

GI01L60**N-CHANNEL ENHANCEMENT MODE POWER MOSFET**

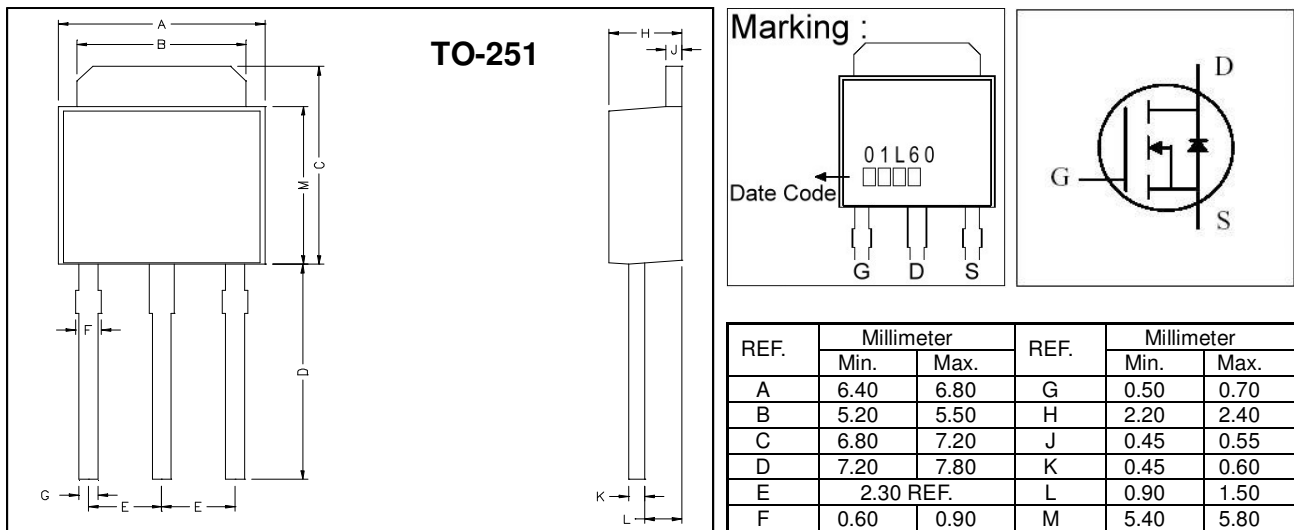
BV _{DSS}	600V
R _{DS(ON)}	12Ω
I _D	1A

Description

The GI01L60 (through-hole version) is available for low-profile applications and suited for AC/DC converters.

Features

- *Repetitive Avalanche Rated
- *Simple Drive Requirement
- *Fast Switching Speed
- *RoHS Compliant

Package Dimensions**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 @T _C =25°C	1	A
Continuous Drain Current, V _{GS} @10V	I _D @T _C =100°C	0.8	A
Pulsed Drain Current ¹	I _{DM}	3	A
Total Power Dissipation	P _D @T _C =25°C	29	W
Linear Derating Factor		0.232	W/°C
Single Pulse Avalanche Energy ²	E _{AS}	0.5	mJ
Avalanche Current	I _{AR}	1	A
Repetitive Avalanche Energy	E _{AR}	0.5	mJ
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-case Max.	R _{thj-case}	4.3	°C/W
Thermal Resistance Junction-ambient Max.	R _{thj-amb}	110	°C/W

Electrical Characteristics(Tj = 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	$V_{DS}=V_{GS}, I_D=250\mu A$
Forward Transconductance	g_{fs}	-	0.8	-	S	$V_{DS}=10V, I_D=0.5A$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}= \pm 30V$
Drain-Source Leakage Current(Tj=25°C)	I_{DSS}	-	-	10	μA	$V_{DS}=600V, V_{GS}=0$
Drain-Source Leakage Current(Tj=150°C)		-	-	100	μA	$V_{DS}=480V, V_{GS}=0$
Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	-	-	12	Ω	$V_{GS}=10V, I_D=0.5A$
Total Gate Charge ³	Q_g	-	4.0	-	nC	$I_D=1A$ $V_{DS}=480V$ $V_{GS}=10V$
Gate-Source Charge	Q_{gs}	-	1.0	-		
Gate-Drain ("Miller") Change	Q_{gd}	-	1.1	-		
Turn-on Delay Time ²	$T_{d(on)}$	-	6.6	-	ns	$V_{DD}=300V$ $I_D=1A$ $V_{GS}=10V$ $R_G=3.3\Omega$ $R_D=300\Omega$
Rise Time	T_r	-	5.0	-		
Turn-off Delay Time	$T_{d(off)}$	-	11.7	-		
Fall Time	T_f	-	9.2	-		
Input Capacitance	C_{iss}	-	170	-	pF	$V_{GS}=0V$ $V_{DS}=25V$ $f=1.0MHz$
Output Capacitance	C_{oss}	-	30.7	-		
Reverse Transfer Capacitance	C_{rss}	-	5.1	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ³	V_{SD}	-	-	1.2	V	$I_S=1A, V_{GS}=0V, T_j=25^\circ C$
Continuous Source Current (Body Diode)	I_S	-	-	1	A	$V_D=V_G=0V, V_S=1.2V$
Pulsed Source Current (Body Diode) ¹	I_{SM}	-	-	5	A	

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

2. Staring $T_j=25^\circ C$, $V_{DD}=50V$, $L=1.0mH$, $R_G=25\Omega$, $I_{AS}=1.0A$.

3. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Characteristics Curve

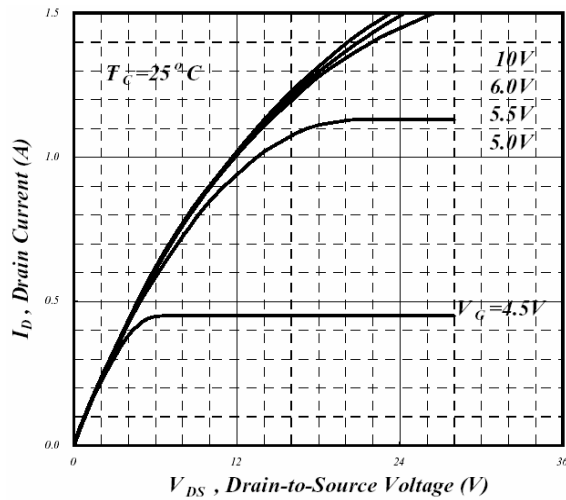


Fig 1. Typical Output Characteristics

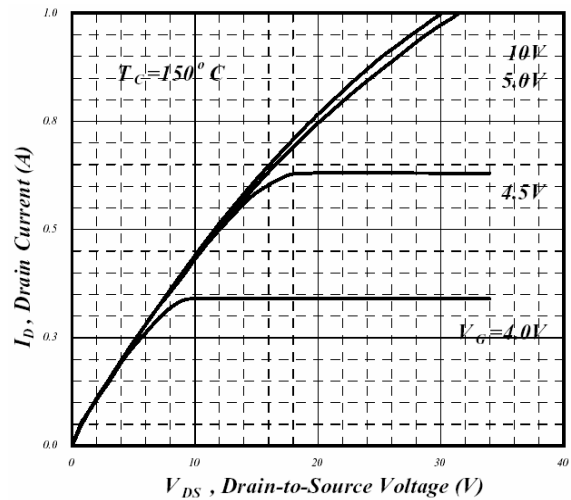


Fig 2. Typical Output Characteristics

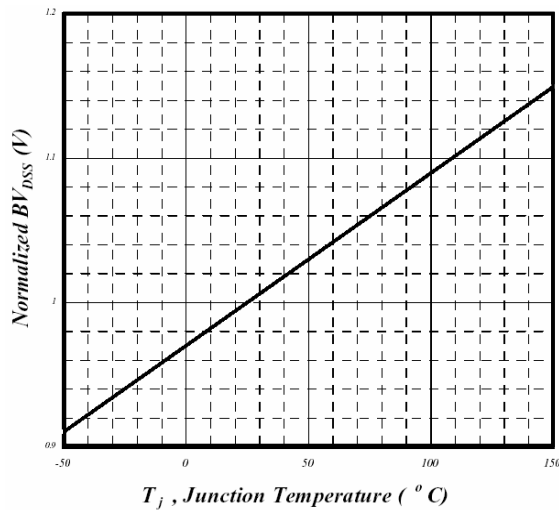


Fig 3. Normalized BV_{DSS} v.s. Junction Temperature

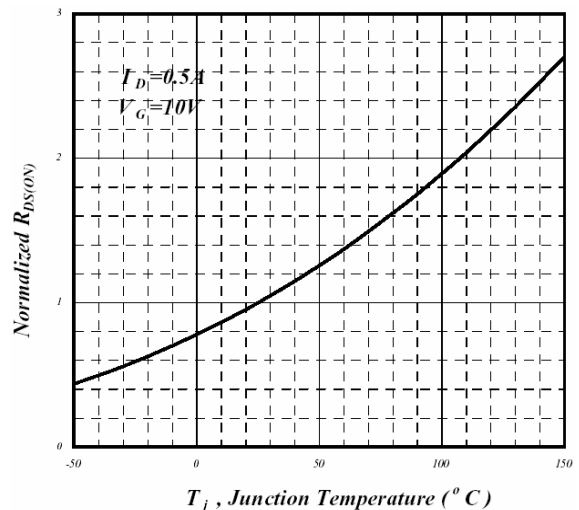


Fig 4. Normalized On-Resistance v.s. Junction Temperature

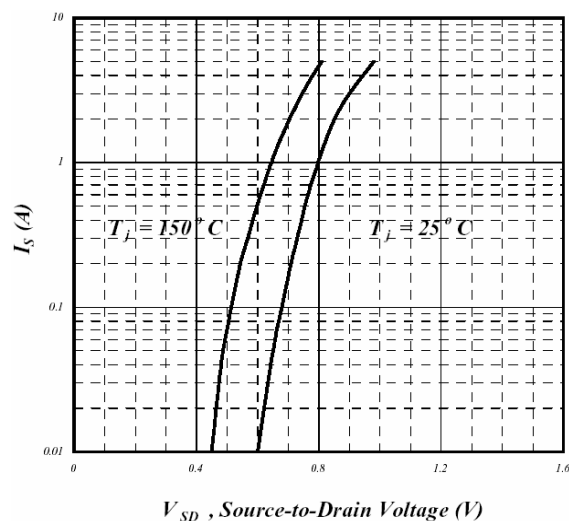


Fig 5. Forward Characteristics of Reverse Diode

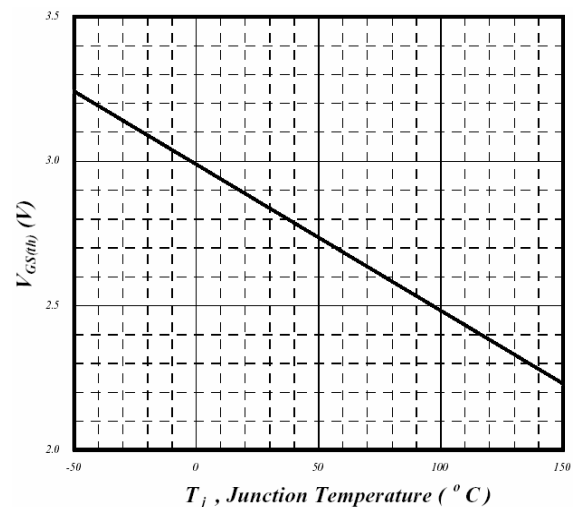


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

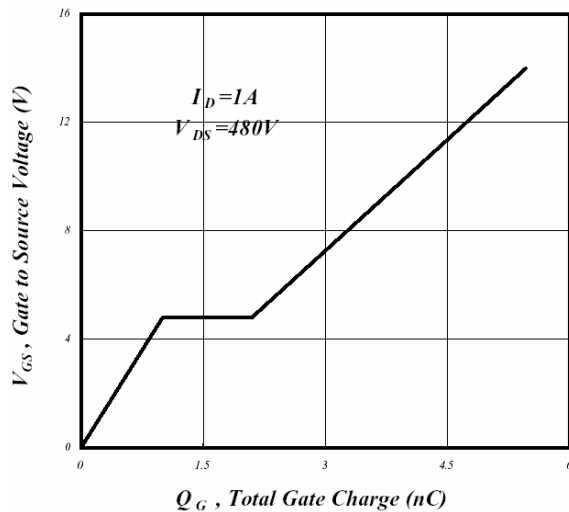


Fig 7. Gate Charge Characteristics

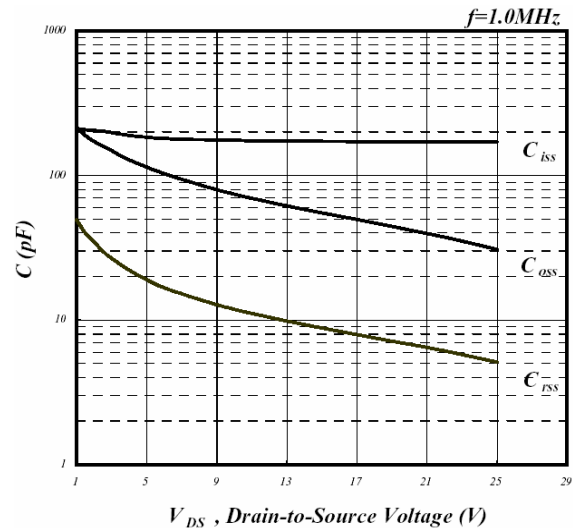


Fig 8. Typical Capacitance Characteristics

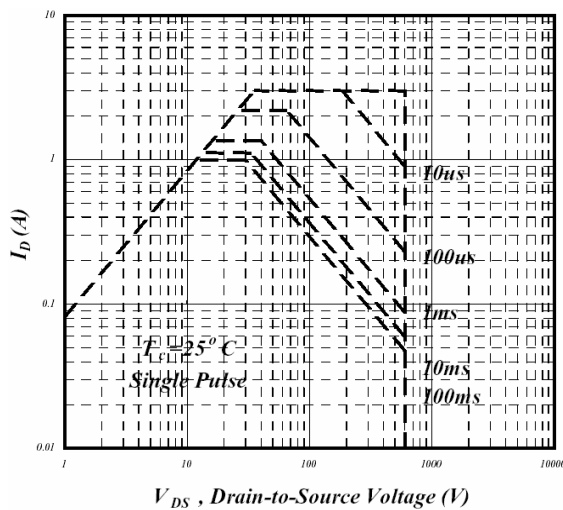


Fig 9. Maximum Safe Operating Area

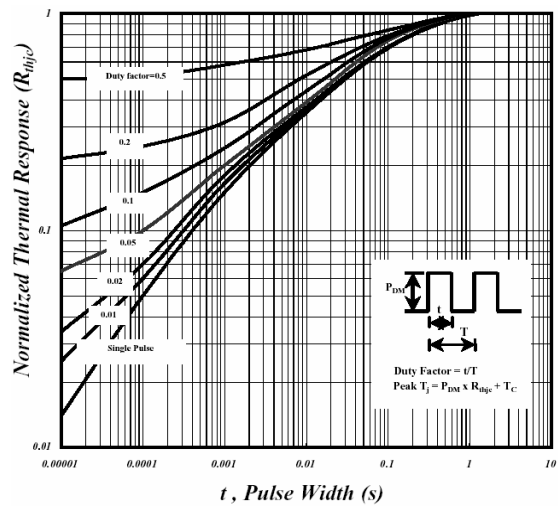


Fig 10. Effective Transient Thermal Impedance



Fig 11. Switching Time Waveform

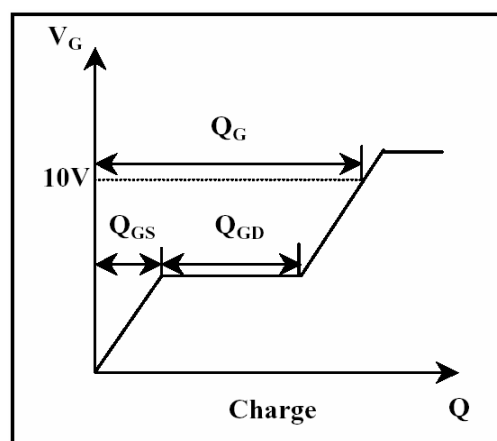


Fig 12. Gate Charge Waveform

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