

General Description:

The GL25P06-8 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 SOP-8, which accords with the RoHS standard.

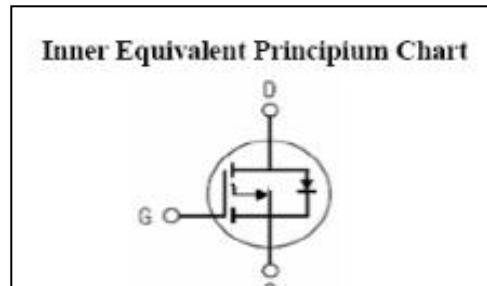
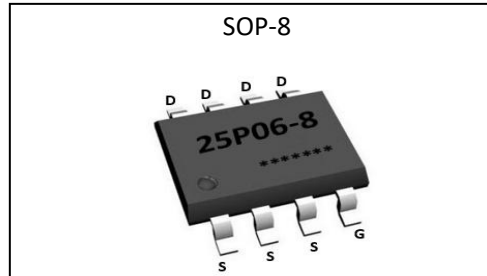
Features:

- 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	-25	A
P_D	3	W
$R_{DS(ON)type}$	25	$m\Omega$



Absolute ($T_c = 25^\circ\text{C}$ unless otherwise specified):

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	-60	V
I_D	Continuous Drain Current	-25	A
	Continuous Drain Current $T_c = 100^\circ\text{C}$	-17.7	A
I_{DM}^{a1}	Pulsed Drain Current	-60	A
V_{GS}	Gate-to-Source Voltage	± 20	V
$\frac{dv}{dt}^{a3}$	Peak Diode Recovery $\frac{dv}{dt}$	5.0	V/ns
P_D	Power Dissipation	3	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	150, -55 to 150	$^\circ\text{C}$
T_L	Maximum Temperature for Soldering	300	$^\circ\text{C}$



GL25P06-8

GL Silicon P-Channel Power MOSFET

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

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Unit s
			Min.	Typ.	Max.	
V _{DSS}	Drain to Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-60	--	--	V
ΔBV _{DSS} /ΔT _J	Bvdss Temperature Coefficient	ID=-250uA, Reference 25℃	--	0.15	--	V/℃
I _{DSS}	Drain to Source Leakage Current	V _{DS} = -60, 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 =-20.0A	--	25	35	mΩ
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-3.0	--	-1.0	V
Pulse width tp ≤ 380μs, δ ≤ 2%						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g _{fs}	Forward Transconductance	V _{DS} =-10V, I _D =-5A	--	16	--	S
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = -25V f = 1.0MHz	--	3430	--	pF
C _{oss}	Output Capacitance		--	391	--	
C _{rss}	Reverse Transfer Capacitance		--	272	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
t _{d(ON)}	Turn-on Delay Time	R _L =-1.5 Ω V _{DD} = -30V V _{GS} = -10V R _G =1.5Ω	--	12	--	ns
t _r	Rise Time		--	15	--	
t _{d(OFF)}	Turn-Off Delay Time		--	38	--	
t _f	Fall Time		--	15	--	
Q _g	Total Gate Charge	I _D =-20.0A V _{DD} =-30V V _{GS} = -10V	--	46	--	nC
Q _{gs}	Gate to Source Charge		--	9.5	--	
Q _{gd}	Gate to Drain ("Miller")Charge		--	11	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)		--	--	-25	A
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	-60	A
V_{SD}	Diode Forward Voltage	$I_S = -25A, V_{GS} = 0V$	--	--	1.5	V
t_{rr}	Reverse Recovery Time	$I_S = -25A, T_J = 25^\circ C$	--	50	--	ns
Q_{rr}	Reverse Recovery Charge	$dI_F/dt = 100A/us, V_{GS} = 0V$	--	110	--	nC
Pulse width $t_p \leq 380\mu s, \delta \leq 2\%$						

Symbol	Parameter	Typ.	Units
$R_{\theta JA}$	Junction-to-Ambient	42	$^\circ C/W$

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

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

Typical Electrical and Thermal Characteristics

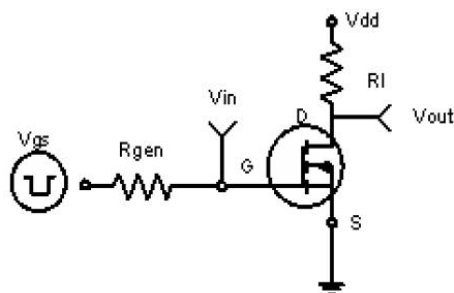


Figure 1: Switching Test Circuit

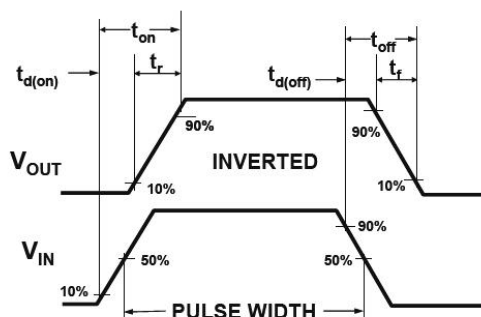


Figure 2: Switching Waveforms

Typical Electrical and Thermal Characteristics (Curves)

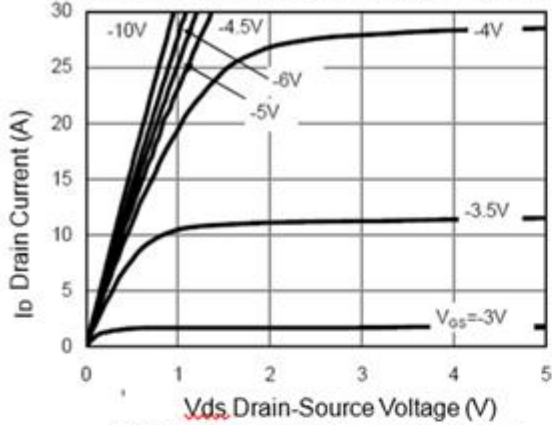


Figure 1 Output Characteristics

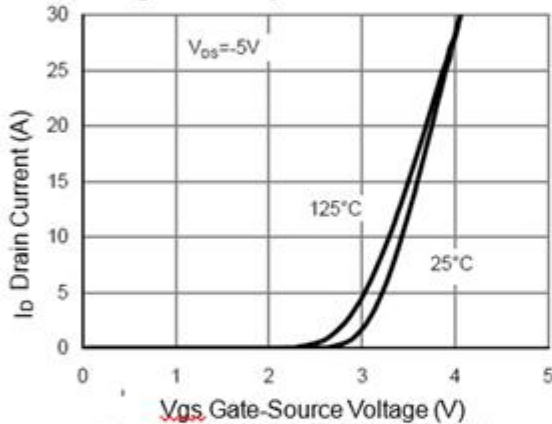


Figure 2 Transfer Characteristics

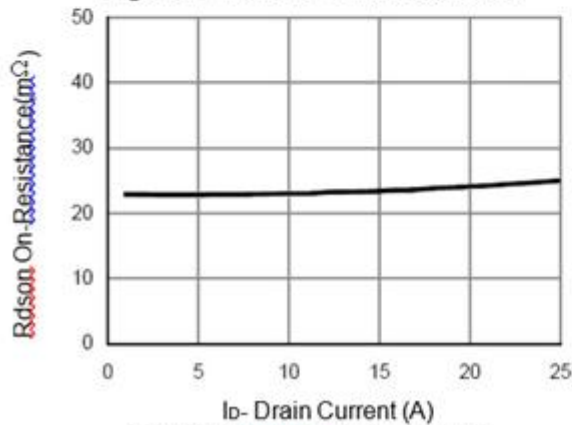


Figure 3 $R_{ds(on)}$ - Drain Current

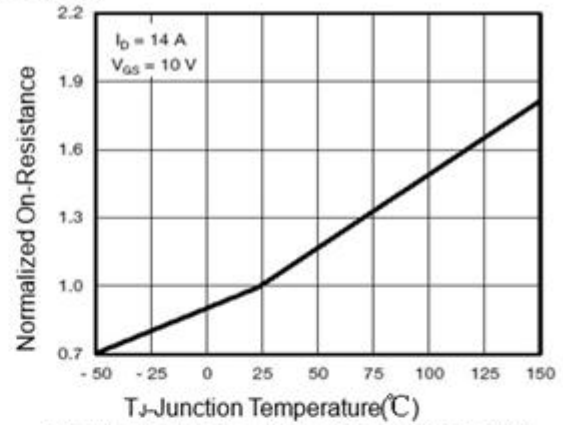


Figure 4 $R_{ds(on)}$ -Junction Temperature

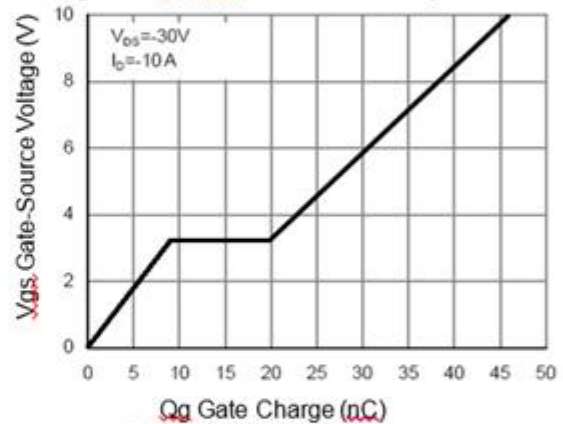


Figure 5 Gate Charge

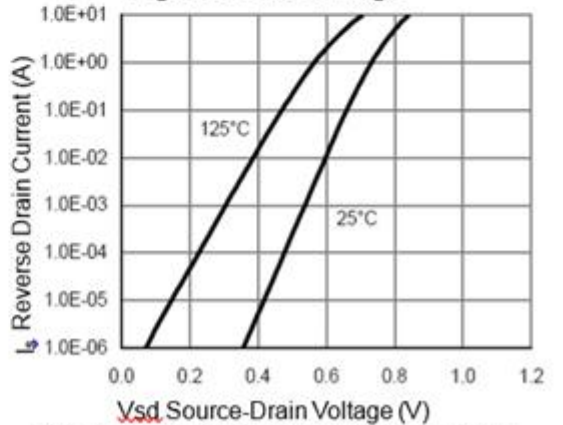


Figure 6 Source- Drain Diode Forward

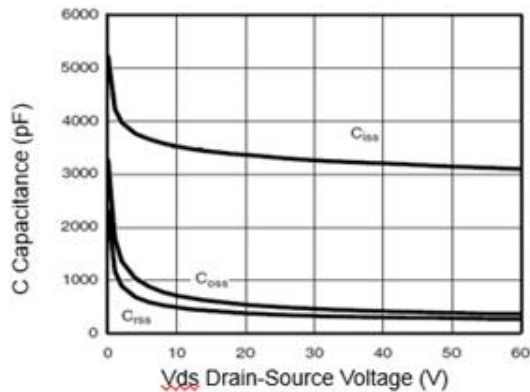


Figure 7 Capacitance vs V_{ds}

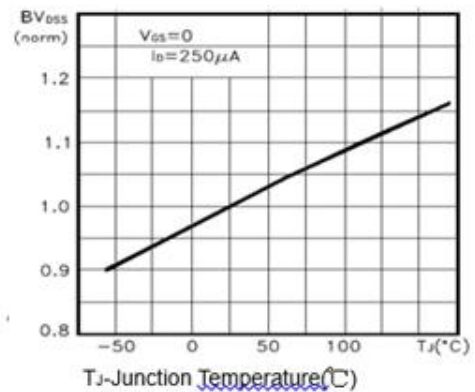


Figure 9 BV_{oss} vs Junction Temperature

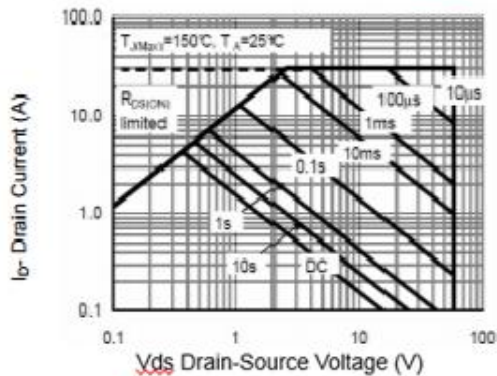


Figure 8 Safe Operation Area

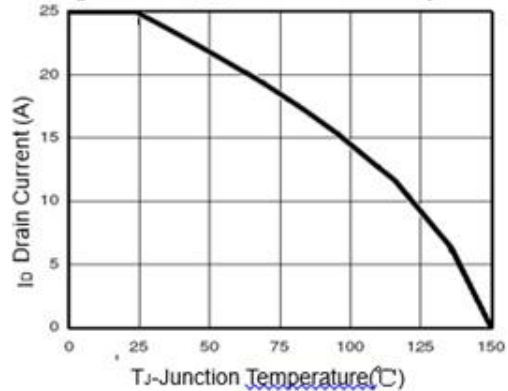


Figure 10 I_D Current De-rating

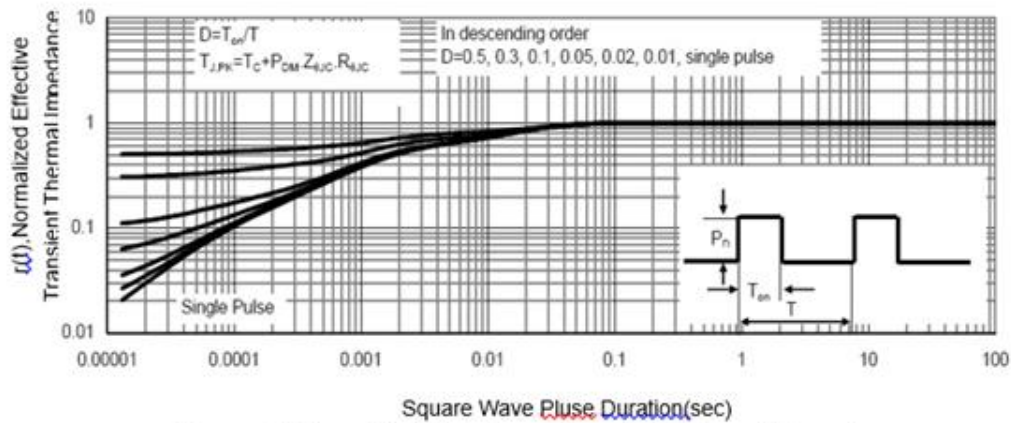


Figure 11 Normalized Maximum Transient Thermal Impedance