



GL200N06A0

GL Silicon N-Channel Power MOSFET

General Description:

The GL200N06A0 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications. The package form is TO-263, which accords with the RoHS standard.

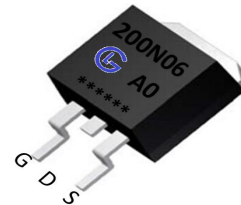
Features:

- Fast Switching
- Low Gate Charge and $R_{DS(ON)}$
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

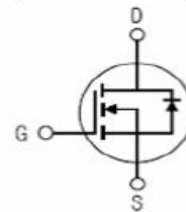
Applications:

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

V_{DSS}	60	V
I_D	200	A
P_D	250	W
$R_{DS(ON)type}$	3.3	m Ω



Inner Equivalent Principium Chart



Absolute (Tc= 25℃ unless otherwise specified):

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	60	V
I_D	Continuous Drain Current	200	A
	Continuous Drain Current T _c = 100 °C	160	A
I_{DM}	Pulsed Drain Current	800	A
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}^{a2}	Single Pulse Avalanche Energy	600	mJ
E_{AR}^{a1}	Avalanche Energy ,Repetitive	80	mJ
I_{AR}^{a1}	Avalanche Current	96	A
$\frac{dv}{dt}^{a3}$	Peak Diode Recovery dv/dt	5.0	V/ns
P_D	Power Dissipation	250	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	175, -55 to 175	°C
T_L	MaximumTemperature for Soldering	300	°C



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Electrical Characteristics (Tc= 25 °C 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
Δ BV _{DSS} / Δ T _J	Bvdss Temperature Coefficient	ID=250uA, Reference 25 °C	--	0.1	--	V/°C
I _{DSS}	Drain to Source Leakage Current	V _{DS} = 60V, V _{GS} = 0V, T _a = 25 °C	--	--	1	μA
		V _{DS} =48V, V _{GS} = 0V, T _a = 125 °C	--	--	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 =100A	--	3.3	3.6	mΩ
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2.0	--	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} =5V, I _D =50A	120	--	--	S
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 30V f = 1.0MHz	--	8000	--	pF
C _{oss}	Output Capacitance		--	1200	--	
C _{rss}	Reverse Transfer Capacitance		--	90	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
t _{d(ON)}	Turn-on Delay Time	I _D =60A V _{DD} = 30V V _{GS} = 10V R _G = 2.5Ω	--	26	--	ns
t _r	Rise Time		--	25	--	
t _{d(OFF)}	Turn-Off Delay Time		--	120	--	
t _f	Fall Time		--	36	--	
Q _g	Total Gate Charge	I _D =60A V _{DD} =30V V _{GS} = 10V	--	150	--	nC
Q _{gs}	Gate to Source Charge		--	30	--	
Q _{gd}	Gate to Drain ("Miller")Charge		--	20	--	

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)		--	--	800	A
V_{SD}	Diode Forward Voltage	$I_S=100A, V_{GS}=0V$	--	--	1.5	V
t_{rr}	Reverse Recovery Time	$I_S=100A, T_J = 25^\circ C$	--	90	--	ns
Q_{rr}	Reverse Recovery Charge	$dI_F/dt=100A/us, V_{GS}=0V$	--	150	--	nC
Pulse width $t_p \leq 380\mu s, \delta \leq 2\%$						

Symbol	Parameter	Typ.	Units
$R_{\theta c}$	Junction-to-Case	1.8	$^\circ C/W$

^{a1}: Repetitive rating; pulse width limited by maximum junction temperature

^{a2}: EAS condition : $T_J=25^\circ C, V_{DD}=30V, V_G=10V, L=0.5mH, R_g=25\Omega$

^{a3}: $I_{SD}=100A, di/dt \leq 100A/us, V_{DD} \leq BV_{DS}, \text{Start } T_J=25^\circ C$

Test Circuit and Waveform

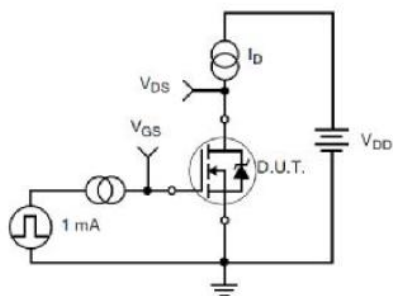


Figure 17. Gate Charge Test Circuit

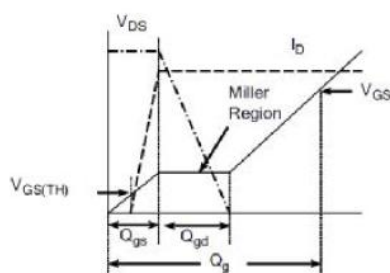


Figure 18. Gate Charge Waveform

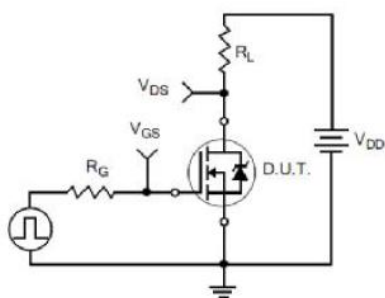


Figure 19. Resistive Switching Test Circuit

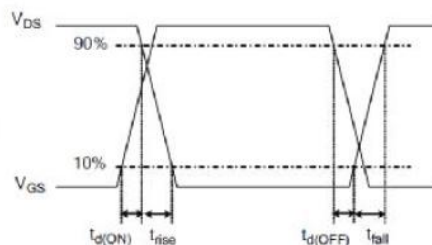


Figure 20. Resistive Switching Waveforms