

Transistors

2.5V Drive Nch MOS FET

RTF025N03

●Structure

Silicon N-channel MOS FET

●Features

- 1) Low On-resistance.
- 2) Space saving—small surface mount package (TUMT3).
- 3) Low voltage drive (2.5V drive).

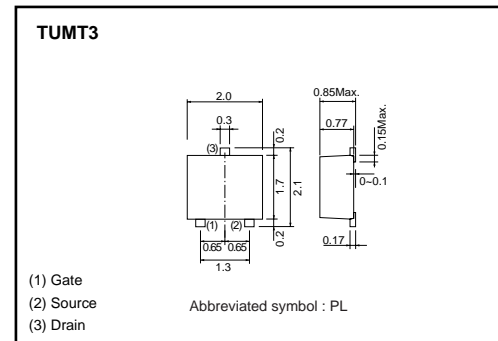
●Applications

Switching

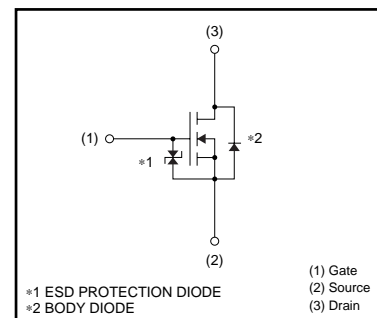
●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RTF025N03		○

●External dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	V_{DS}	30	V	
Gate-source voltage	V_{GS}	12	V	
Drain current	Continuous	I_D	± 2.5	A
	Pulsed	I_{DP} *1	± 10	A
Source current (Body diode)	Continuous	I_S	0.6	A
	Pulsed	I_{SP} *1	10	A
Total power dissipation	P_D *2	0.8	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 Mounted on a ceramic board

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	$R_{th(ch-a)}$ *	156	°C/W

* Mounted on a ceramic board

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I _{GSS}	–	–	10	μA	V _{GS} =12V, V _{DS} =0V
Drain-source breakdown voltage	V _{(BR) DSS}	30	–	–	V	I _D = 1mA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	–	–	1	μA	V _{DS} = 30V, V _{GS} =0V
Gate threshold voltage	V _{GS (th)}	0.5	–	1.5	V	V _{DS} = 10V, I _D = 1mA
Static drain-source on-state resistance	R _{DS (on)} *	–	48	67	mΩ	I _D = 2.5A, V _{GS} = 4.5V
		–	50	70	mΩ	I _D = 2.5A, V _{GS} = 4V
		–	70	98	mΩ	I _D = 2.5A, V _{GS} = 2.5V
Forward transfer admittance	Y _{fs} *	2	–	–	S	V _{DS} = 10V, I _D = 2.5A
Input capacitance	C _{iss}	–	270	–	pF	V _{DS} = 10V
Output capacitance	C _{oss}	–	70	–	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	–	40	–	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	–	8	–	ns	V _{DD} ≐ 15V
Rise time	t _r *	–	15	–	ns	I _D = 1.25A
Turn-off delay time	t _{d (off)} *	–	27	–	ns	V _{GS} = 4.5V
Fall time	t _f *	–	11	–	ns	R _L =12Ω
Total gate charge	Q _g *	–	3.7	5.2	nC	R _G =10Ω
Gate-source charge	Q _{gs} *	–	0.7	–	nC	V _{DD} ≐ 15V
Gate-drain charge	Q _{gd} *	–	1.2	–	nC	V _{GS} = 4.5V
		–	–	–	nC	I _D = 2.5A

*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 = 0.6A, V _{GS} =0V

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