GM2310

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BV_{DSS}	60V
$R_{DS(ON)}$	90mΩ
I_D	3A

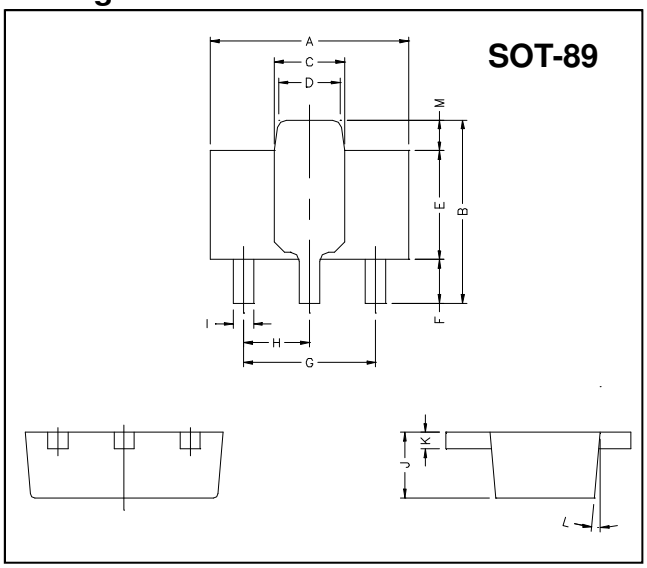
Description

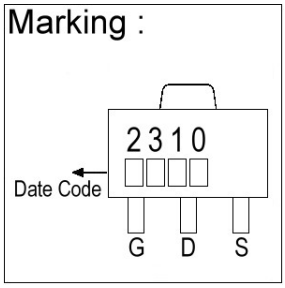
The GM2310 utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.
The GM2310 is universally used for all commercial-industrial surface mount applications.

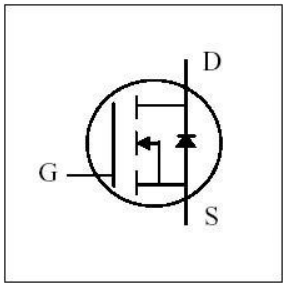
Features

*Simple Drive Requirement
*Small Package Outline

Package Dimensions







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.4	4.6	G	3.00 REF.	
B	4.05	4.25	H	1.50 REF.	
C	1.50	1.70	I	0.40	0.52
D	1.30	1.50	J	1.40	1.60
E	2.40	2.60	K	0.35	0.41
F	0.89	1.20	L	5° TYP.	
			M	0.70 REF.	

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[3], V_{GS}@4.5V	I_D @T_A=25℃	3.0	A
Continuous Drain Current[3], V_{GS}@4.5V	I_D @T_A=70℃	2.3	A
Pulsed Drain Current[1,2]	I_{DM}	10	A
Power Dissipation	P_D @T_A=25℃	1.5	W
Linear Derating Factor		0.01	W/℃
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	℃

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient[3] Max.	Rthj-a	83.3	℃/W

Electrical Characteristics (Tj = 25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	V_{GS}=0, I_D=250uA
Breakdown Voltage Temperature Coefficient	$\triangle BV_{DSS}/\triangle Tj$	-	0.05	-	V/℃	Reference to 25℃, I_D=1mA
Gate Threshold Voltage	$V_{GS(th)}$	1.0	-	3.0	V	V_{DS}=V_{GS}, I_D=250uA
Forward Transconductance	g_{fs}	-	5.0	-	S	V_{DS}=5V, I_D=3A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current(Tj=25℃)	I_{DSS}	-	-	10	uA	V_{DS}=60V, V_{GS}=0
Drain-Source Leakage Current(Tj=70℃)		-	-	25	uA	V_{DS}=48V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	90	mΩ	V_{GS}=10V, I_D=3A
		-	-	120		V_{GS}=4.5V, I_D=2A
Total Gate Charge[2]	Q_g	-	6	10	nC	I_D=3A V_{DS}=48V V_{GS}=4.5V
Gate-Source Charge	Q_{gs}	-	1.6	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	3	-		
Turn-on Delay Time[2]	$T_{d(on)}$	-	6	-	ns	V_{DS}=30V I_D=1A V_{GS}=10V R_G=3.3Ω R_D=30Ω
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	16	-		
Fall Time	T_f	-	3	-		
Input Capacitance	C_{iss}	-	490	780	pF	V_{GS}=0V V_{DS}=25V f=1.0MHz
Output Capacitance	C_{oss}	-	55	-		
Reverse Transfer Capacitance	C_{rss}	-	40	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage[2]	V_{SD}	-	-	1.2	V	I_S=1.2A, V_{GS}=0V
Reverse Recovery Time	T_{rr}	-	25	-	ns	I_S=3A, V_{GS}=0V dI/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	26	-	nC	

Notes: 1. Pulse width limited by Max. junction temperature.

2. Pulse width≦300us, duty cycle≦2%.

3. Surface mounted on FR4 board, t ≦10sec.

Characteristics Curve

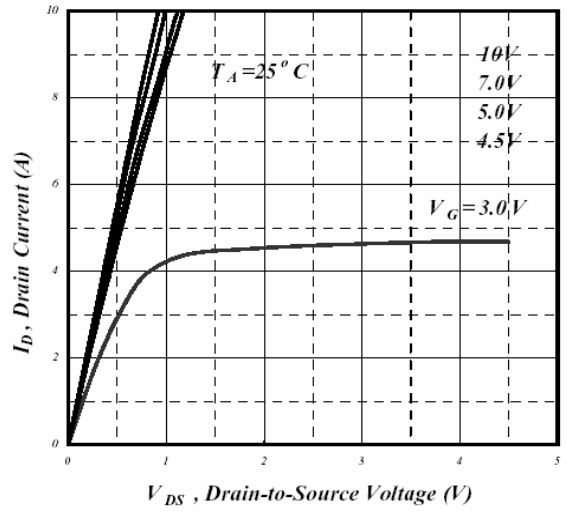


Fig 1. Typical Output Characteristics

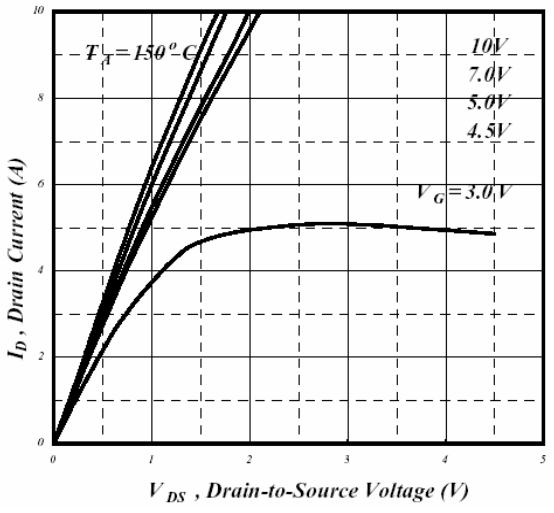


Fig 2. Typical Output Characteristics

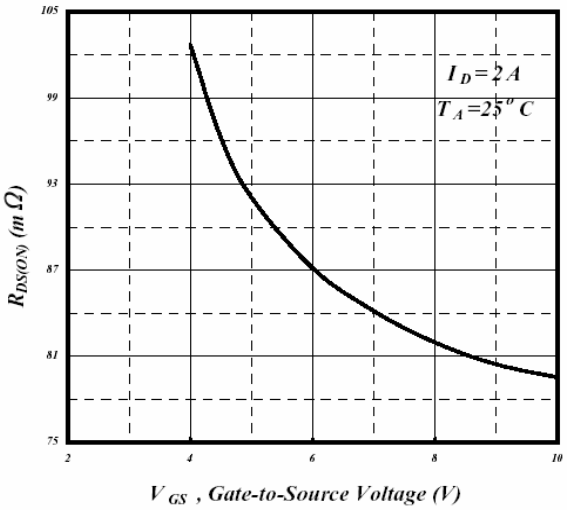


Fig 3. On-Resistance v.s. Gate Voltage

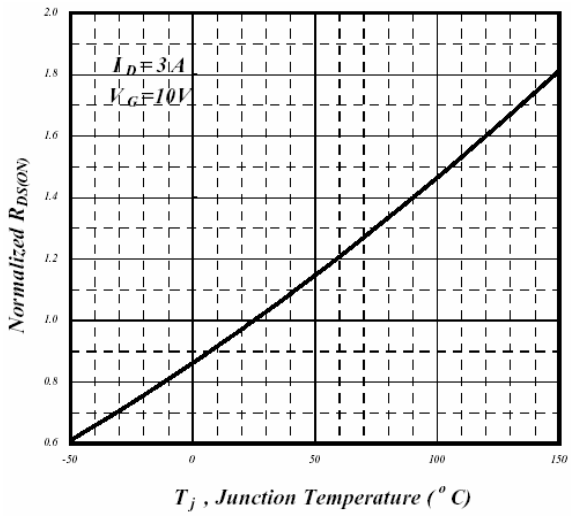


Fig 4. Normalized On-Resistance v.s. Junction Temperature

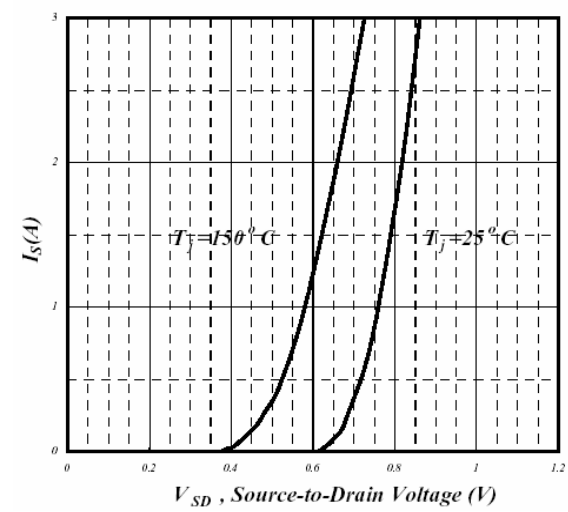


Fig 5. Forward Characteristics of Reverse Diode

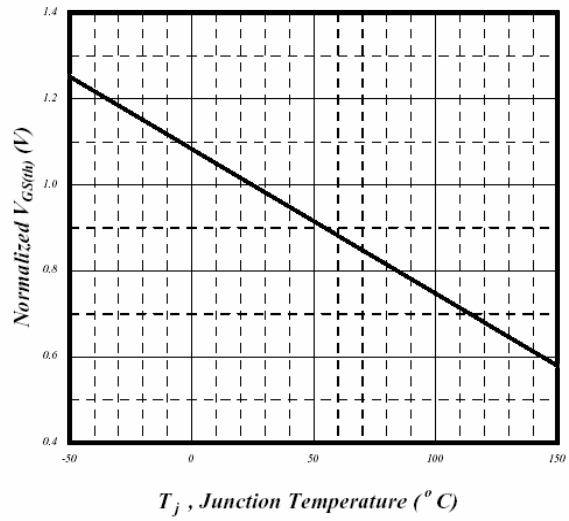


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

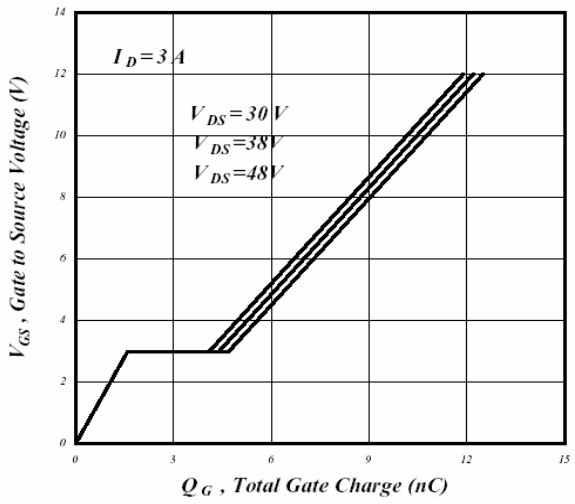


Fig 7. Gate Charge Characteristics

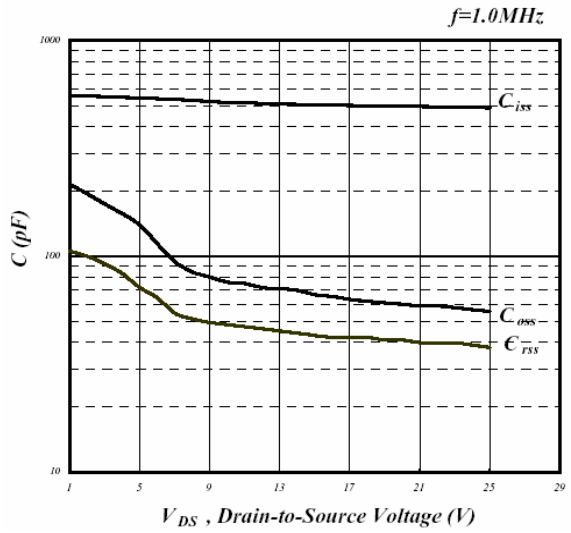


Fig 8. Typical Capacitance Characteristics

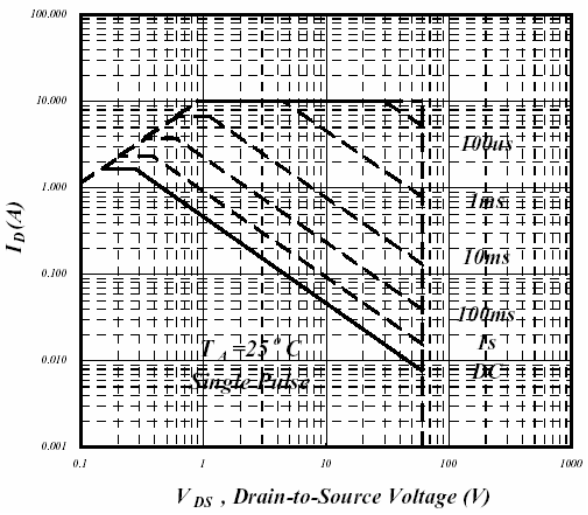


Fig 9. Maximum Safe Operating Area

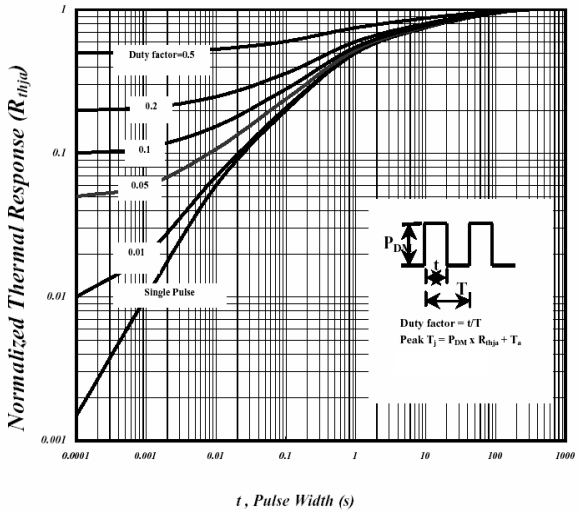


Fig 10. Effective Transient Thermal Impedance

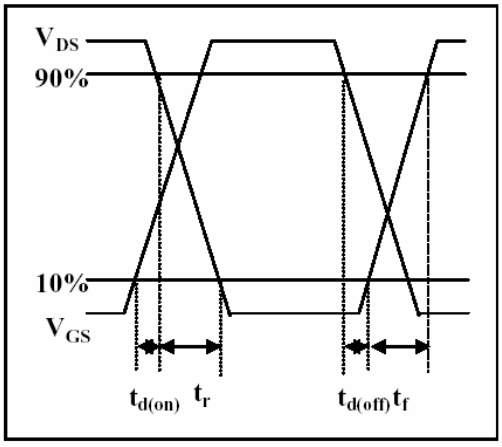


Fig 11. Switching Time Waveform

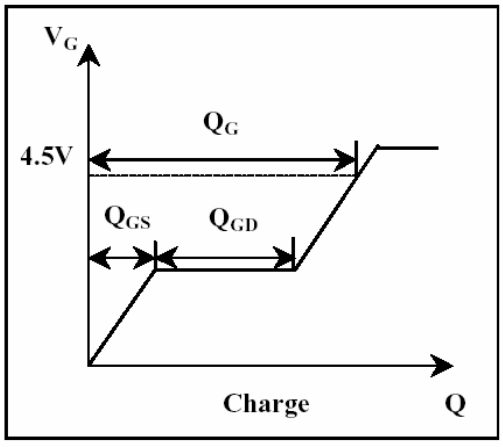


Fig 12. Gate Charge Waveform

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