

GC01L60

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BVDSS	600V
RDS(ON)	12Ω
ID	160mA

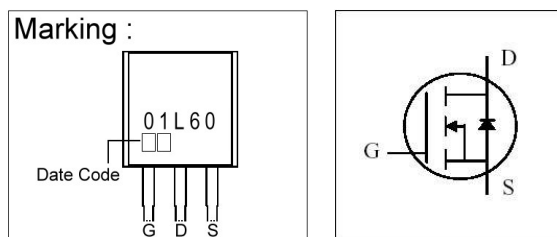
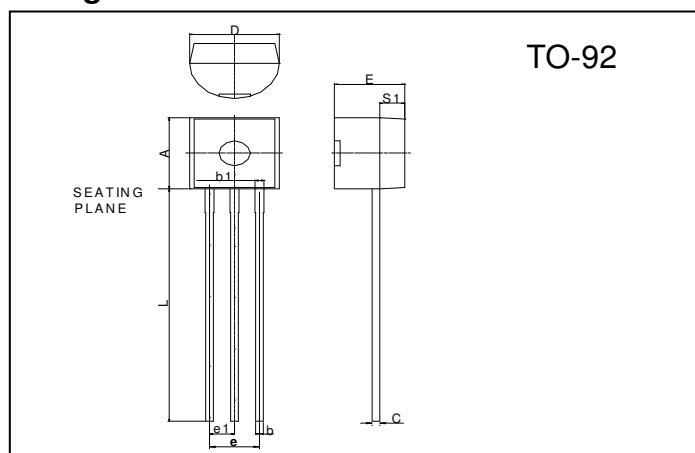
Description

The GC01L06 utilized advanced processing techniques to achieve the possible on-resistance, extremely efficient and cost-effectiveness device.

Features

- *Simple Drive Requirement
- *Low Gate Charge
- *Fast Switching Characteristics

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.45	4.7	D	4.44	4.7
S1	1.02	-	E	3.30	3.81
b	0.36	0.51	L	12.70	-
b1	0.36	0.76	e1	1.150	1.390
C	0.36	0.51	e	2.42	2.66

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current, $V_{GS}@10V$	$I_D @TA=25^{\circ}C$	160	mA
Continuous Drain Current, $V_{GS}@10V$	$I_D @TA=100^{\circ}C$	100	mA
Pulsed Drain Current ¹	I_{DM}	300	mA
Total Power Dissipation	$P_D @TC=25^{\circ}C$	0.83	W
Single Pulse Avalanche Energy ²	E_{AS}	0.5	mJ
Avalanche Current	I_{AR}	1	A
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ +150	$^{\circ}C$

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient Max.	R_{thj-a}	150	$^{\circ}C/W$

Electrical Characteristics(T_j = 25°C Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	600	-	-	V	V _{GS} =0, I _D =1mA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_j$	-	0.8	-	V/°C	Reference to 25°C, I _D =1mA
Gate Threshold Voltage	V _{GS(th)}	2.0	-	4.0	V	V _{DS} =V _{GS} , I _D =250uA
Forward Transconductance	g _{fs}	-	0.8	-	S	V _{DS} =10V, I _D =0.5A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±30V
Drain-Source Leakage Current(T _j =25°C)	I _{DSS}	-	-	10	uA	V _{DS} =600V, V _{GS} =0
Drain-Source Leakage Current(T _j =150°C)		-	-	100	uA	V _{DS} =480V, V _{GS} =0
Static Drain-Source On-Resistance ³	R _{DS(ON)}	-	-	12	Ω	V _{GS} =10V, I _D =0.5A
Total Gate Charge ³	Q _g	-	5	8	nC	I _D =0.5A V _{DS} =480V V _{GS} =10V
Gate-Source Charge	Q _{gs}	-	1.5	-		
Gate-Drain ("Miller") Change	Q _{gd}	-	0.7	-		
Turn-on Delay Time ³	T _{d(on)}	-	8	-	ns	V _{DD} =300V I _D =1A V _{GS} =10V R _G =10Ω R _D =300Ω
Rise Time	T _r	-	5	-		
Turn-off Delay Time	T _{d(off)}	-	13	-		
Fall Time	T _f	-	9	-		
Input Capacitance	C _{iss}	-	260	420	pF	V _{GS} =0V V _{DS} =25V f=1.0MHz
Output Capacitance	C _{oss}	-	20	-		
Reverse Transfer Capacitance	C _{rss}	-	3	-		
Gate Resistance	R _g	-	3	-	Ω	f=1.0MHz

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ³	V _{SD}	-	-	1.2	V	I _S =160mA, V _{GS} =0V
Reverse Recovery Time ³	T _{rr}	-	345	-	ns	I _S =1A, V _{GS} =0V di/dt=100A/μs
Reverse Recovery Charge	Q _{rr}	-	1	-	nC	

Notes: 1. Pulse width limited by safe operating area.

2. Staring T_j=25°C, V_{DD}=50V, L=1mH, R_G=25Ω, I_{AS}=1A.

3. Pulse width ≤ 300us, duty cycle ≤ 2%.

Characteristics Curve

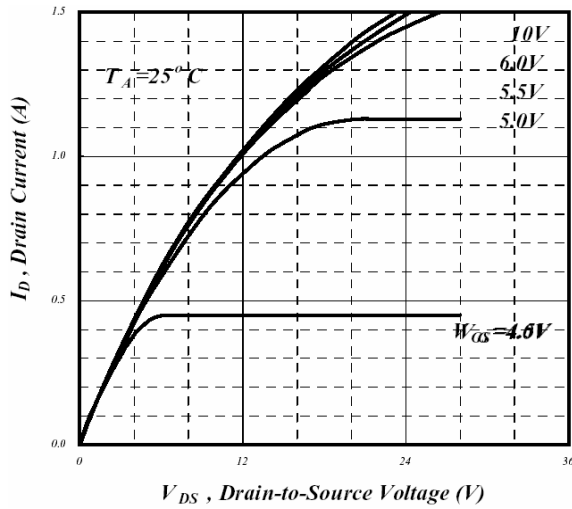


Fig 1. Typical Output Characteristics

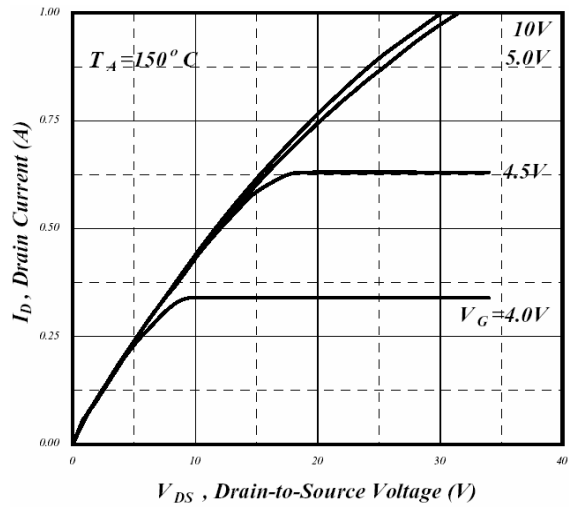


Fig 2. Typical Output Characteristics

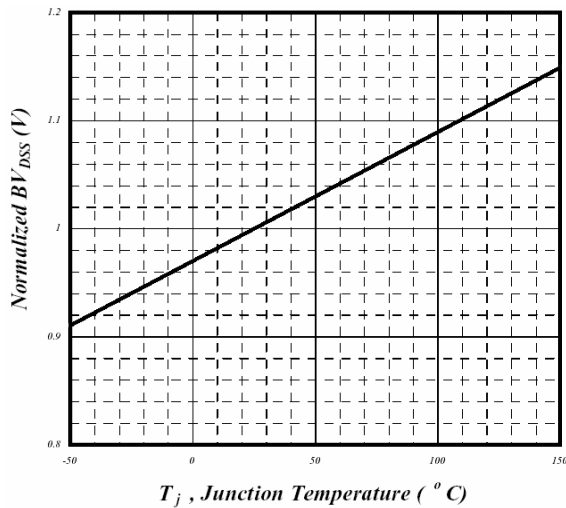


Fig 3. Normalized BV_{DS} v.s. Junction Temperature

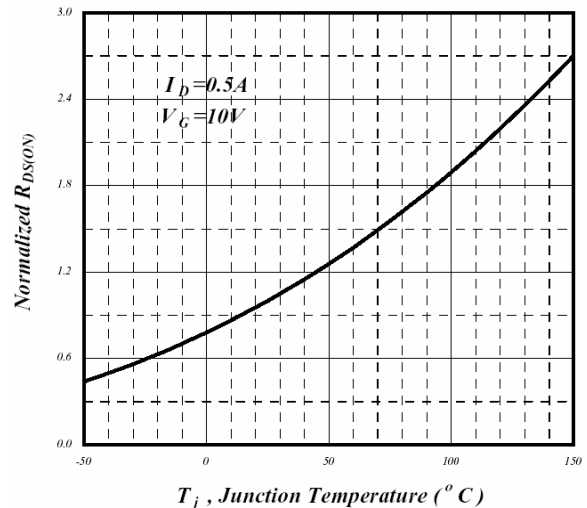


Fig 4. Normalized On-Resistance v.s. Junction Temperature

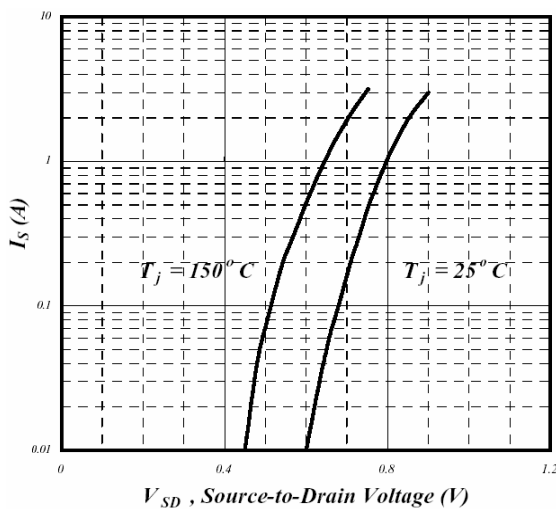


Fig 5. Forward Characteristic of Reverse Diode

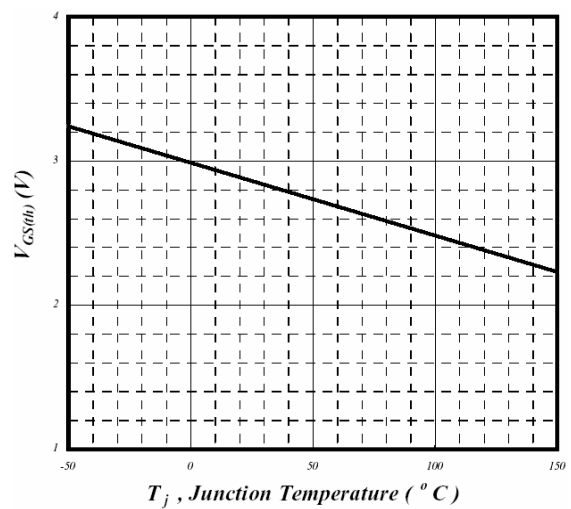


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

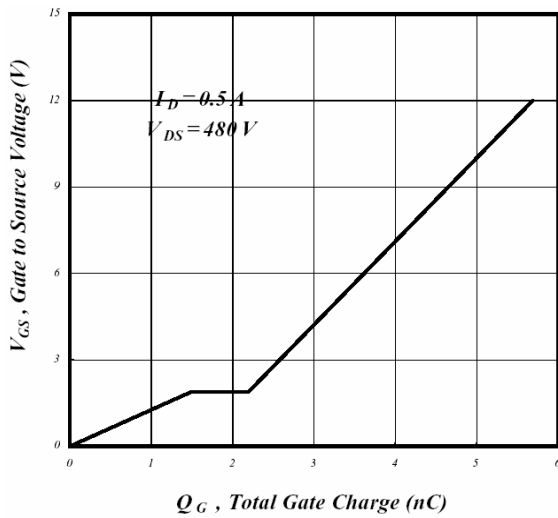


Fig 7. Gate Charge Characteristics

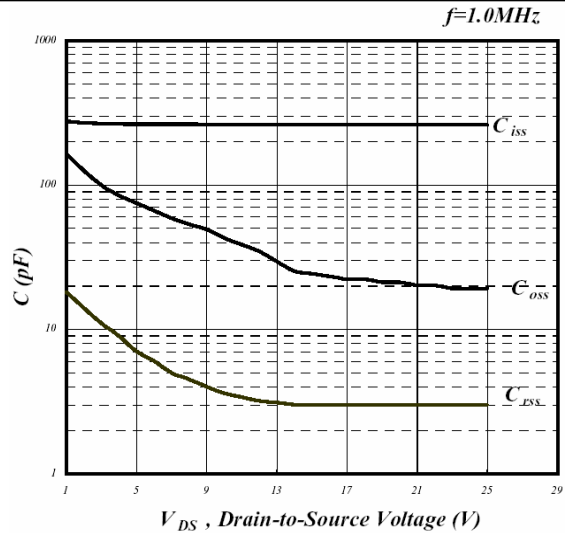


Fig 8. Typical Capacitance Characteristics

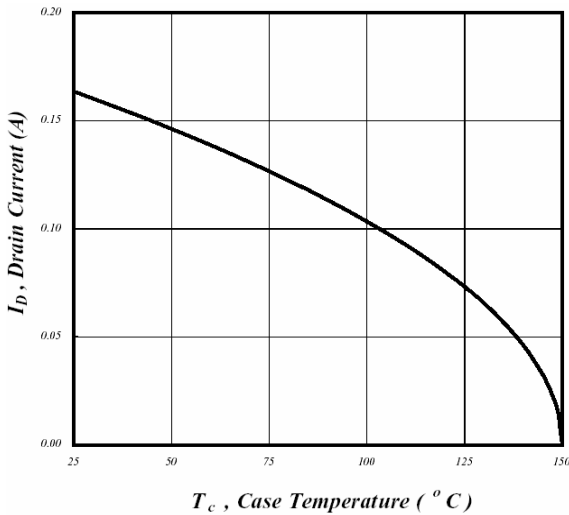


Fig 9. Maximum Drain Current v.s. Case Temperature

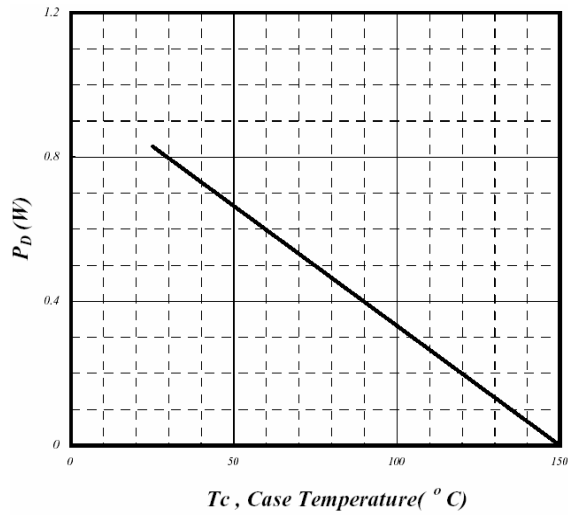


Fig 10. Type Power Dissipation

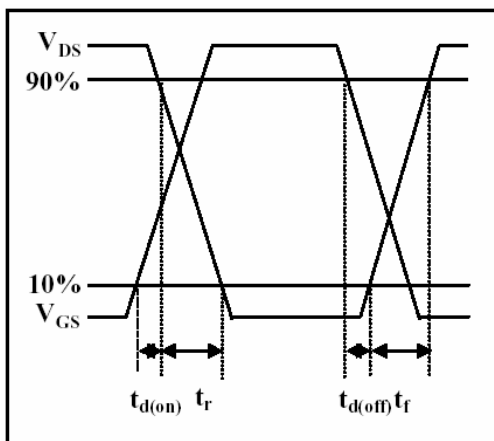


Fig 11. Switching Time Waveform

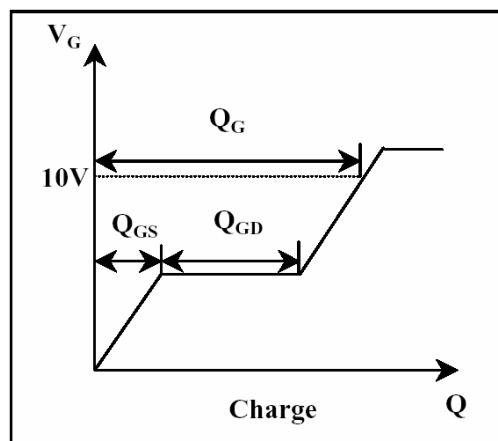


Fig 12. Gate Charge Waveform

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