

**GJ01L60****N-CHANNEL ENHANCEMENT MODE POWER MOSFET**

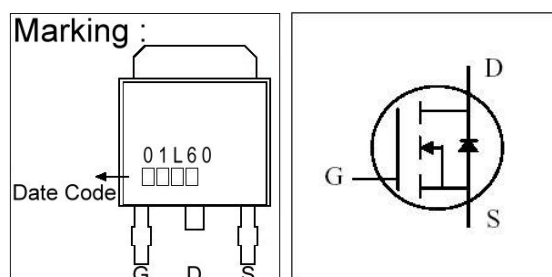
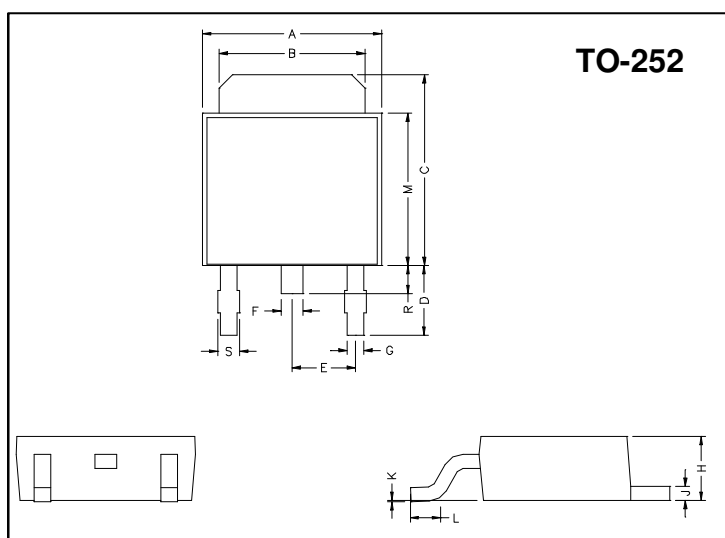
BVDSS	600V
RDS(ON)	12Ω
ID	1A

**Description**

The GJ01L60 (TO-252) is universally preferred for all commercial-industrial surface mount 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	2.40	3.00	K	0	0.15
E	2.30 REF.		L	0.90	1.50
F	0.70	0.90	M	5.40	5.80
S	0.60	0.90	R	0.80	1.20

**Absolute Maximum Ratings**

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	600	V
Gate-Source Voltage	$V_{GS}$	±30	V
Continuous Drain Current, $V_{GS}@10V$	$I_D @T_C=25^{\circ}C$	1	A
Continuous Drain Current, $V_{GS}@10V$	$I_D @T_C=100^{\circ}C$	0.8	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	3	A
Total Power Dissipation	$P_D @T_C=25^{\circ}C$	29	W
Linear Derating Factor		0.232	W/°C
Single Pulse Avalanche Energy <sup>2</sup>	$E_{AS}$	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	uA	$V_{DS}=600V, V_{GS}=0$
Drain-Source Leakage Current(Tj=150°C)		-	-	100	uA	$V_{DS}=480V, V_{GS}=0$
Static Drain-Source On-Resistance <sup>3</sup>	$R_{DS(ON)}$	-	-	12	Ω	$V_{GS}=10V, I_D=0.5A$
Total Gate Charge <sup>3</sup>	$Q_g$	-	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 <sup>2</sup>	$T_{d(on)}$	-	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**

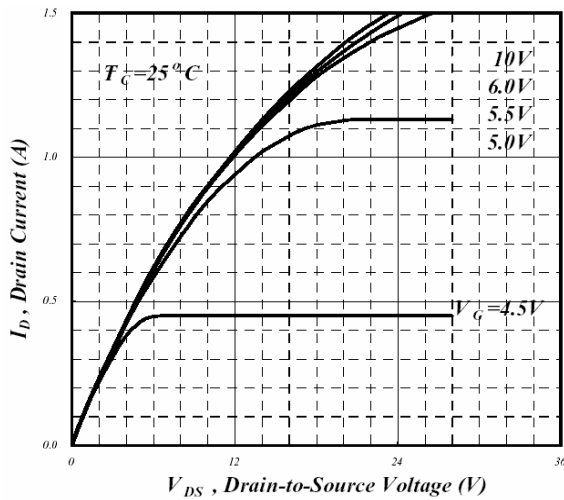
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage <sup>3</sup>	$V_{SD}$	-	-	1.2	V	$I_S=1A, V_{GS}=0V, T_j=25^\circ C$
Continuous Source Current (Body Diode)	$I_S$	-	-	1	A	$V_D=V_G=0V, V_S=1.2V$
Pulsed Source Current (Body Diode) <sup>1</sup>	$I_{SM}$	-	-	5	A	

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

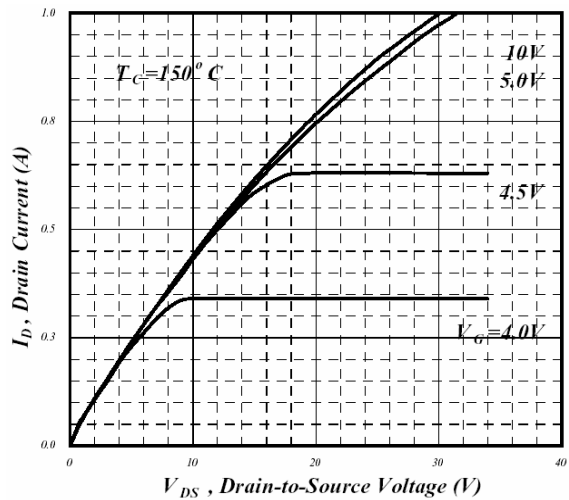
2. Staring  $T_j=25^\circ C, V_{DD}=50V, L=1.0mH, R_G=25\Omega, I_{AS}=1.0A$ .

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

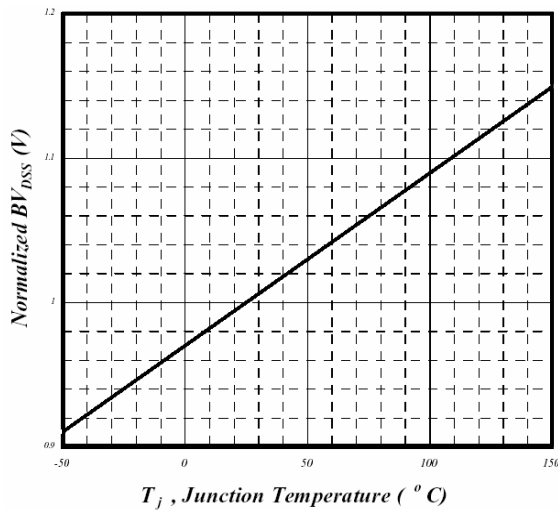
## Characteristics Curve



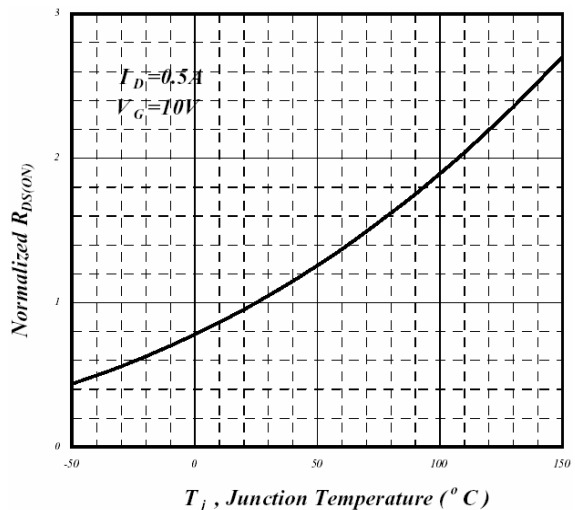
**Fig 1. Typical Output Characteristics**



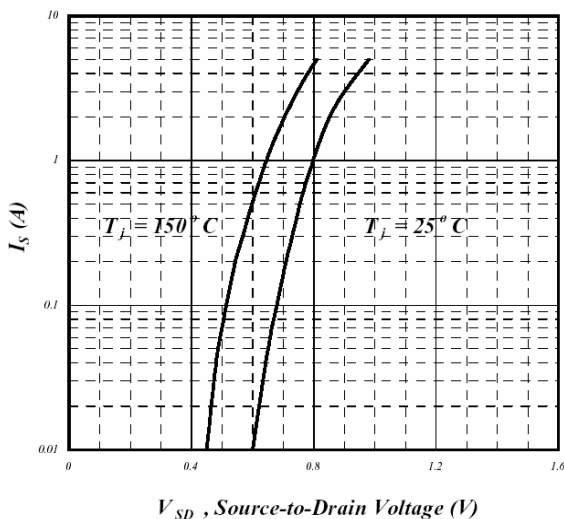
**Fig 2. Typical Output Characteristics**



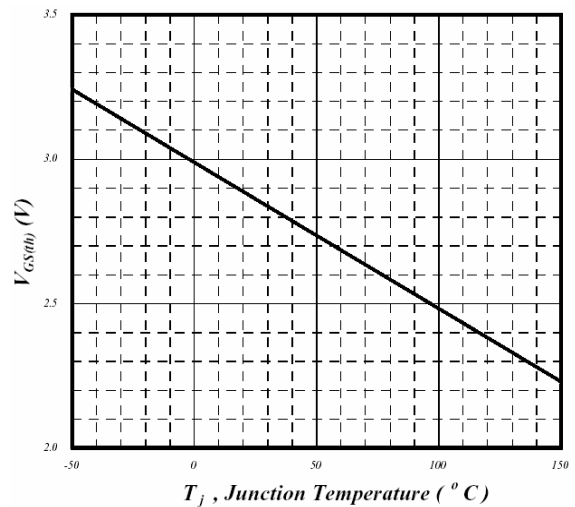
**Fig 3. Normalized BV<sub>DSS</sub> v.s. Junction Temperature**



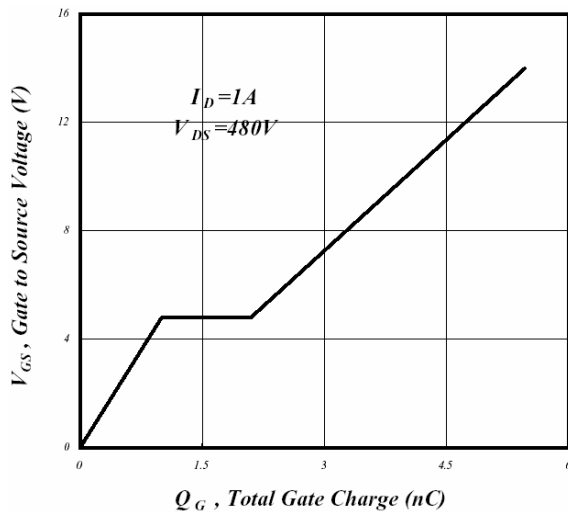
**Fig 4. Normalized On-Resistance v.s. Junction Temperature**



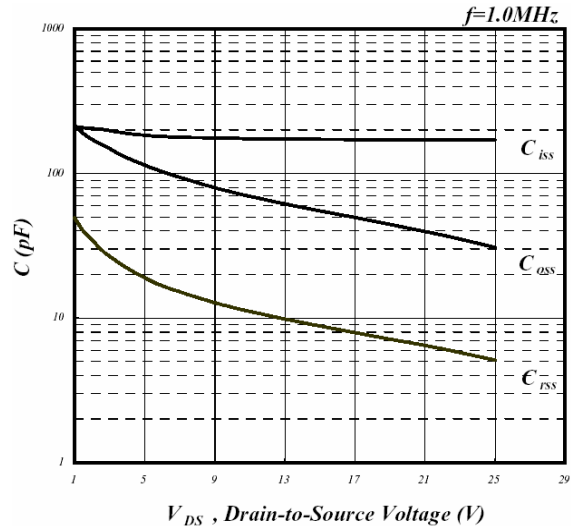
**Fig 5. Forward Characteristics of Reverse Diode**



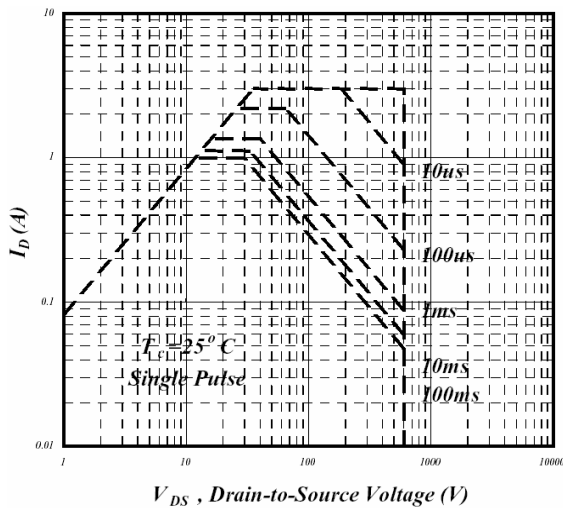
**Fig 6. Gate Threshold Voltage v.s. Junction Temperature**



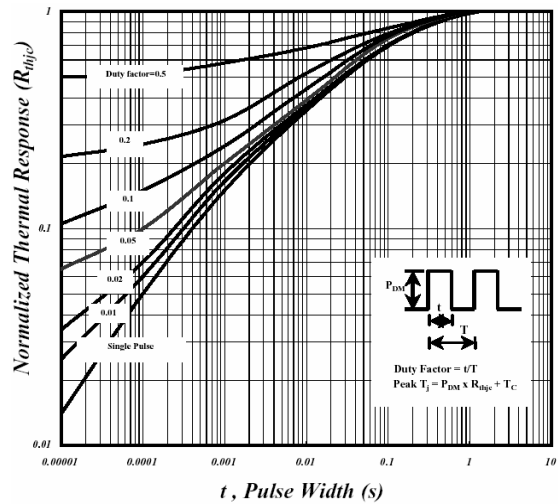
**Fig 7. Gate Charge Characteristics**



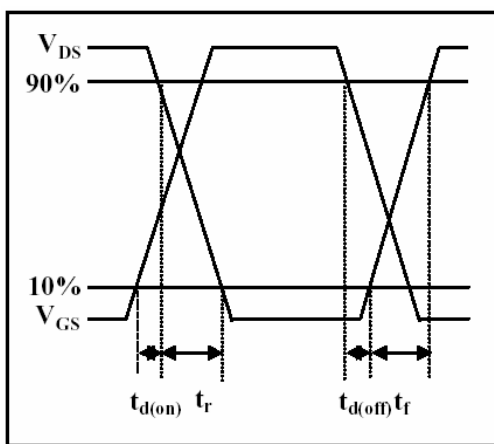
**Fig 8. Typical Capacitance Characteristics**



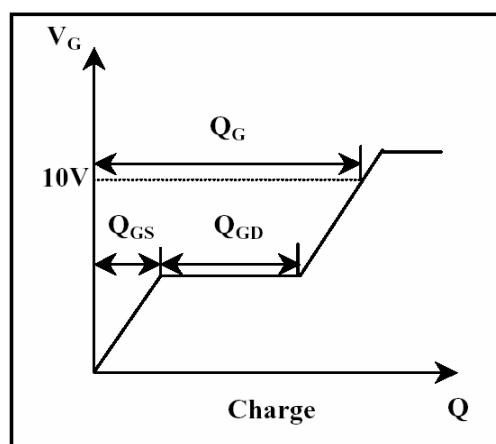
**Fig 9. Maximum Safe Operating Area**



**Fig 10. Effective Transient Thermal Impedance**



**Fig 11. Switching Time Waveform**



**Fig 12. Gate Charge Waveform**

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