Elektronische Bauelemente

SGM2310B

2.7A , 60V , $R_{DS(ON)}$ 100 mΩ

N-Channel Enhancement Mode MOSFET

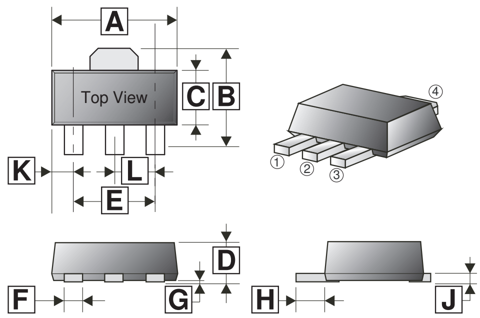
RoHS Compliant Product

A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

The SGM2310B utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device. The SGM2310B is universally used for all commercial-industrial applications.

SOT-89

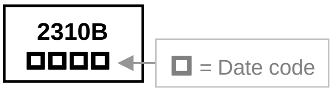


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.60	G	-	-
B	4.05	4.25	H	0.89	1.20
C	2.40	2.60	J	0.35	0.41
D	1.40	1.60	K	0.70	0.80
E	3.00 REF.		L	1.50 REF.	
F	0.40	0.52			

FEATURES

- Simple Drive Requirement
- Small Package Outline

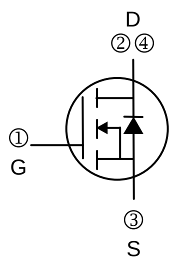
MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-89	3K	7 inch

TOP VIEW



ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] , V_{GS}@10V	T_A=25℃	I_D	2.7	A
	T_A=70℃		2.2	
Pulsed Drain Current [2]		I_{DM}	10	A
Power Dissipation [3]	T_A=25℃	P_D	1.25	W
Linear Derating Factor			0.01	℃ / W
Operating Junction and Storage Temperature Range		T_j, T_{stg}	-55~150	℃
Thermal Resistance Rating				
Maximum Junction to Ambient [1]		$R_{θJA}$	100	℃ / W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static							
Drain-Source Breakdown Voltage		BV_{DSS}	60	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	13	-	S	V_{DS} =5V, I_D =2A
Gate-Body Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=48V, V_{GS}=0
	T_J=55℃		-	-	5		V_{DS}=48V, V_{GS}=0
Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	100	mΩ	V_{GS}=10V, I_D=2.5A
			-	-	110		V_{GS}=4.5V, I_D=1.5A
Total Gate Charge		Q_g	-	5	-	nC	V_{DS}=48V, V_{GS}=4.5V, I_D=2A
Gate-Source Charge		Q_{gs}	-	1.68	-		
Gate-Drain (''Miller'')Charge		Q_{gd}	-	1.9	-		
Turn-on Delay Time [2]		$T_{d(on)}$	-	1.6	-	nS	V_{DD}=30V, V_{GS}=10V, R_G=3.3Ω, I_D=2A
Rise Time		T_r	-	7.2	-		
Turn-off Delay Time		$T_{d(off)}$	-	25	-		
Fall Time		T_f	-	14.4	-		
Input Capacitance		Ciss	-	511	-	pF	V_{GS}=0, V_{DS}=15V, f=1.0MHz
Output Capacitance		Coss	-	38	-		
Reverse Transfer Capacitance		Crss	-	25	-		
Source-Drain Diode							
Diode Forward Voltage[2]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0
Continuous Source Current[1,4]		I_S	-	-	2.7	A	V_G=V_D=0, Force Current
Pulsed Source Current[2,4]		I_{SM}	-	-	10		
Reverse Recovery Time		T_{RR}	-	9.7	-	nS	I_S=2A, dI/dt=100A/μs V_{GS}=0
Reverse Recovery Charge		Q_{RR}	-	5.8	-	nC	

Notes:
1. Surface mounted on FR4 board , t ≦10sec.
2. The data tested by pulsed , pulse width≦300μs, duty cycle≦2%
3. The power dissipation is limited by 150 ℃ junc tion temperature
4. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation

CHARACTERISTIC CURVES

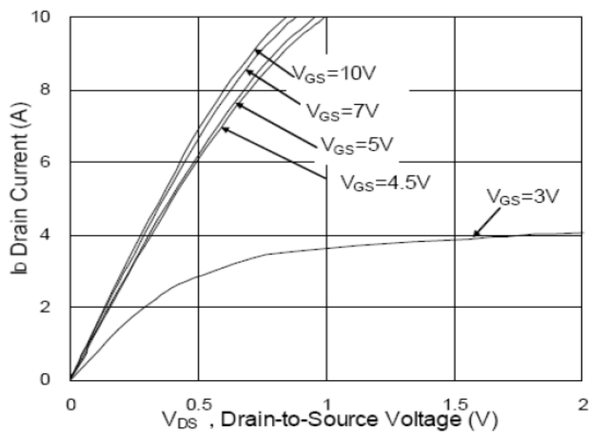


Fig.1 Typical Output Characteristics

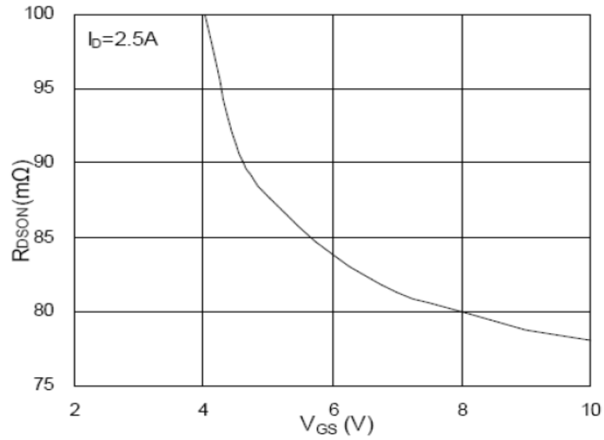


Fig.2 On-Resistance v.s Gate-Source

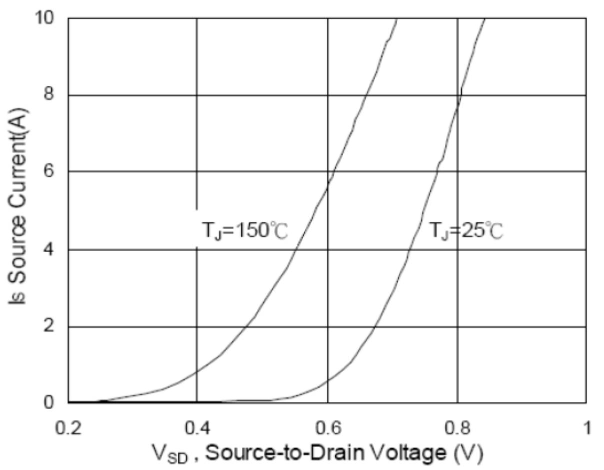


Fig.3 Forward Characteristics of Reverse

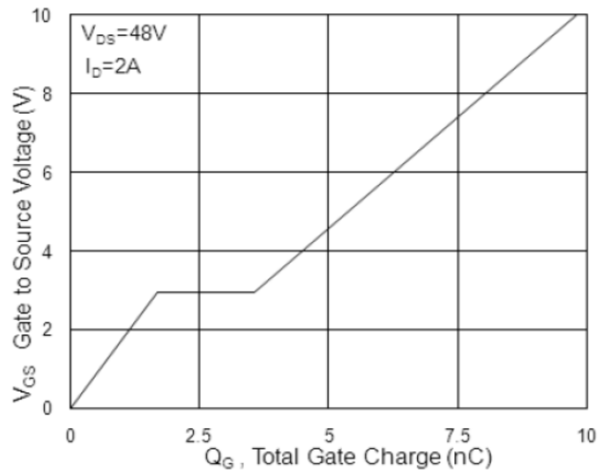


Fig.4 Gate-Charge Characteristics

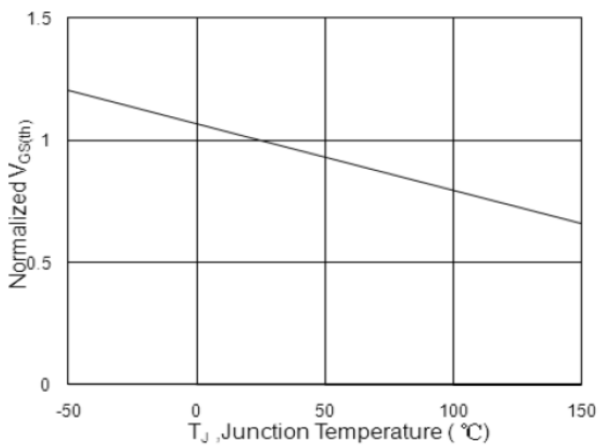


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

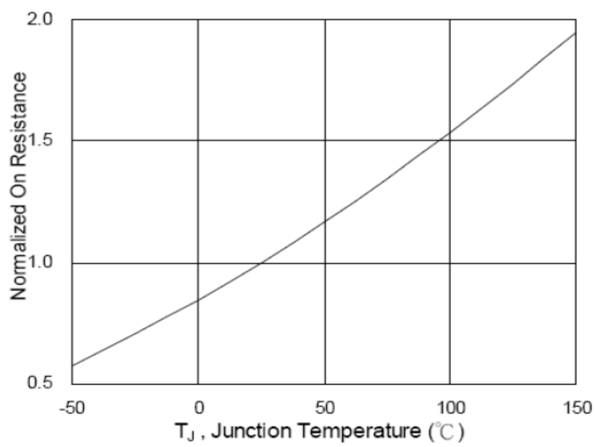


Fig.6 Normalized R_{DSON} v.s T_J

CHARACTERISTIC CURVES

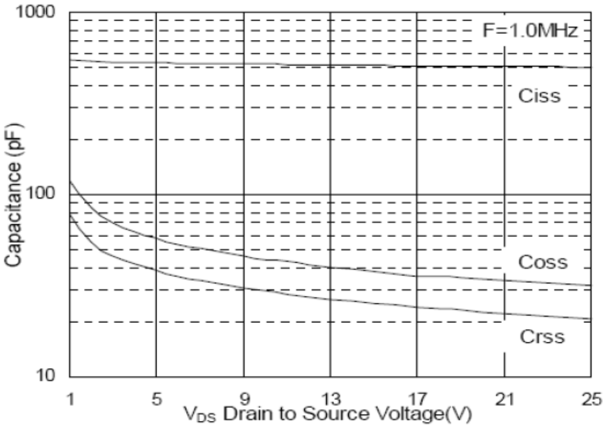


Fig.7 Capacitance

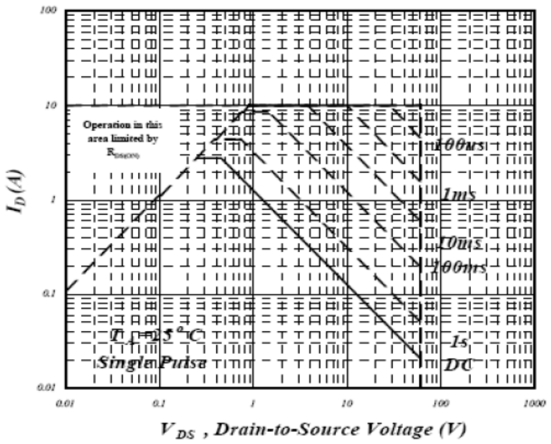


Fig.8 Safe Operating Area

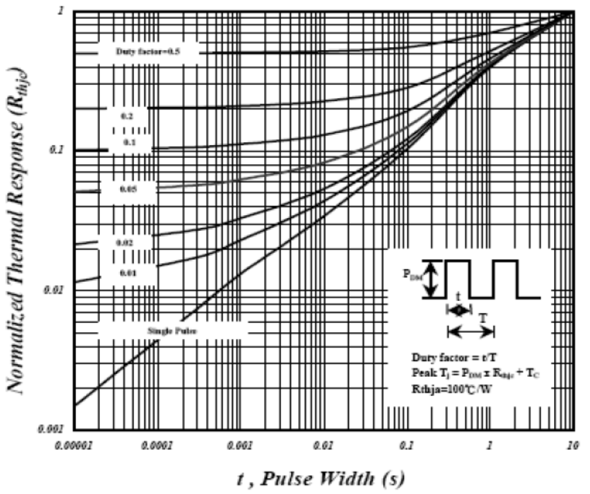


Fig.9 Normalized Maximum Transient Thermal Impedance

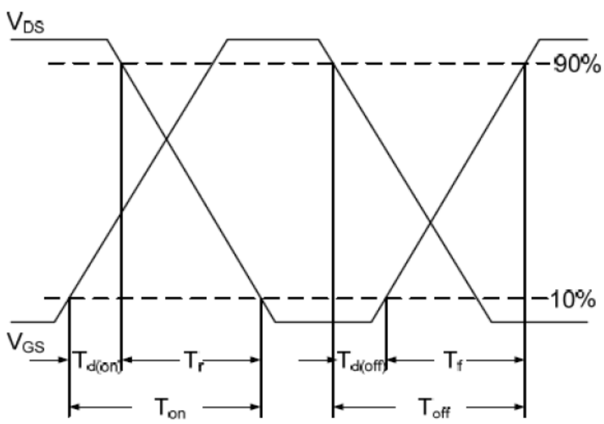


Fig.10 Switching Time Waveform

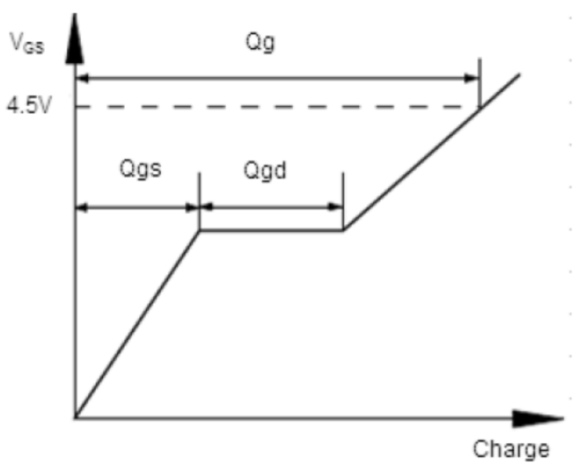


Fig.11 Gate Charge Waveform