

●Structure

TY N-channel MOSFET

●Features

- 1) Low On-resistance.
- 2) Small Surface Mount Package (TSMT3).

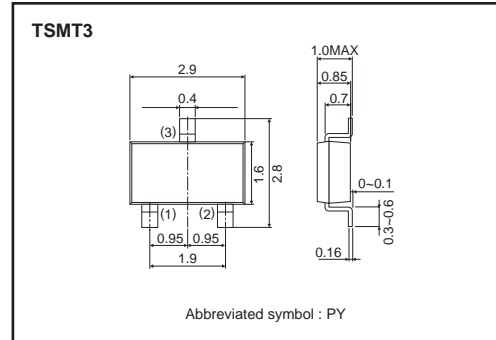
●Application

Switching

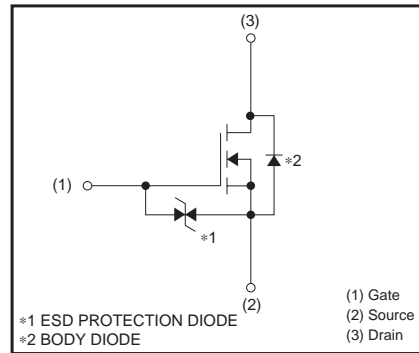
●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RSR030N06		○

●Dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	V_{DSS}	60	V	
Gate-source voltage	V_{GSS}	±20	V	
Drain current	Continuous	I_D	±3	A
	Pulsed	I_{DP} *1	±12	A
Source current (Body diode)	Continuous	I_S	0.8	A
	Pulsed	I_{SP} *1	12	A
Total power dissipation	P_D *2	1.0	W	
Channel temperature	T_{ch}	150	°C	
Range of storage temperature	T_{stg}	-55 to +150	°C	

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

*2 When mounted on a ceramic board

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	$R_{th(ch-a)}$ *	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}	–	–	±10	μA	$V_{GS} = \pm 20V, V_{DS} = 0V$
Drain-source breakdown voltage	$V_{(BR) DSS}$	60	–	–	V	$I_D = 1mA, V_{GS} = 0V$
Zero gate voltage drain current	I_{DSS}	–	–	1	μA	$V_{DS} = 60V, V_{GS} = 0V$
Gate threshold voltage	$V_{GS(th)}$	1.0	–	2.5	V	$V_{DS} = 10V, I_D = 1mA$
Static drain-source on-state resistance	$R_{DS(on)}$	*	60	85	mΩ	$I_D = 3A, V_{GS} = 10V$
		–	70	100	mΩ	$I_D = 3A, V_{GS} = 4.5V$
		–	75	105	mΩ	$I_D = 3A, V_{GS} = 4V$
Forward transfer admittance	$ Y_{fs} $	2.1	–	–	S	$V_{DS} = 10V, I_D = 3A$
Input capacitance	C_{iss}	–	380	–	pF	$V_{DS} = 10V$
Output capacitance	C_{oss}	–	95	–	pF	$V_{GS} = 0V$
Reverse transfer capacitance	C_{rss}	–	45	–	pF	$f = 1MHz$
Turn-on delay time	$t_{d(on)}$	*	8	–	ns	$V_{DD} \approx 30V$
Rise time	t_r	*	12	–	ns	$I_D = 1.5A$ $V_{GS} = 10V$
Turn-off delay time	$t_{d(off)}$	*	30	–	ns	$R_L \approx 20\Omega$
Fall time	t_f	*	10	–	ns	$R_G = 10\Omega$
Total gate charge	Q_g	*	5.0	–	nC	$V_{DD} \approx 30V$ $R_L \approx 10\Omega$
Gate-source charge	Q_{gs}	*	1.6	–	nC	$I_D = 3A$ $R_G = 10\Omega$
Gate-drain charge	Q_{gd}	*	1.4	–	nC	$V_{GS} = 5V$

*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