

RUR040N02

●Structure

TY N-channel
MOSFET


●Features

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

●Application

Switching

●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
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●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	±4.0	A	
	Pulsed	I _{DP} *1	±8.0	A
Source current (Body diode)	Continuous	I _S	0.8	A
	Pulsed	I _{SP} *1	8.0	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	

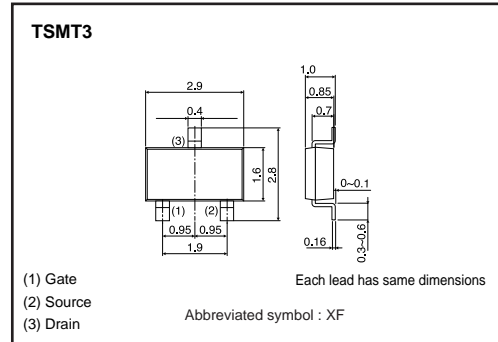
*1 Pw≤10μs, Duty cycle≤1%
*2 Mounted on a ceramic board

●Thermal resistance

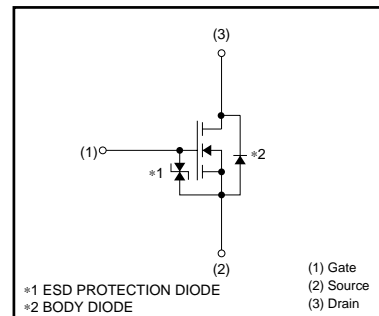
Parameter	Symbol	Limits	Unit
Channel to ambient	R _{th (ch-a)} *	125	°C / W

* Mounted on a ceramic board

●Dimensions (Unit : mm)



●Equivalent circuit



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●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	-	1.3	V	$V_{DS}=10V, I_D=1mA$
Static drain-source on-state resistance	$R_{DS(on)}$ *	-	25	35	$m\Omega$	$I_D=4.0A, V_{GS}=4.5V$
		-	33	46	$m\Omega$	$I_D=4.0A, V_{GS}=2.5V$
		-	42	59	$m\Omega$	$I_D=2.0A, V_{GS}=1.8V$
		-	55	110	$m\Omega$	$I_D=0.8A, V_{GS}=1.5V$
Forward transfer admittance	$ Y_{fs} $ *	5.0	-	-	S	$V_{DS}=10V, I_D=4.0A$
Input capacitance	C_{iss}	-	680	-	pF	$V_{DS}=10V$
Output capacitance	C_{oss}	-	150	-	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	-	90	-	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$ *	-	10	-	ns	$I_D=2.0A, V_{DD}\doteq 10V$ $V_{GS}=4.5V$ $R_L\doteq 5\Omega, R_G=10\Omega$
Rise time	t_r *	-	30	-	ns	
Turn-off delay time	$t_{d(off)}$ *	-	50	-	ns	
Fall time	t_f *	-	60	-	ns	
Total gate charge	Q_g *	-	8	-	nC	
Gate-source charge	Q_{gs} *	-	1.8	-	nC	$I_D=4.0A, V_{DD}\doteq 10V$ $V_{GS}=4.5V$
Gate-drain charge	Q_{gd} *	-	1.3	-	nC	$R_L\doteq 2.5\Omega, R_G=10\Omega$

*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V_{SD} *	-	-	1.2	V	$I_S=0.8A, V_{GS}=0V$

*Pulsed