

General Description:

GL00602 the silicon N-channel Enhanced VDMOSFETS, is obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy. The transistor can be used in various power switching circuit for system miniaturization and higher efficiency. The package form is SOT-23, which accords with the RoHS standard.

Features:

- Fast Switching
- Low Gate Charge and V_{th}
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

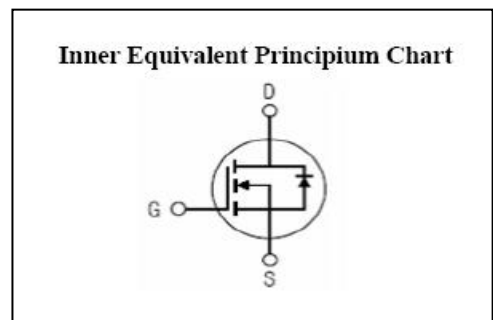
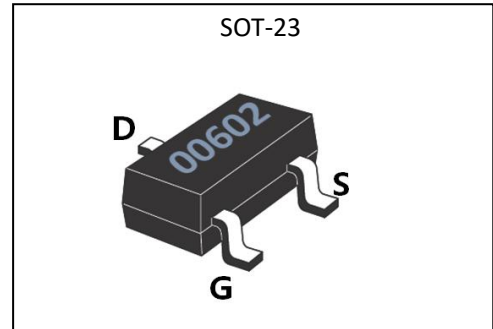
Applications:

- LED Lighting
- Charger
- Standby Power

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

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	200	V
I_D	Continuous Drain Current	60	mA
	Continuous Drain Current $T_c = 100^{\circ}\text{C}$	42	mA
I_{DM}^{a1}	Pulsed Drain Current	1	A
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}^{a2}	Single Pulse Avalanche Energy	1	mJ
dv/dt^{a3}	Peak Diode Recovery dv/dt	5.0	V/ns
P_{tot}	Power Dissipation $T_a = 25^{\circ}\text{C}$	330	mW
T_J, T_{stg}	Operating Junction and Storage Temperature Range	150, -55 to 150	$^{\circ}\text{C}$
T_L	Maximum Temperature for Soldering	300	$^{\circ}\text{C}$

V_{DSS}	200	V
I_D	60	mA
$P_{tat} (T_a=25^{\circ}\text{C})$	330	mW
$R_{DS(ON)typ}$	18.5	Ω





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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	$V_{GS}=0V, I_D=250\mu A$	200	--	--	V
$\Delta B V_{DSS}/\Delta T_J$	Bvdss Temperature Coefficient	$I_D=250\mu A, \text{Reference } 25^\circ C$	--	0.21	--	V/°C
I_{DSS}	Drain to Source Leakage Current	$V_{DS}=200V, V_{GS}=0V, T_a=25^\circ C$	--	--	1	μA
		$V_{DS}=160V, V_{GS}=0V, T_a=125^\circ C$	--	--	10	
$I_{GSS(F)}$	Gate to Source Forward Leakage	$V_{GS}=+20V$	--	--	100	nA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	$V_{GS}=-20V$	--	--	-100	nA

ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$R_{DS(ON)}$	Drain-to-Source On-Resistance	$V_{GS}=10V, I_D=30mA$	--	18.5	23	Ω
$R_{DS(ON)}$	Drain-to-Source On-Resistance	$V_{GS}=4.5V, I_D=20mA$	--	20.0	25	Ω
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	1.5	2.0	V
Pulse width $t_p \leq 300\mu s, \delta \leq 2\%$						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g_{fs}	Forward Transconductance	$V_{DS}=25V, I_D=60mA$	--	80	--	mS
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=25V$ $f=1.0MHz$	--	12	--	pF
C_{oss}	Output Capacitance		--	2	--	
C_{rss}	Reverse Transfer Capacitance		--	1	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	$I_D=30mA, V_{DD}=100V$ $R_G=10\Omega$	--	2	--	ns
t_r	Rise Time		--	4	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	6	--	
t_f	Fall Time		--	3	--	
Q_g	Total Gate Charge	$I_D=30mA, V_{DD}=100V$ $V_{GS}=10V$	--	0.6	--	nC
Q_{gs}	Gate to Source Charge		--	0.2	--	
Q_{gd}	Gate to Drain ("Miller") Charge		--	0.7	--	



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Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)		--	--	60	mA
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	1	A
V_{SD}	Diode Forward Voltage	$I_S=30\text{mA}, V_{GS}=0\text{V}$	--	--	1.5	V
t_{rr}	Reverse Recovery Time	$I_S=30\text{mA}, T_J=25^\circ\text{C}$	--	10	--	ns
Q_{rr}	Reverse Recovery Charge	$di_F/dt=100\text{A/us},$	--	2	--	uC
I_{RRM}	Reverse Recovery Current	$V_{GS}=0\text{V}$	--	60	--	mA
Pulse width $t_p \leq 300\mu\text{s}, \delta \leq 2\%$						

Symbol	Parameter	Typ.	Units
$R_{\theta JA}$	Junction-to-Ambient	100	$^\circ\text{C/W}$

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

^{a2}: $L=1.0\text{mH}$, $I_D=1\text{A}$, Start $T_J=25^\circ\text{C}$

^{a3}: $I_{SD}=30\text{mA}, di/dt \leq 100\text{A/us}, V_{DD} \leq BV_{DS}$, Start $T_J=25^\circ\text{C}$