

# 2.5V Drive Nch MOSFET

## RJU003N03

### ●Structure

Silicon N-channel MOSFET

### ●Features

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

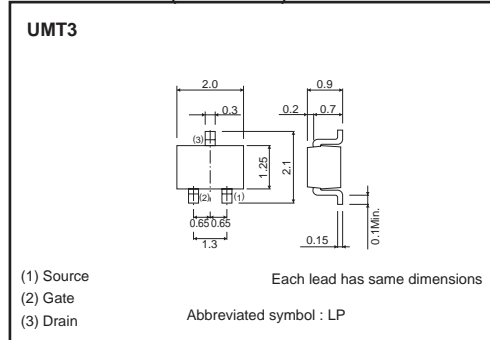
### ●Applications

Switching

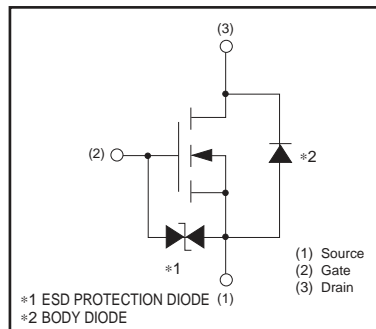
### ●Packaging specifications and hFE

Type	Package	Taping
	Code	T106
	Basic ordering unit (pieces)	3000
RJU003N03		○

### ●Dimensions (Unit : mm)



### ●Inner circuit



### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	$V_{DSS}$	30	V
Gate-source voltage	$V_{GSS}$	$\pm 12$	V
Drain current	Continuous	$I_D$	$\pm 300$ mA
	Pulsed	$I_{DP}$ *1	$\pm 1.2$ A
Total power dissipation	$P_D$ *2	200	mW
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 Each terminal mounted on a recommended land

### ●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	$R_{th(ch-a)}$ *	625	°C/W

\* Each terminal mounted on a recommended land

**●Electrical characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	$I_{GSS}$	–	–	±10	μA	$V_{GS}=\pm 12V, V_{DS}=0V$
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	$V_{GS(th)}$	0.8	–	1.5	V	$V_{DS}=10V, I_D=1mA$
Static drain-source on-state resistance	$R_{DS(on)}$ *	–	0.8	1.1	Ω	$I_D=300mA, V_{GS}=4.5V$
		–	0.9	1.3	Ω	$I_D=300mA, V_{GS}=4V$
		–	1.4	1.9	Ω	$I_D=300mA, V_{GS}=2.5V$
Forward transfer admittance	$ Y_{fs} $ *	0.4	–	–	S	$V_{DS}=10V, I_D=300mA$
Input capacitance	$C_{iss}$	–	24	–	pF	$V_{DS}=10V$
Output capacitance	$C_{oss}$	–	11	–	pF	$V_{GS}=0V$
Reverse transfer capacitance	$C_{rss}$	–	5	–	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$ *	–	6	–	ns	$V_{DD}=15V$
Rise time	$t_r$ *	–	4	–	ns	$I_D=150mA$
Turn-off delay time	$t_{d(off)}$ *	–	9	–	ns	$V_{GS}=4V$
Fall time	$t_f$ *	–	32	–	ns	$R_L=100\Omega$ $R_G=10\Omega$

\*Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	$V_{SD}$	–	–	1.2	V	$I_S=200mA, V_{GS}=0V$

●Electrical characteristics curves

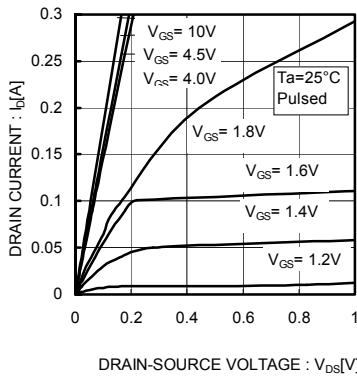


Fig.1 Typical Output Characteristics ( I )

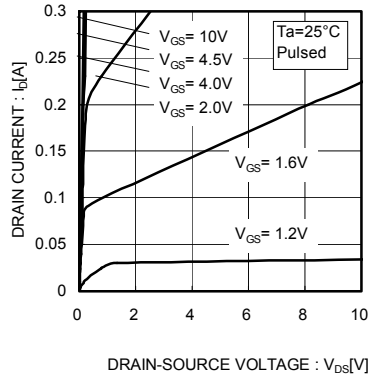


Fig.2 Typical Output Characteristics( II )

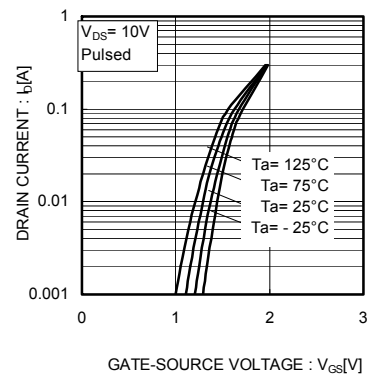


Fig.3 Typical Transfer Characteristics

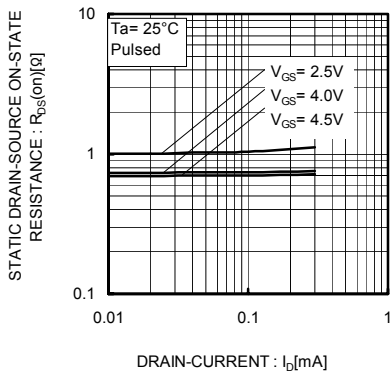


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current ( I )

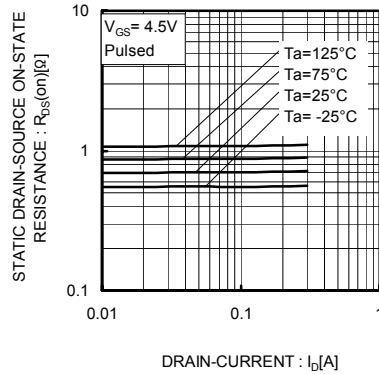


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current( II )

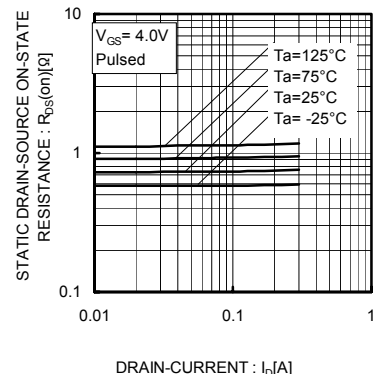


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(III)

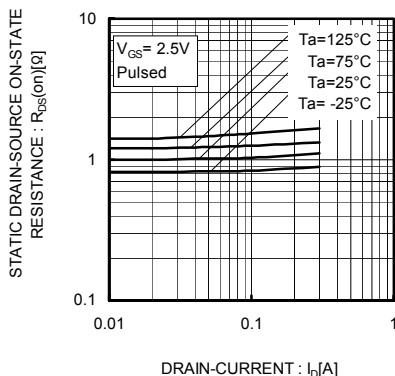


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(IV)

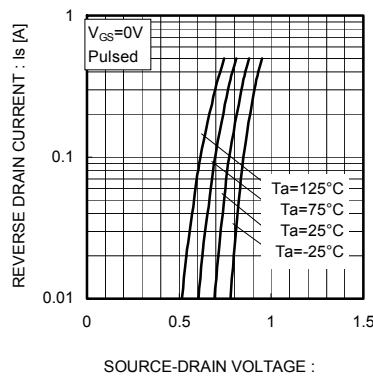


Fig.8 Reverse Drain Current vs. Source-Drain Voltage

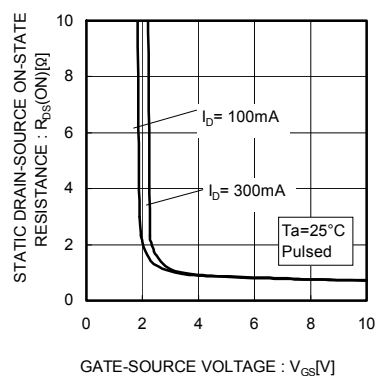


Fig.9 Static Drain-Source On-State Resistance vs. Gate Source Voltage

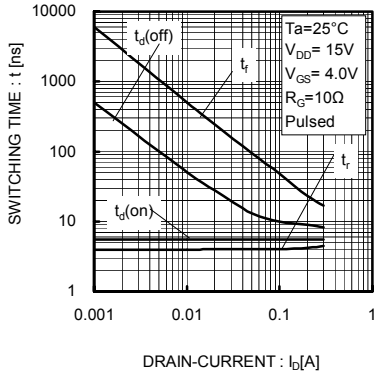


Fig.10 Switching Characteristics

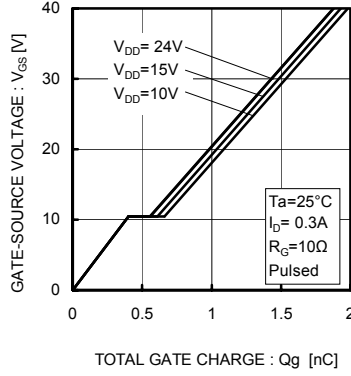


Fig.11 Dynamic Input Characteristics

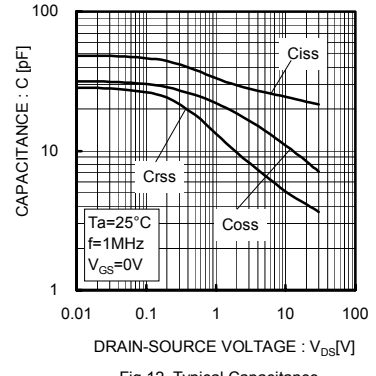


Fig.12 Typical Capacitance vs. Drain-Source Voltage

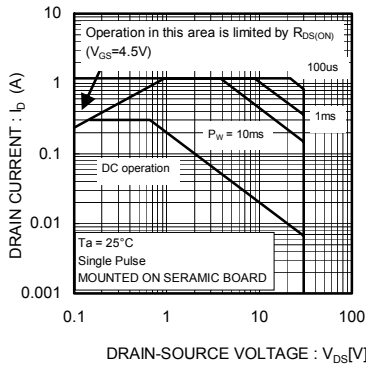


Fig.13 Maximum Safe Operating Area

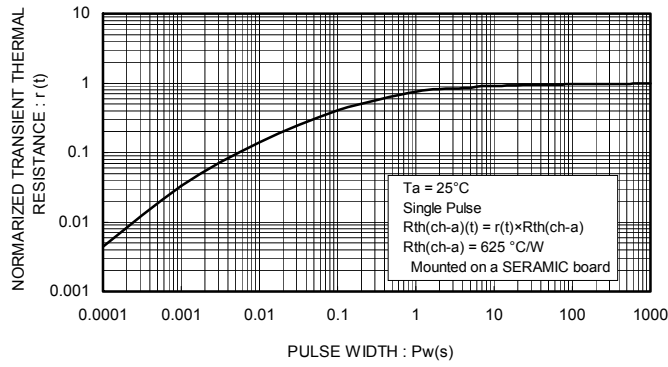


Fig.14 Normalized Transient Thermal Resistance vs. Pulse Width

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