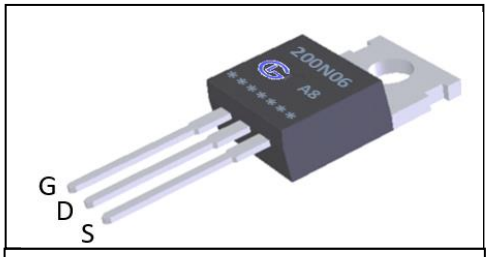
GL200N06A8

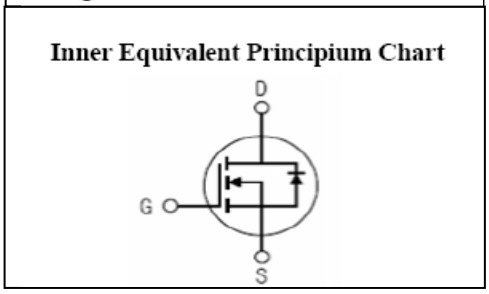
GL Silicon N-Channel Power MOSFET

General Description：

The GL200N06A8 uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications. The package form is TO-220AB, which accords with the RoHS standard.

V_{DSS}	60	V
I_D	208	A
P_D	333	W
$R_{DS(ON)type}$	2.4	mΩ





Features：

- **Fast Switching**
- **Low Gate Charge and Rdson**
- **Low Reverse transfer capacitances**
- **100% Single Pulse avalanche energy Test**

Applications：

Power switching application
Hard switched and high frequency circuits
Uninterruptible power supply

Absolute（Tc= 25℃ unless otherwise specified）：

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	60	V
I_D	Continuous Drain Current	208	A
	Continuous Drain Current T_C = 100 °C	147	A
I_{DM}	Pulsed Drain Current	832	A
V_{GS}	Gate-to-Source Voltage	±20	V
E_{AS} a2	Single Pulse Avalanche Energy	1600	mJ
E_{AR} a1	Avalanche Energy ,Repetitive	95	mJ
I_{AR} a1	Avalanche Current	80	A
dv/dt a3	Peak Diode Recovery dv/dt	5.0	V/ns
P_D	Power Dissipation	333	W
T_J， T_{stg}	Operating Junction and Storage Temperature Range	175，–55 to 175	℃
T_L	MaximumTemperature for Soldering	300	℃

Electrical Characteristics（Tc= 25℃ unless otherwise specified）:

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	60	--	--	V
$\Delta BV_{DSS}/\Delta T_J$	Bvdss Temperature Coefficient	ID=250uA,Reference25℃	--	0.1	--	V/℃
I_{DSS}	Drain to Source Leakage Current	V_{DS} = 60V, V_{GS}= 0V, T_a = 25℃	--	--	1	μA
		V_{DS} =48V, V_{GS}= 0V, T_a = 125℃	--	--	250	
$I_{GSS(F)}$	Gate to Source Forward Leakage	V_{GS} =+20V	--	--	1	μA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	V_{GS} =-20V	--	--	-1	μA

ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=10V,I_D=80A	--	2.4	3.0	mΩ
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2.0	3.0	4.0	V
Pulse width tp≤380μs, δ ≤2%						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g_{fs}	Forward Transconductance	V_{DS}=25V, I_D =80A	110	--	--	S
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 30V f = 1.0MHz	--	9100	--	pF
C_{oss}	Output Capacitance		--	850	--	
C_{rss}	Reverse Transfer Capacitance		--	330	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	I_D =80A V_{DD} = 30V V_{GS} = 10V R_G = 2.5Ω	--	55	--	ns
tr	Rise Time		--	160	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	95	--	
t_f	Fall Time		--	80	--	
Q_g	Total Gate Charge	I_D =80A V_{DD} =30V V_{GS} = 10V	--	120	--	nC
Q_{gs}	Gate to Source Charge		--	40	--	
Q_{gd}	Gate to Drain (“Miller”)Charge		--	33	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)		--	--	200	A
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	832	A
V_{SD}	Diode Forward Voltage	I_S=80A,V_{GS}=0V	--	--	1.5	V
trr	Reverse Recovery Time	I_S=80A,T_j = 25° C dI_F/dt=100A/us, V_{GS}=0V	--	99	--	ns
Qrr	Reverse Recovery Charge		--	190	--	nC
Pulse width tp≤380μs, δ ≤2%						

Symbol	Parameter	Typ.	Units
$R_{\theta c}$	Junction-to-Case	0.38	℃/W

[a1]: Repetitive rating; pulse width limited by maximum junction temperature
[a2]: EAS condition : Tj=25℃ ,VDD= 30V,VG=10V,L=0.5mH,Rg=25Ω
[a3]: I_{SD} =80A,di/dt ≤100A/us,V_{DD}≤BV_{DS}, Start T_J=25℃

Test Circuit and Waveform

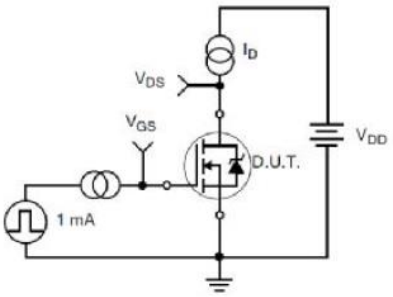


Figure 17. Gate Charge Test Circuit

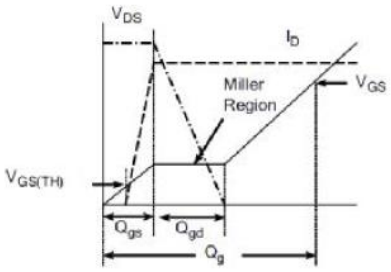


Figure 18. Gate Charge Waveform

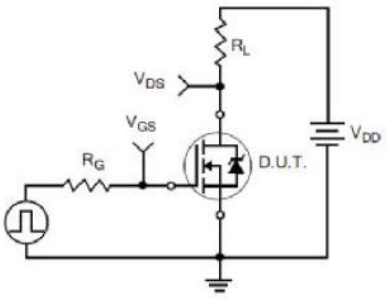


Figure 19. Resistive Switching Test Circuit

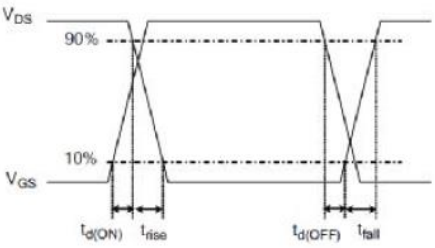


Figure 20. Resistive Switching Waveforms

Figure 1. Maximum Effective Thermal Impedance, Junction-to-Case

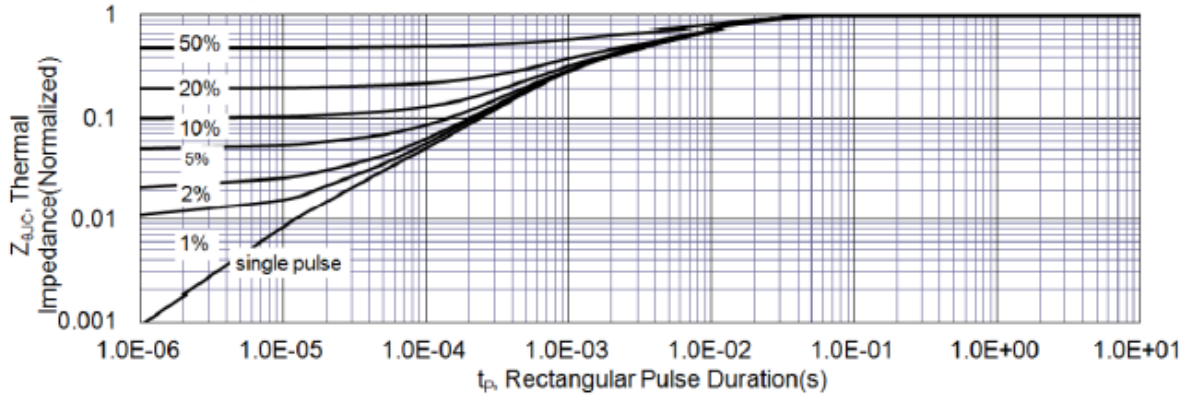


Figure 2. Maximum Power Dissipation vs. Case Temperature

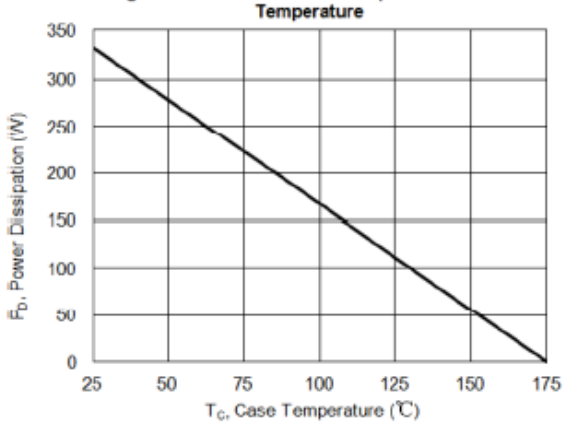


Figure 3. Maximum Continuous Drain Current vs Case Temperature

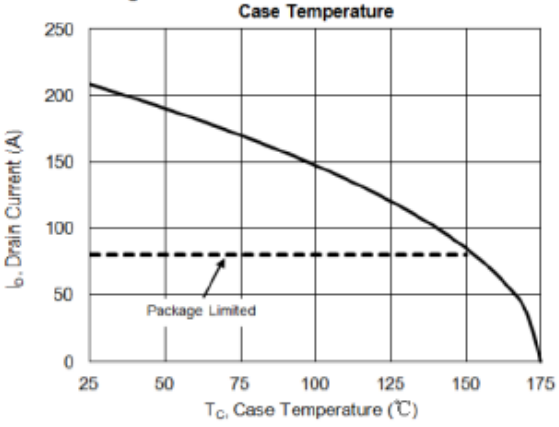


Figure 4. Typical Output Characteristics

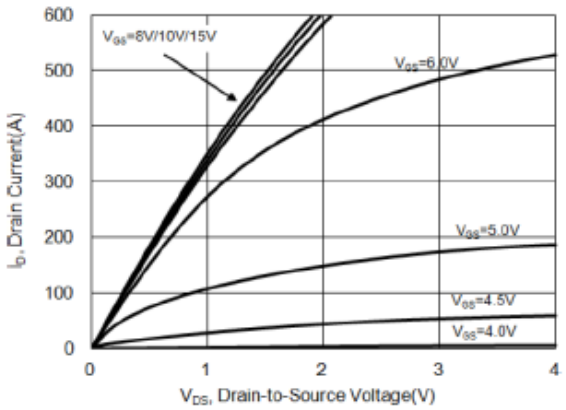


Figure 5. Typical Drain-to-Source ON Resistance vs. Gate Voltage

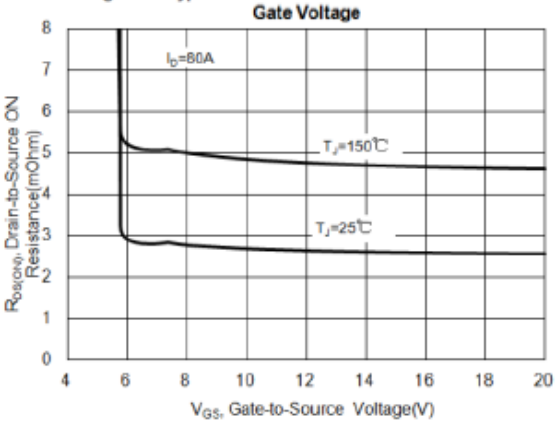


Figure 6. Maximum Peak Current Capability

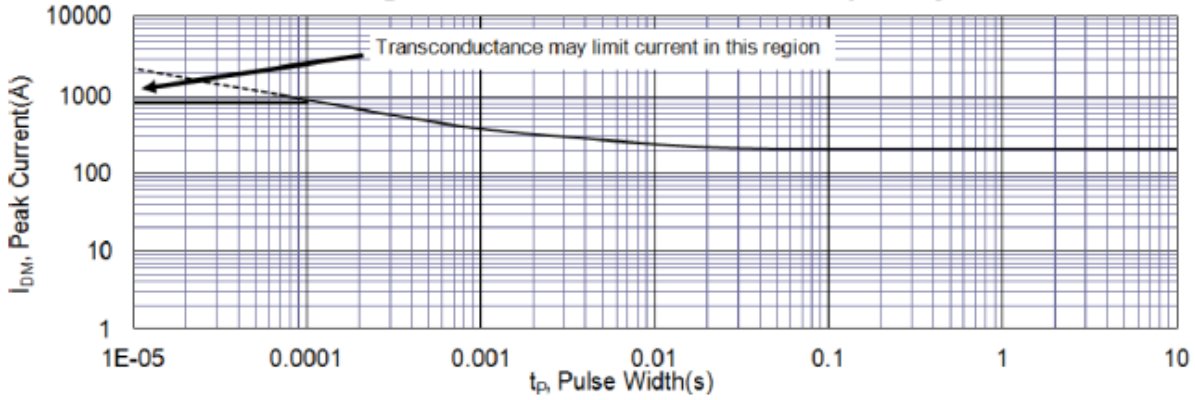


Figure 7. Typical Transfer Characteristics

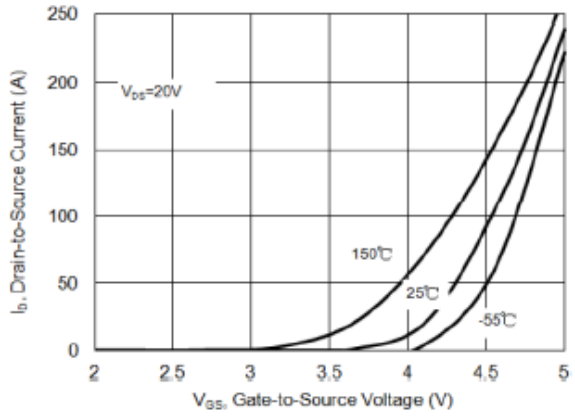


Figure 8. Unclamped Inductive Switching Capability

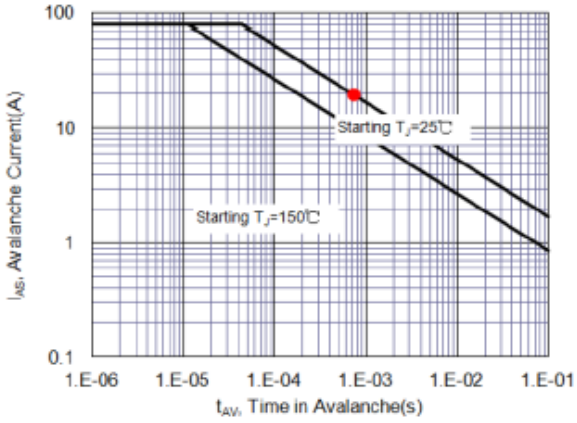


Figure 9. Typical Drain-to-Source ON Resistance

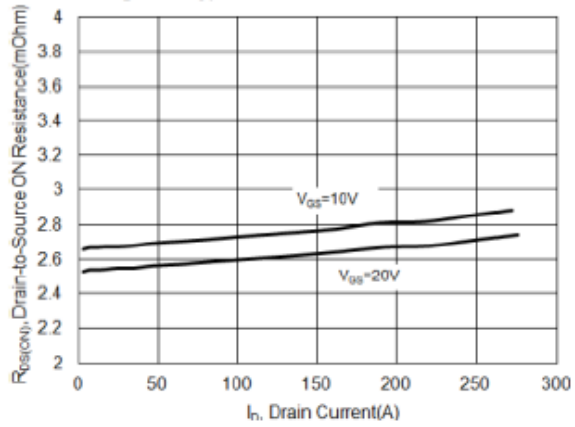


Figure 10. Typical Drain-to-Source On Resistance vs. Junction Temperature

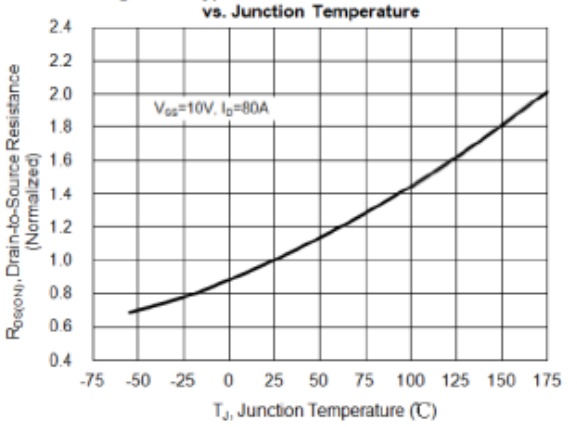


Figure 11. Typical Breakdown Voltage vs. Junction Temperature

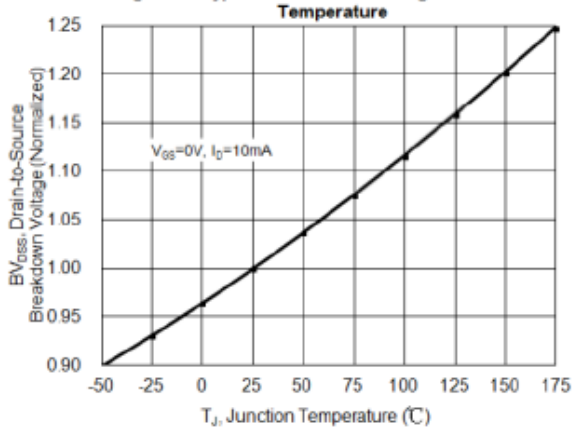


Figure 12. Typical Threshold Voltage vs. Junction Temperature

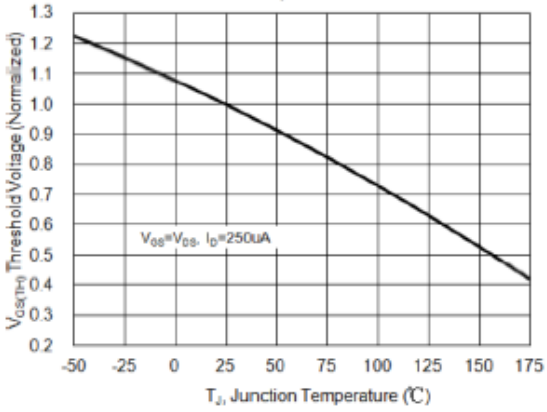


Figure 13. Maximum Forward Safe Operation Area

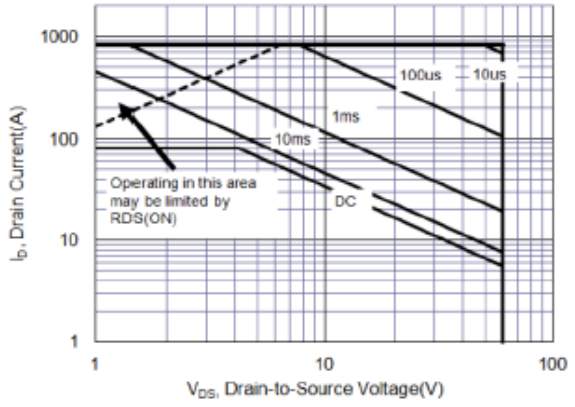


Figure 14. Typical Capacitance vs. Drain-to-Source Voltage

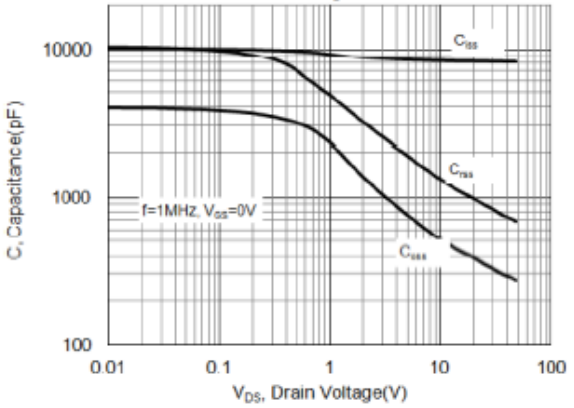


Figure 15. Typical Gate Charge vs. Gate-to-Source Voltage

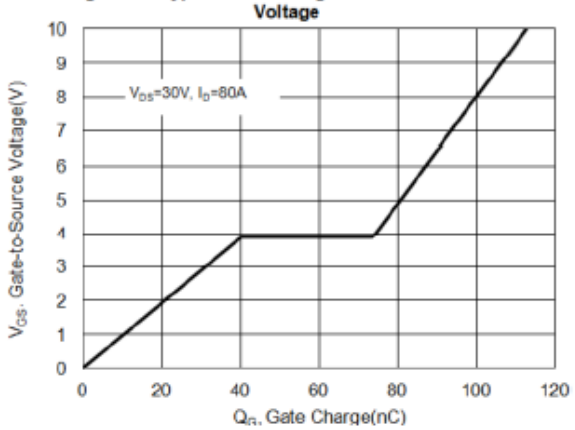
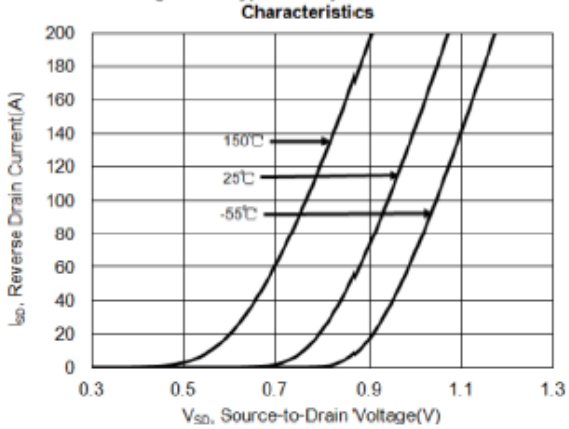


Figure 16. Typical Body Diode Transfer Characteristics



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