

10V Drive Nch MOSFET

RDD050N20

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Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-Source Leakage	I _{GSS}	—	—	±10	μA	V _{GS} =±30V, V _{DS} =0V
Drain-Source Breakdown Voltage	V _{(BR) DSS}	200	—	—	V	I _D =1mA, V _{GS} =0V
Zero Gate Voltage Drain Current	I _{DSS}	—	—	25	μA	V _{DS} =200V, V _{GS} =0V
Gate Threshold Voltage	V _{GS(th)}	2.0	—	4.0	V	V _{DS} =10V, I _D =1mA
Static Drain-Source On-State Resistance	R _{DS(on)} *	—	0.55	0.72	Ω	I _D =2.5A, V _{GS} =10V
Forward Transfer Admittance	Y _{fs} *	1.1	1.8	—	S	V _{DS} =10V, I _D =2.5A
Input Capacitance	C _{iss}	—	292	—	pF	V _{DS} =10V
Output Capacitance	C _{oss}	—	92	—	pF	V _{GS} =0V
Reverse Transfer Capacitance	C _{rss}	—	28	—	pF	f=1MHz
Turn-On Delay Time	t _{d(on)} *	—	10	—	ns	I _D =2.5A, V _{DD} ÷ 100V
Rise Time	t _r *	—	22	—	ns	V _{GS} =10V
Turn-Off Delay Time	t _{d(off)} *	—	23	—	ns	R _L =40Ω
Fall Time	t _f *	—	28	—	ns	R _G =10Ω
Total Gate Charge	Q _g *	—	9.3	—	nC	V _{DD} =100V
Gate-Source Charge	Q _{gs} *	—	2.8	—	nC	V _{GS} =10V
Gate-Drain Charge	Q _{gd} *	—	3.7	—	nC	I _D =5A

* Pulsed

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V _{SD} *	—	—	1.5	V	I _S = 5.0A, V _{GS} =0V
Reverse recovery time	t _{rr}	—	117	—	ns	I _{DR} = 5.0A, V _{GS} =0V
Reverse recovery charge	Q _{rr}	—	0.37	—	μC	di/dt= 100A / μs

* Pulsed

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●Electrical characteristic curves

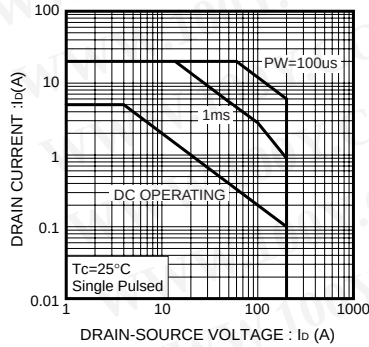


Fig.1 Maximum Safe Operating Area

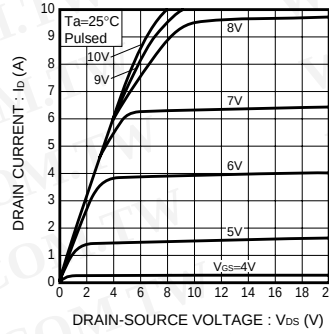


Fig.2 Typical Output Characteristics

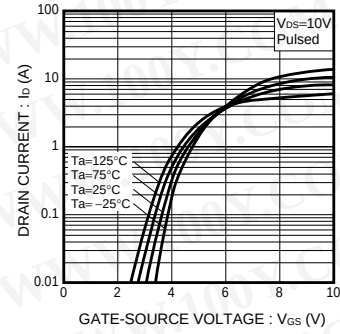


Fig.3 Typical Transfer Characteristics

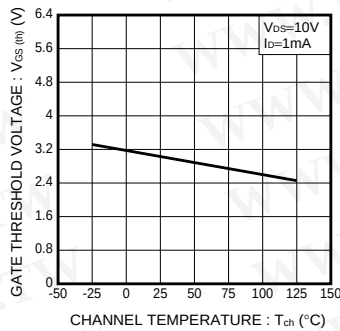


Fig.4 Gate Threshold Voltage vs. Channel Temperature

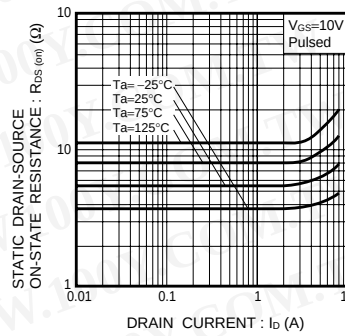


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

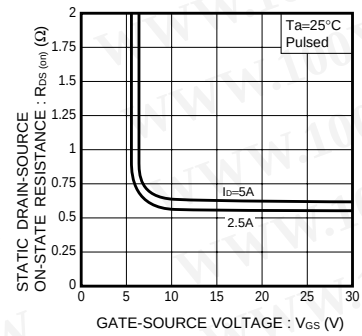


Fig.6 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

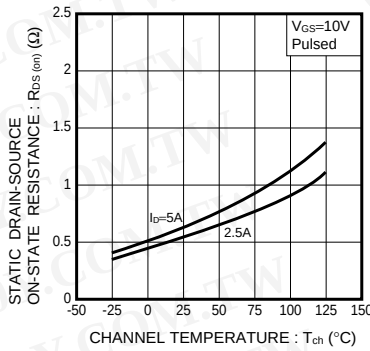


Fig.7 Static Drain-Source On-State Resistance vs. Channel Temperature

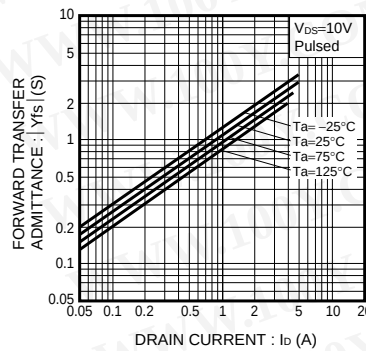


Fig.8 Forward Transfer Admittance vs. Drain Current

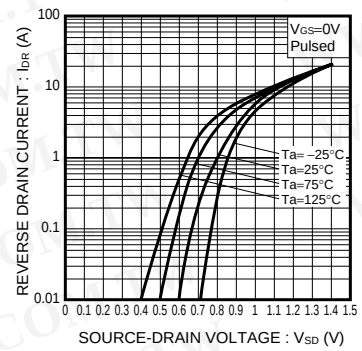


Fig.9 Reverse Drain Current vs. Source-Drain Voltage

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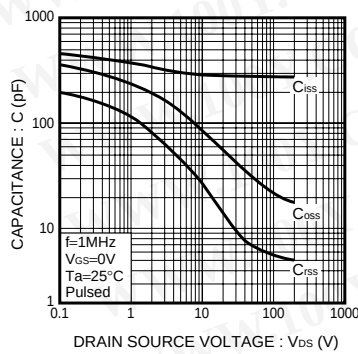


Fig.10 Typical Capacitance vs. Drain-Source Voltage

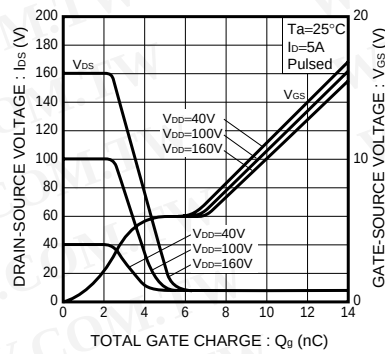


Fig.11 Dynamic Input Characteristics

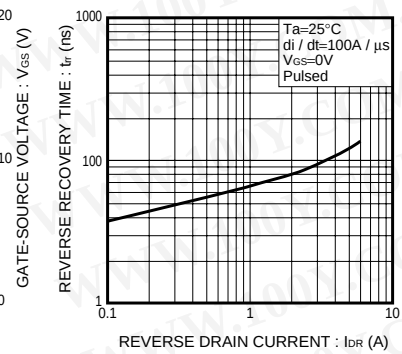


Fig.12 Reverse Recovery Time vs. Reverse Drain Current

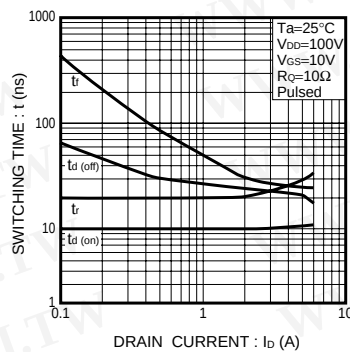


Fig.13 Switching Characteristics

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●Switching characteristics measurement circuit

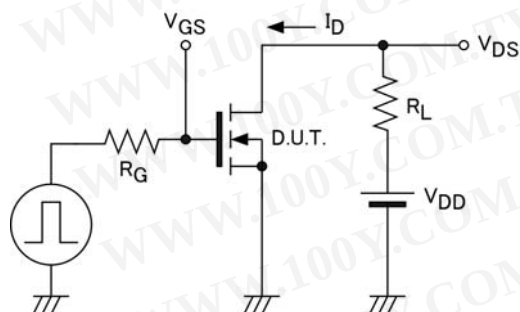


Fig.1-1 Switching time measurement circuit

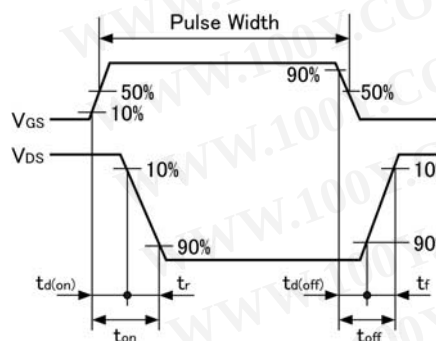


Fig.1-2 Switching waveforms

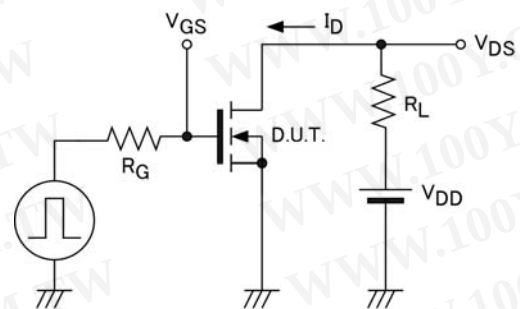


Fig.2-1 Gate charge measurement circuit

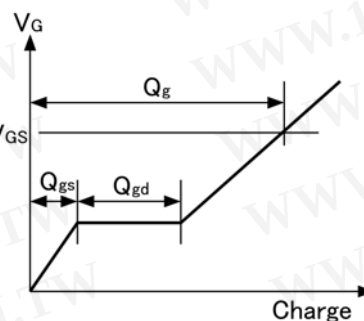


Fig.2-2 Gate charge waveform

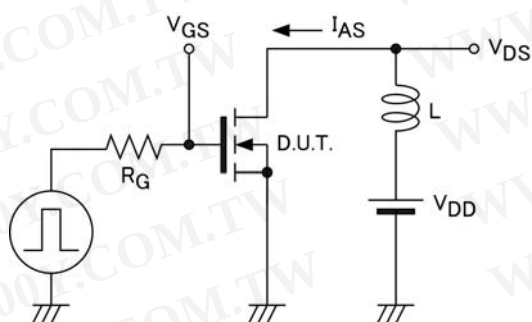


Fig.3-1 Avalanche measurement circuit

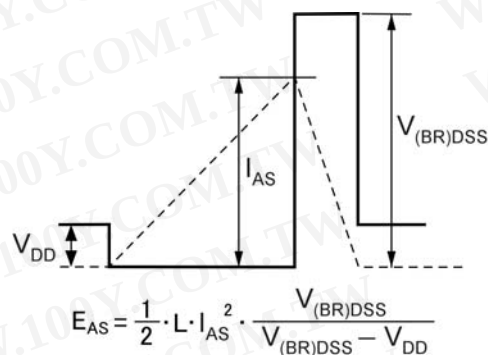


Fig.3-2 Avalanche waveform

Appendix

Notes

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