Pb Free Plating Product

GTM CORPORATION

ISSUED DATE :2005/08/19
REVISED DATE :

GI01L60

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BV_{DSS}	600V
$R_{DS(ON)}$	12Ω
I_D	1A

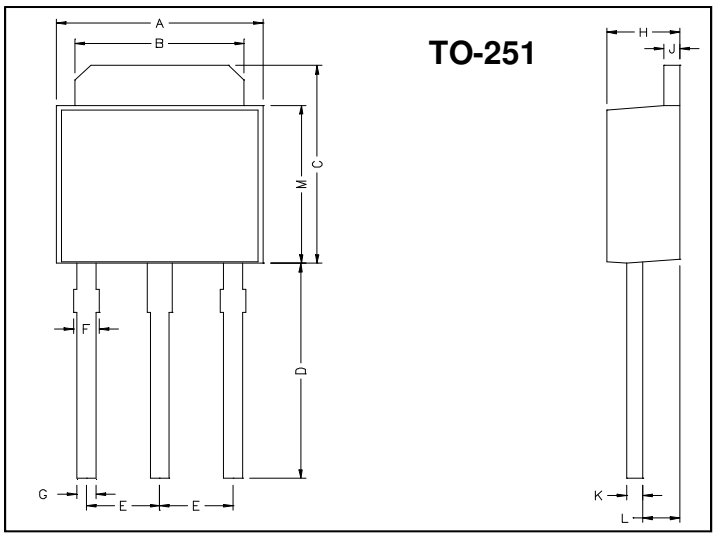
Description

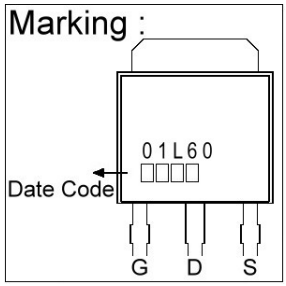
The GI01L60 (through-hole version) is available for low-profile applications and suited for AC/DC converters.

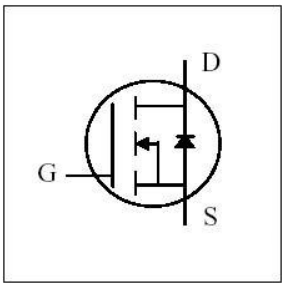
Features

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

Package Dimensions







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.80	G	0.50	0.70
B	5.20	5.50	H	2.20	2.40
C	6.80	7.20	J	0.45	0.55
D	7.20	7.80	K	0.45	0.60
E	2.30 REF.		L	0.90	1.50
F	0.60	0.90	M	5.40	5.80

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 @Tc=25℃	1	A
Continuous Drain Current, V_{GS}@10V	I_D @Tc=100℃	0.8	A
Pulsed Drain Current[1]	I_{DM}	3	A
Total Power Dissipation	P_D @Tc=25℃	29	W
Linear Derating Factor		0.232	W/℃
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	Tj, Tstg	-55 ~ +150	℃

Thermal Data

Parameter		Symbol	Value	Unit
Thermal Resistance Junction-case	Max.	Rthj-case	4.3	℃/W
Thermal Resistance Junction-ambient	Max.	Rthj-amb	110	℃/W

Electrical Characteristics(Tj = 25℃ 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	$\triangle BV_{DSS}/\triangle Tj$	-	0.8	-	V/℃	Reference to 25℃, 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(Tj=25℃)	I_{DSS}	-	-	10	uA	V_{DS}=600V, V_{GS}=0
Drain-Source Leakage Current(Tj=150℃)		-	-	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	-	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=3.3Ω R_D=300Ω
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, Tj=25℃
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 Tj=25℃, V_{DD}=50V, L=1.0mH, R_G=25Ω, I_{AS}=1.0A.

3. Pulse width≦300us, duty cycle≦2%.

Characteristics Curve

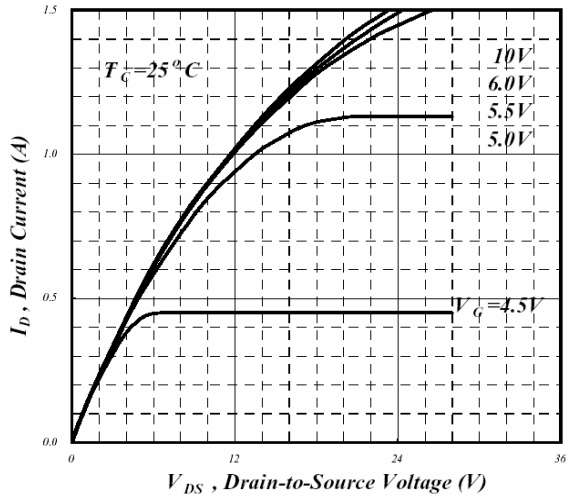


Fig 1. Typical Output Characteristics

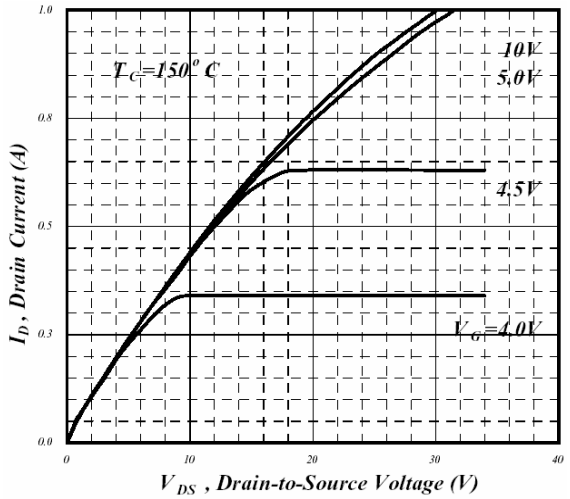


Fig 2. Typical Output Characteristics

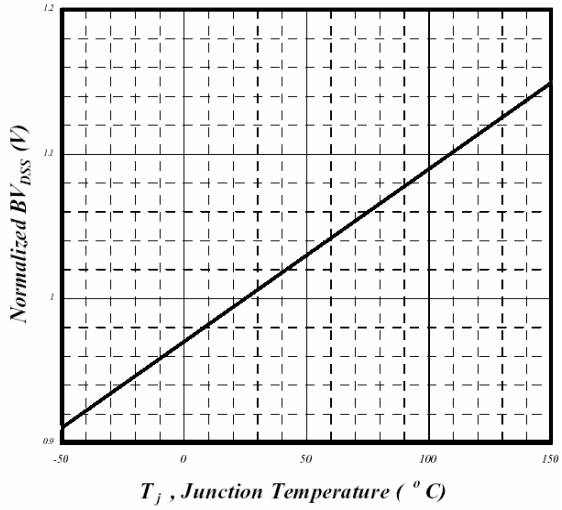


Fig 3. Normalized BVDSS v.s. Junction Temperature

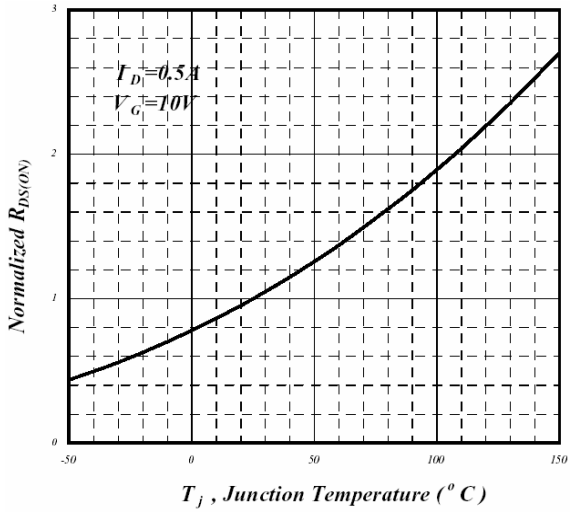


Fig 4. Normalized On-Resistance v.s. Junction Temperature

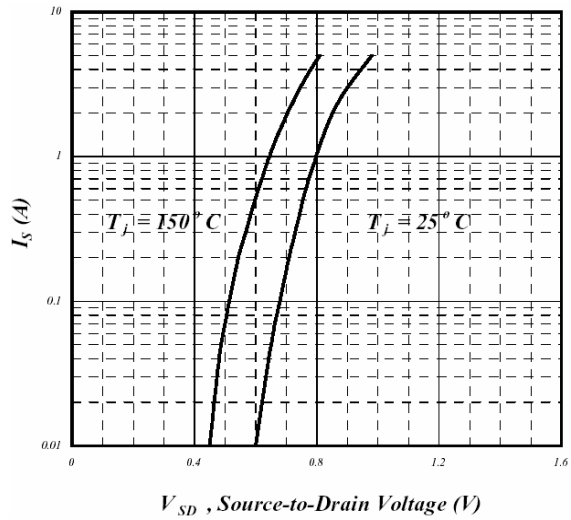


Fig 5. Forward Characteristics of Reverse Diode

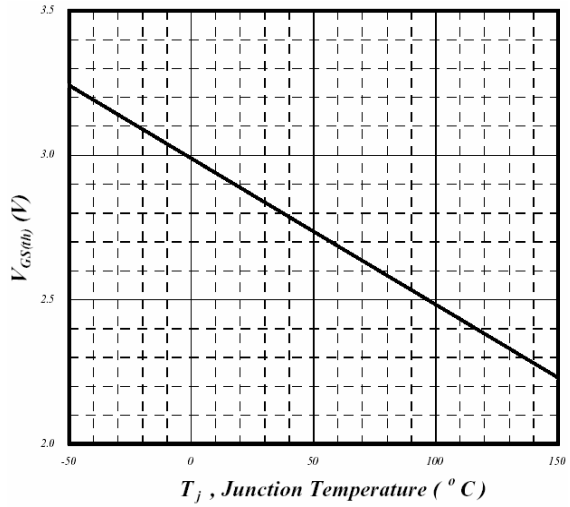


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

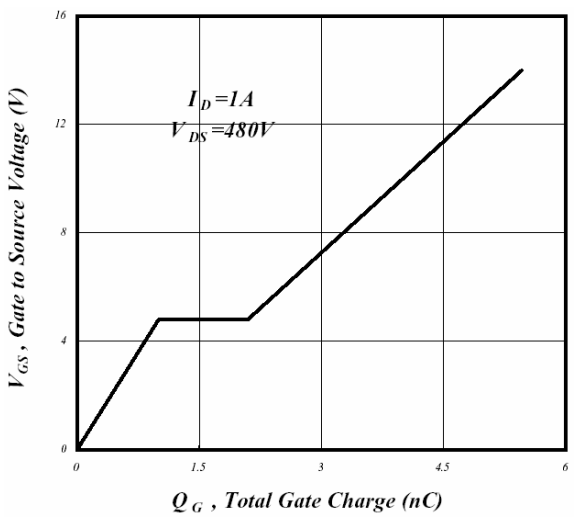


Fig 7. Gate Charge Characteristics

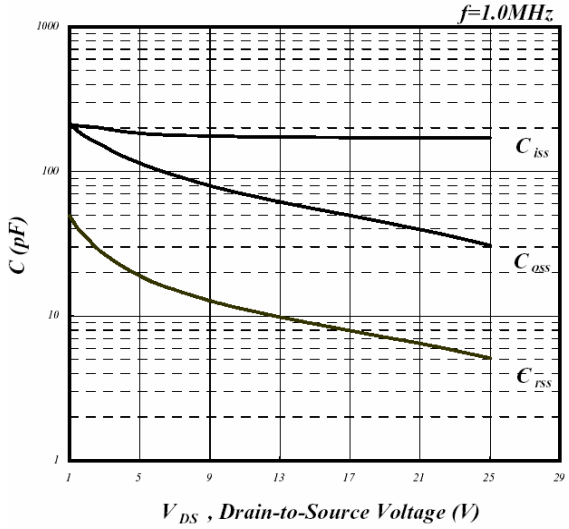


Fig 8. Typical Capacitance Characteristics

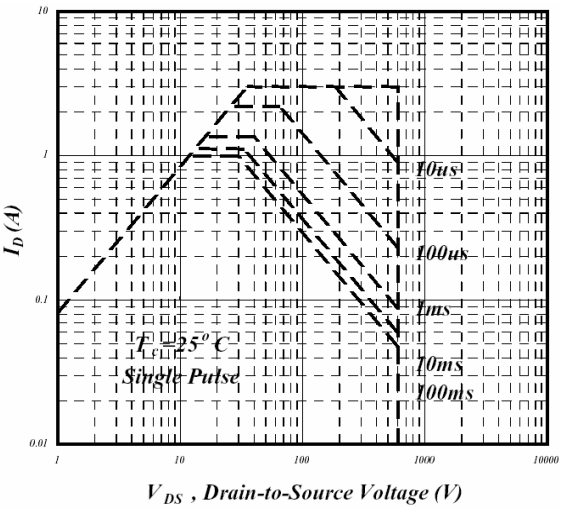


Fig 9. Maximum Safe Operating Area

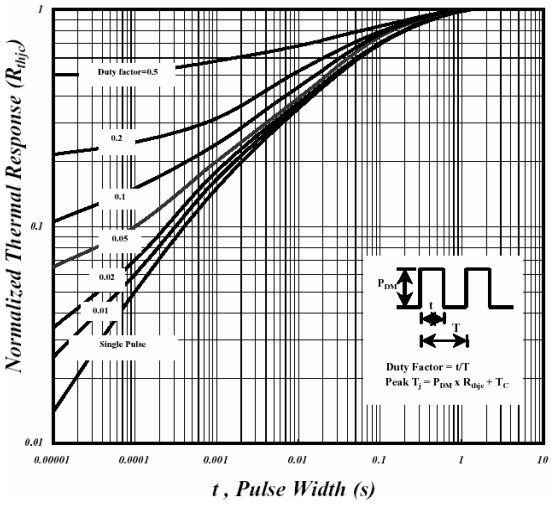


Fig 10. Effective Transient Thermal Impedance

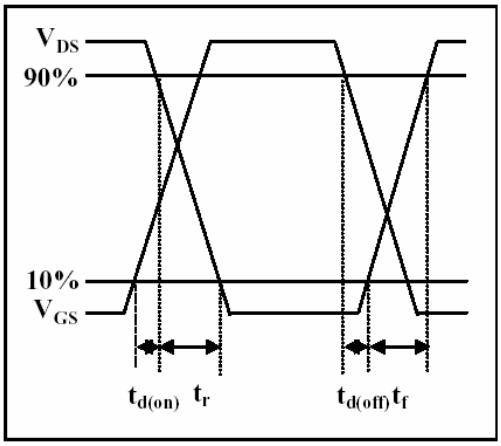


Fig 11. Switching Time Waveform

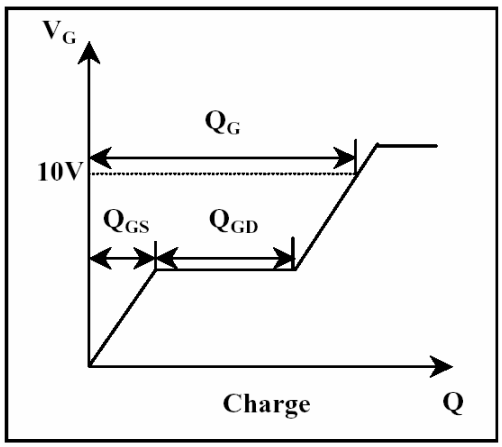


Fig 12. Gate Charge Waveform

Head Office And Factory:
- **Taiwan**: No. 17-1 Tatung Rd. Fu Kou Hsin-Chu Industrial Park, Hsin-Chu, Taiwan, R. O. C.
  TEL : 886-3-597-7061 FAX : 886-3-597-9220, 597-0785
- **China**: (201203) No.255, Jang-Jiang Tsai-Lueng RD. , Pu-Dung-Hsin District, Shang-Hai City, China
  TEL : 86-21-5895-7671 ~ 4 FAX : 86-21-38950165