

RUR020N02

●Structure

TY N-channel MOSFET

●Features

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

●Applications

Switching

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RUR020N02		○

●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	±2	A
	Pulsed	I _{DP} *1	±6	A
Source current (Body diode)	Continuous	I _S	0.8	A
	Pulsed	I _{SP} *1	6	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	

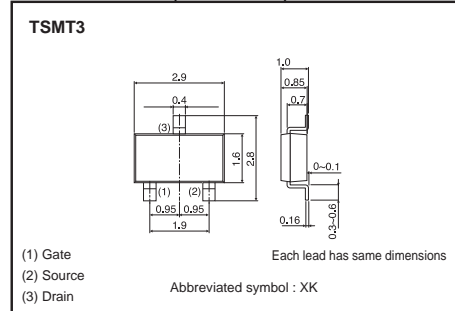
*1 Pw≤10μs, Duty cycle≤1%
*2 Mounted on a ceramic board

●Thermal resistance

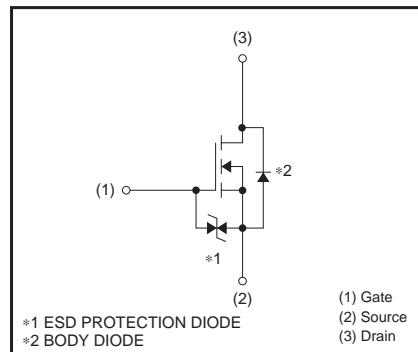
Parameter	Symbol	Limits	Unit
Channel to ambient	R _{th} (ch-a) *	125	°C / W

* 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	$V_{GS}=\pm 10V, V_{DS}=0V$
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	$V_{DS}=10V, I_D=1mA$
Static drain-source on-state resistance	$R_{DS(on)}$ *	–	75	105	mΩ	$I_D=2A, V_{GS}=4.5V$
		–	95	135	mΩ	$I_D=2A, V_{GS}=2.5V$
		–	130	185	mΩ	$I_D=1A, V_{GS}=1.8V$
		–	170	240	mΩ	$I_D=0.4A, V_{GS}=1.5V$
Forward transfer admittance	$ Y_{fs} $ *	1.8	–	–	S	$V_{DS}=10V, I_D=2A$
Input capacitance	C_{iss}	–	180	–	pF	$V_{DS}=10V$
Output capacitance	C_{oss}	–	45	–	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	–	25	–	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$ *	–	6	–	ns	$V_{DD} \doteq 10V, I_D=1A, V_{GS}=4.5V, R_L \doteq 10\Omega, R_G=10\Omega$
Rise time	t_r *	–	17	–	ns	
Turn-off delay time	$t_{d(off)}$ *	–	30	–	ns	
Fall time	t_f *	–	30	–	ns	
Total gate charge	Q_g *	–	2.0	–	nC	$V_{DD} \doteq 10V, I_D=2A$
Gate-source charge	Q_{gs} *	–	0.6	–	nC	$V_{GS}=4.5V$
Gate-drain charge	Q_{gd} *	–	0.4	–	nC	$R_L \doteq 5\Omega, R_G=10\Omega$

*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