

2.5V Drive Nch MOSFET

RJU003N03

●Structure

Silicon N-channel MOSFET

●Features

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

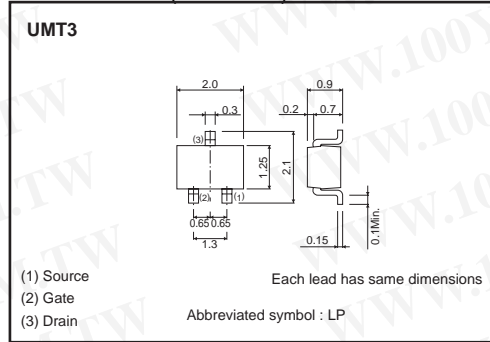
●Applications

Switching

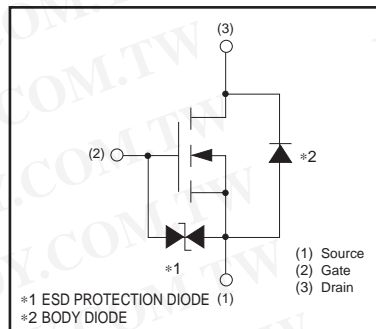
●Packaging specifications and hFE

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_{DS}	30	V	
Gate-source voltage	V_{GS}	± 12	V	
Drain current	Continuous	I_D	± 300	mA
	Pulsed	I_{DP} *1	± 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

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●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} =±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 =100Ω 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 = 200mA, V _{GS} =0V

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●Electrical characteristics curves

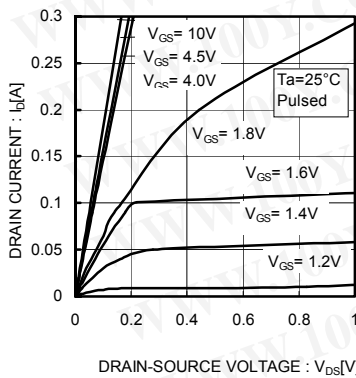


Fig.1 Typical Output Characteristics (I)

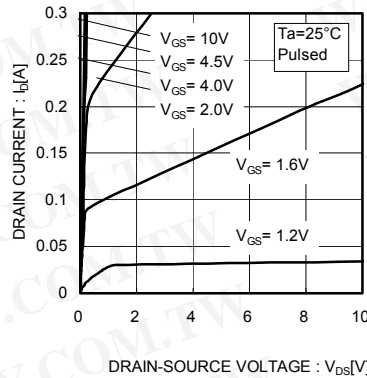


Fig.2 Typical Output Characteristics (II)

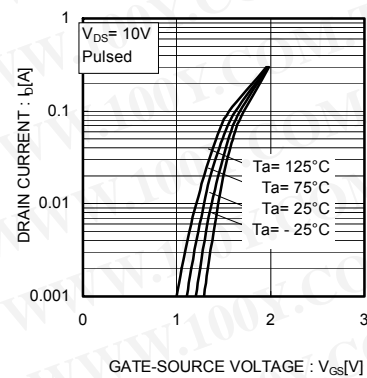


Fig.3 Typical Transfer Characteristics

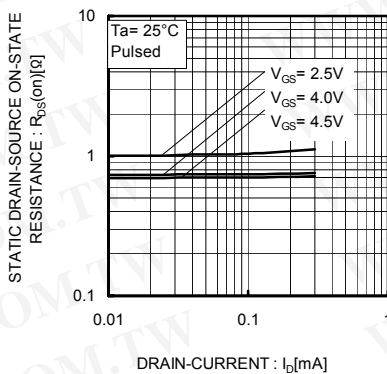


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (I)

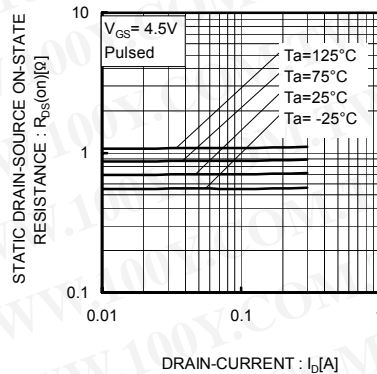


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current (II)

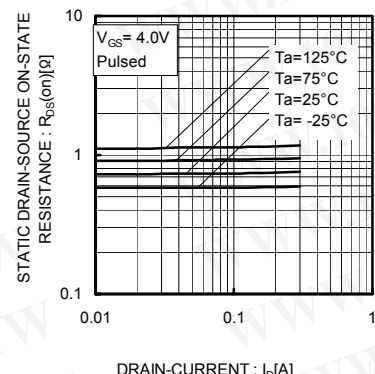


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current (III)

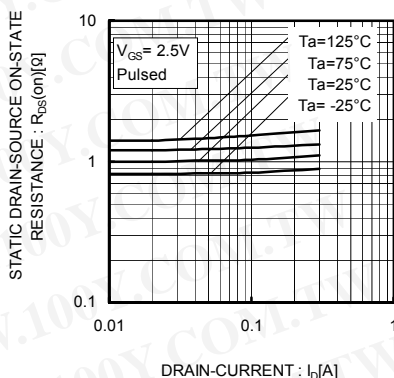


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current (IV)

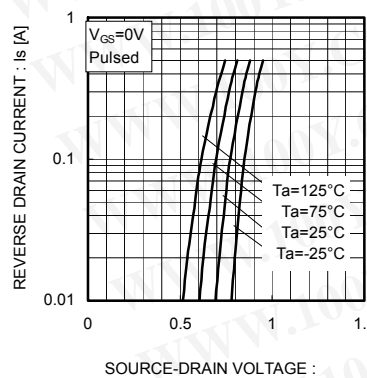


Fig.8 Reverse Drain Current vs. Source-Drain Voltage

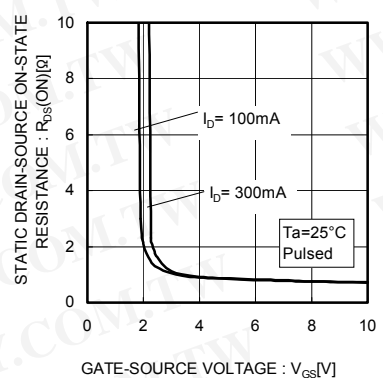


Fig.9 Static Drain-Source On-State Resistance vs. Gate Source Voltage

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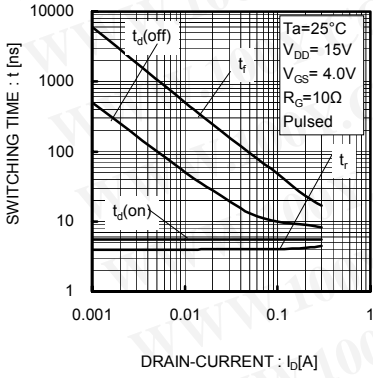


Fig.10 Switching Characteristics

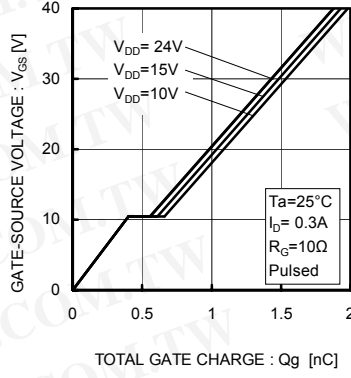


Fig.11 Dynamic Input Characteristics

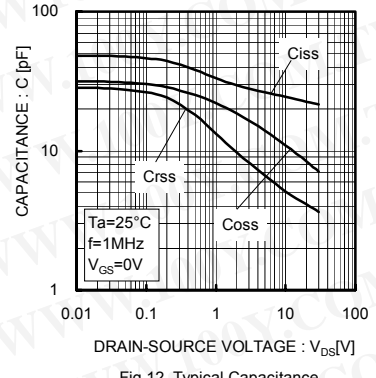


Fig.12 Typical Capacitance vs. Drain-Source Voltage

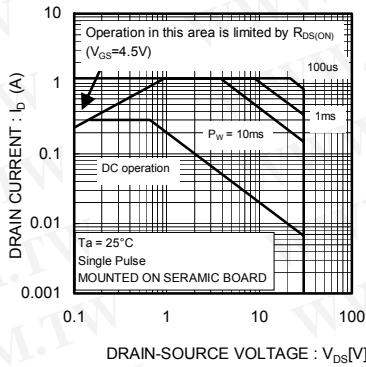


Fig.13 Maximum Safe Operating Area

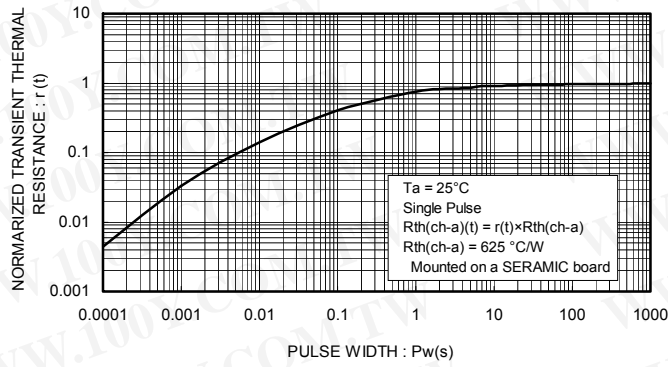


Fig.14 Normalized Transient Thermal Resistance vs. Pulse Width

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