} = -6V$
Output capacitance	$C_{oss}$	-	75	-	pF	$V_{GS}=0V$
Reverse transfer capacitance	$C_{rss}$	-	60	-	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$ *	-	10	-	ns	$V_{DD} \doteq -6V$
Rise time	$t_r$ *	-	17	-	ns	$I_D = -1A$
Turn-off delay time	$t_{d(off)}$ *	-	65	-	ns	$V_{GS} = -4.5V$
Fall time	$t_f$ *	-	35	-	ns	$R_L \doteq 6\Omega$ $R_G=10\Omega$
Total gate charge	$Q_g$ *	-	6.5	-	nC	$V_{DD} \doteq -6V, I_D = -2A$
Gate-source charge	$Q_{gs}$ *	-	1.3	-	nC	$V_{GS} = -4.5V$
Gate-drain charge	$Q_{gd}$ *	-	0.8	-	nC	$R_L \doteq 3\Omega, R_G=10\Omega$

\*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_{SD}$ *	-	-	-1.2	V	$I_S = -2A, V_{GS}=0V$

\* Pulsed