

4V Drive Nch MOSFET

● **Structure**

TY N-channel MOSFET

● **Features**

- 1) Low on-resistance.
- 2) Built-in G-S Protection Diode.
- 3) Small Surface Mount Package (TSMT3).

● **Application**

Switching

● **Packaging specifications**

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RSR010N10		○

● **Absolute maximum ratings (Ta = 25°C)**

Parameter	Symbol	Limits	Unit
Drain-source voltage	V_{DSS}	100	V
Gate-source voltage	V_{GSS}	± 20	V
Drain current	Continuous	I_D	± 1 A
	Pulsed	I_{DP} *1	± 4 A
Source current (Body Diode)	Continuous	I_S	0.8 A
	Pulsed	I_{SP} *1	4 A
Power dissipation	P_D *2	1	W
Channel temperature	Tch	150	°C
Range of storage temperature	Tstg	-55 to +150	°C

*1 $P_w \leq 10 \mu s$, Duty cycle $\leq 1\%$

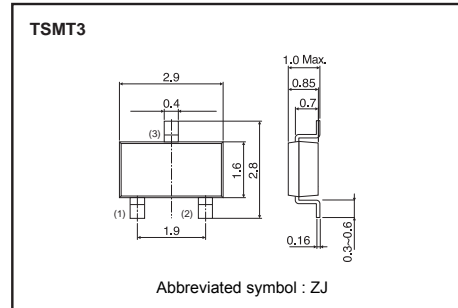
*2 Mounted on a ceramic board.

● **Thermal resistance**

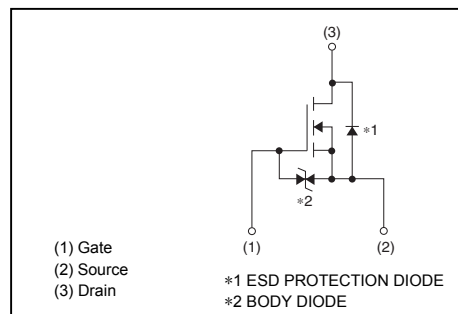
Parameter	Symbol	Limits	Unit
Channel to Ambient	Rth (ch-a)*	125	°C / W

*Mounted on a ceramic board.

● **Dimensions (Unit : mm)**



● **Inner circuit**



● Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	-	-	±10	μA	$V_{GS}=\pm 20V, V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	100	-	-	V	$I_D=1mA, V_{GS}=0V$
Zero gate voltage drain current	I_{DSS}	-	-	1	μA	$V_{DS}=100V, V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	1.0	-	2.5	V	$V_{DS}=10V, I_D=1mA$
Static drain-source on-state resistance	$R_{DS(on)}^*$	-	370	520	mΩ	$I_D=1A, V_{GS}=10V$
		-	400	560		$I_D=1A, V_{GS}=4.5V$
		-	410	580		$I_D=1A, V_{GS}=4.0V$
Forward transfer admittance	$ Y_{fs} ^*$	1	-	-	S	$I_D=1A, V_{DS}=10V$
Input capacitance	C_{ISS}	-	140	-	pF	$V_{DS}=25V$
Output capacitance	C_{OSS}	-	20	-	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{RSS}	-	12	-	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}^*$	-	6	-	ns	$I_D=0.5A, V_{DD}=50V$
Rise time	t_r^*	-	9	-	ns	$V_{GS}=10V$
Turn-off delay time	$t_{d(off)}^*$	-	22	-	ns	$R_L=100\Omega$
Fall time	t_f^*	-	15	-	ns	$R_G=10\Omega$
Total gate charge	Q_g^*	-	3.5	-	nC	$I_D=1A, V_{DD}=50V$
Gate-source charge	Q_{gs}^*	-	0.9	-	nC	$V_{GS}=5V$
Gate-drain charge	Q_{gd}^*	-	0.8	-	nC	

*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward Voltage	V_{SD}^*	-	-	1.2	V	$I_s=1A, V_{GS}=0V$

*Pulsed