

# 2.5V Drive Nch MOSFET

# **RJU003N03**

#### Structure

Silicon N-channel MOSFET

## ● Features

- 1) Low On-resistance.
- 2) Low voltage drive (2.5V drive).

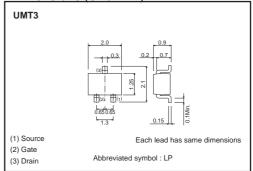
# Applications

Switching

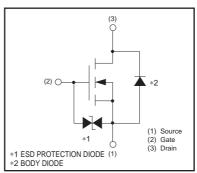
## ●Packaging specifications and hfe

Туре	Package	Taping
	Code	T106
	Basic ordering unit (pieces)	3000
RJU003N03		0

## ● Dimensions (Unit: mm)



#### ●Inner circuit



# ●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit	
Drain-source voltage		V <sub>DSS</sub>	30	V	
Gate-source voltage		V <sub>GSS</sub>	±12	V	
Droin autront	Continuous	I <sub>D</sub>	±300	mA	
Drain current	Pulsed	I <sub>DP</sub> *1	±1.2	А	
Total power dissipation	P <sub>D</sub> *2	200	mW		
Channel temperature		Tch	150	°C	
Range of storage temperature		Tstg	-55 to +150	°C	

## ●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	Rth(ch-a)*	625	°C/W

<sup>\*</sup> Each terminal mounted on a recommended land

<sup>\*1</sup> Pw≤10μs, Duty cycle≤1% \*2 Each terminal mounted on a recommended land

RJU003N03 Data Sheet

# ●Electrical characteristics (Ta=25°C)

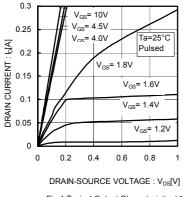
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Gate-source leakage	Igss	-	_	±10	μΑ	Vgs=±12V, Vps=0V	
Drain-source breakdown voltage	V <sub>(BR)</sub> DSS	30	_	_	V	I <sub>D</sub> = 1mA, V <sub>GS</sub> =0V	
Zero gate voltage drain current	IDSS	-	_	1	μΑ	V <sub>DS</sub> = 30V, V <sub>GS</sub> =0V	
Gate threshold voltage	V <sub>GS (th)</sub>	8.0	_	1.5	V	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA	
Static drain-source on-state resistance		ı	0.8	1.1	Ω	ID= 300mA, VGS= 4.5V	
	R <sub>DS (on)</sub> *	-	0.9	1.3	Ω	I <sub>D</sub> = 300mA, V <sub>GS</sub> = 4V	
		-	1.4	1.9	Ω	I <sub>D</sub> = 300mA, V <sub>GS</sub> = 2.5V	
Forward transfer admittance	Y <sub>fs</sub>   *	0.4	_	_	S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 300mA	
Input capacitance	Ciss	-	24	-	pF	V <sub>DS</sub> = 10V	
Output capacitance	Coss	_	11	-	pF	V <sub>GS</sub> =0V	
Reverse transfer capacitance	Crss	-	5	-	pF	f=1MHz	
Turn-on delay time	t <sub>d (on)</sub> *	-	6	-	ns	V <sub>DD</sub> ≒ 15V	
Rise time	tr *	_	4	_	ns	I <sub>D</sub> = 150mA   V <sub>G</sub> = 4V   R <sub>L</sub> =100Ω	
Turn-off delay time	td (off) *	_	9	_	ns		
Fall time	t <sub>f</sub> *	_	32	_	ns	R <sub>G</sub> =10Ω	

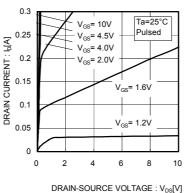
<sup>\*</sup>Pulsed

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

		•		, ,			
Pa	arameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Forward vol	ltage	Vsp	_	_	1.2	V	Is= 200mA, V <sub>GS</sub> =0V

### Electrical characteristics curves





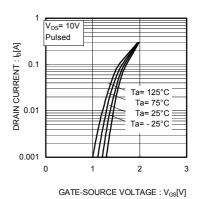
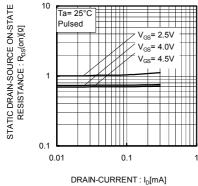
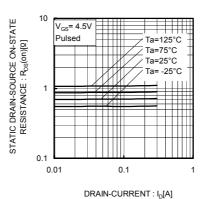


Fig.1 Typical Output Characteristics(I)

Fig.2 Typical Output Characteristics( II )

Fig.3 Typical Transfer Characteristics



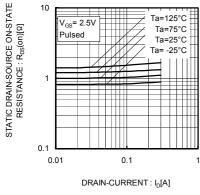


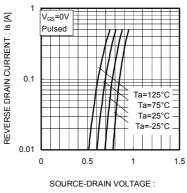
STATIC DRAIN-SOURCE ON-STATE V<sub>GS</sub>= 4.0V Ta=125°C RESISTANCE: Ros(on)[\alpha] Pulsed Ta=75°C Ta=25°C Ta= -25°C 0.1 0.01 0.1

Fig.4 Static Drain-Source On-State Resistance vs. Drain Current( I )

Fig.5 Static Drain-Source On-State Resistance vs. Drain Current( II )

DRAIN-CURRENT : I<sub>D</sub>[A] Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(Ⅲ)





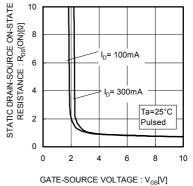
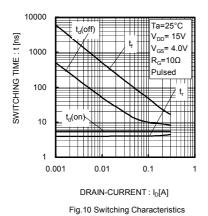
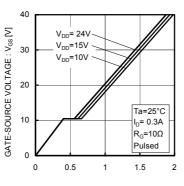


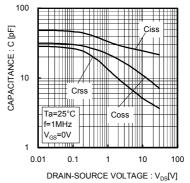
Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(IV)

Fig.8 Reverse Drain Current vs. Sourse-Drain Voltage

Fig.9 Static Drain-Source On-State Resistance vs. Gate Source Voltage



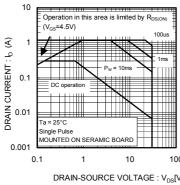




TOTAL GATE CHARGE : Qg [nC]

Fig.11 Dynamic Input Characteristics

Fig.12 Typical Capacitance vs. Drain-Source Voltage



DRAIN-SOURCE VOLTAGE :  $V_{DS}[V]$ Fig.13 Maximum Safe Operating Aera

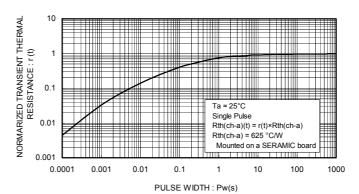


Fig.14 Normalized Transient Thermal Resistance vs. Pulse Width

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