

Transistors

2.5V Drive Nch MOS FET

RTF015N03

●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).

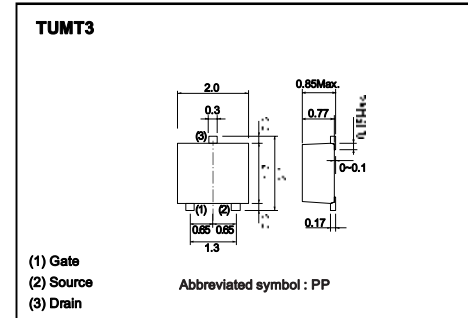
●Applications

Switching

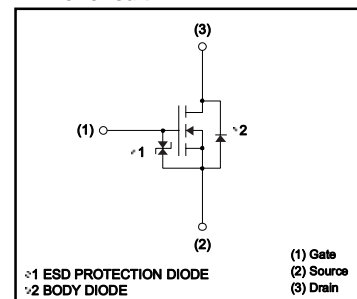
●Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
RTF015N03		○

●External dimensions (Unit : mm)



●Inner circuit

●Absolute maximum ratings ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Limits	Unit	
Drain-source voltage	V_{DS}	30	V	
Gate-source voltage	V_{GS}	12	V	
Drain current	Continuous	I_D	± 1.5	A
	Pulsed	I_{DP} ¹	± 6.0	A
Source current (Body diode)	Continuous	I_S	0.6	A
	Pulsed	I_{SP} ¹	6.0	A
Total power dissipation	P_D ²	0.8	W	
Channel temperature	T_{ch}	150	$^{\circ}\text{C}$	
Range of storage temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$	

¹ $P_w \leq 10 \mu\text{s}$, Duty cycle $\leq 1\%$ ² Mounted on a ceramic board

●Thermal resistance

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

* 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)}	–	170	240	mΩ	I _D = 1.5A, V _{GS} = 4.5V
		–	180	250	mΩ	I _D = 1.5A, V _{GS} = 4V
		–	240	340	mΩ	I _D = 1.5A, V _{GS} = 2.5V
Forward transfer admittance	Y _{fs}	1.5	–	–	S	V _{DS} = 10V, I _D = 1.5A
Input capacitance	C _{iss}	–	80	–	pF	V _{DS} = 10V
Output capacitance	C _{oss}	–	14	–	pF	V _{GS} =0V
Reverse transfer capacitance	C _{rss}	–	12	–	pF	f=1MHz
Turn-on delay time	t _{d(on)}	–	7	–	ns	V _{DD} = 15V I _D = 0.75A
Rise time	t _r	–	9	–	ns	V _{GS} = 4.5V
Turn-off delay time	t _{d(off)}	–	15	–	ns	R _L =20Ω
Fall time	t _f	–	6	–	ns	R _G =10Ω
Total gate charge	Q _g	–	1.6	2.2	nC	V _{DD} = 15V V _{GS} = 4.5V
Gate-source charge	Q _{gs}	–	0.5	–	nC	I _D = 1.5A
Gate-drain charge	Q _{gd}	–	0.3	–	nC	R _L =10Ω R _G =10Ω

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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