

G2308

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BV _{DSS}	60V
R _{DS(ON)}	160mΩ
I _D	3A

Description

The G2308 utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The G2308 is universally used for all commercial-industrial applications.

Features

- *Simple Drive Requirement
- *Small Package Outline

Package Dimensions

SOT-23 (PACKAGE)

N-Channel

Marking :

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

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 @TA=25°C	3.0	A
Continuous Drain Current ³ , V _{GS} @4.5V	I _D @TA=70°C	2.3	A
Pulsed Drain Current ^{1,2}	I _{DM}	10	A
Power Dissipation	P _D @TA=25°C	1.38	W
Linear Derating Factor		0.01	W/°C
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-ambient ³ Max.	R _{thj-a}	90	°C/W

Electrical Characteristics(T_j = 25°C Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	$V_{GS}=0, I_D=250\mu A$
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_j$	-	0.05	-	V/°C	Reference to 25°C, $I_D=1mA$
Gate Threshold Voltage	$V_{GS(th)}$	1.0	-	3.0	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Forward Transconductance	g_{fs}	-	5.0	-	S	$V_{DS}=5V, I_D=3A$
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	$V_{GS}= \pm 20V$
Drain-Source Leakage Current(T _j =25°C)	I_{DSS}	-	-	10	uA	$V_{DS}=60V, V_{GS}=0$
Drain-Source Leakage Current(T _j =70°C)		-	-	25	uA	$V_{DS}=48V, V_{GS}=0$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	160	mΩ	$V_{GS}=10V, I_D=2.0A$
		-	-	220		$V_{GS}=4.5V, I_D=1.7A$
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") Charge	Q_{gd}	-	3	-		
Turn-on Delay Time ²	$T_{d(on)}$	-	6	-	ns	$V_{DS}=30V$ $I_D=1A$ $V_{GS}=10V$ $R_G=3.3\Omega$ $R_D=30\Omega$
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	$I_S=3A, V_{GS}=0V$ $di/dt=100A/\mu s$
Reverse Recovery Charge	Q_{rr}	-	26	-	nC	

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

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

3. Surface mounted on 1 in² copper pad of FR4 board;270°C/W when mounted on min. copper pad.

Characteristics Curve

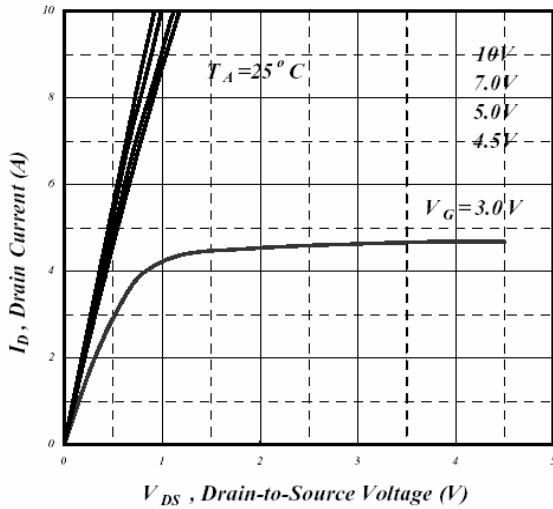


Fig 1. Typical Output Characteristics

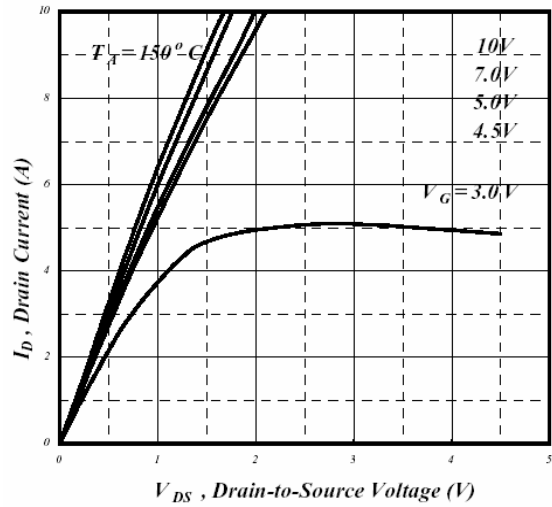


Fig 2. Typical Output Characteristics

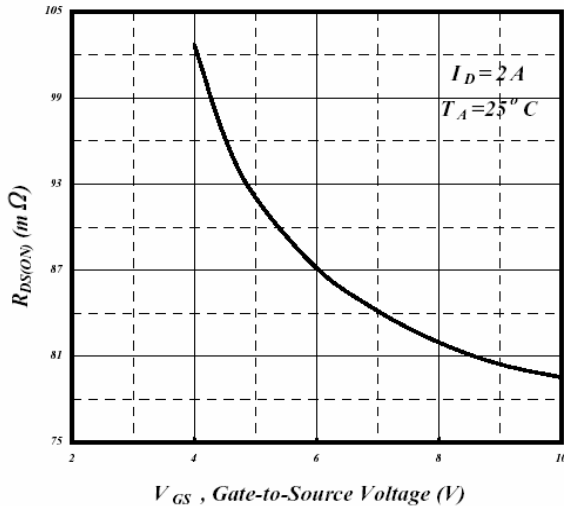


Fig 3. On-Resistance v.s. Gate Voltage

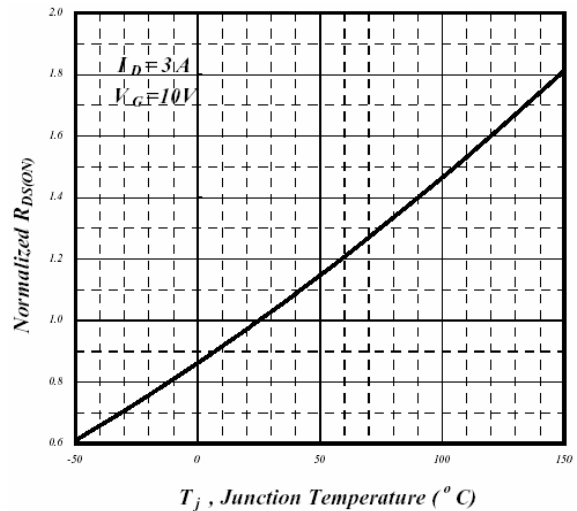


Fig 4. Normalized On-Resistance v.s. Junction Temperature

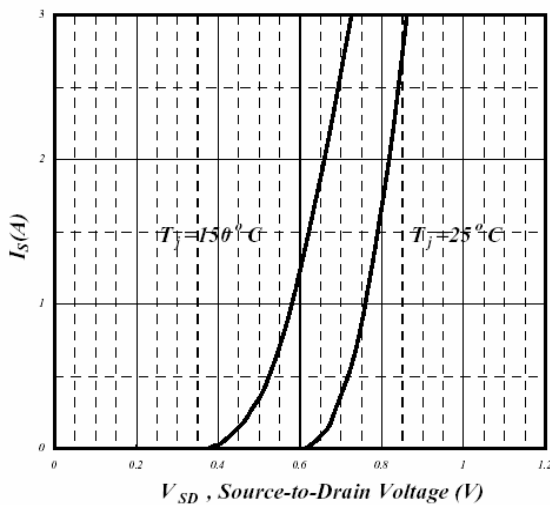


Fig 5. Forward Characteristics of Reverse Diode

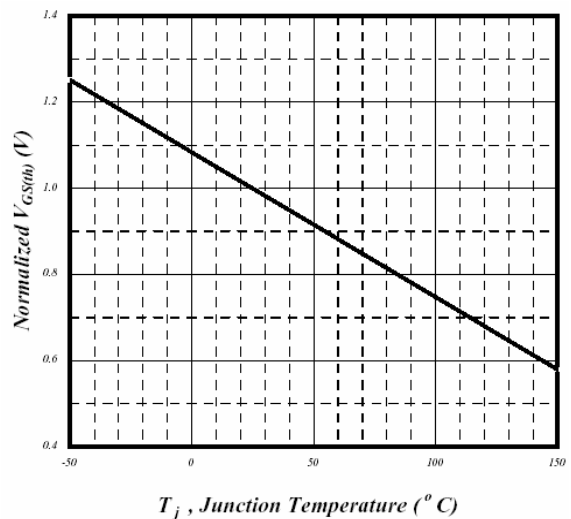


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

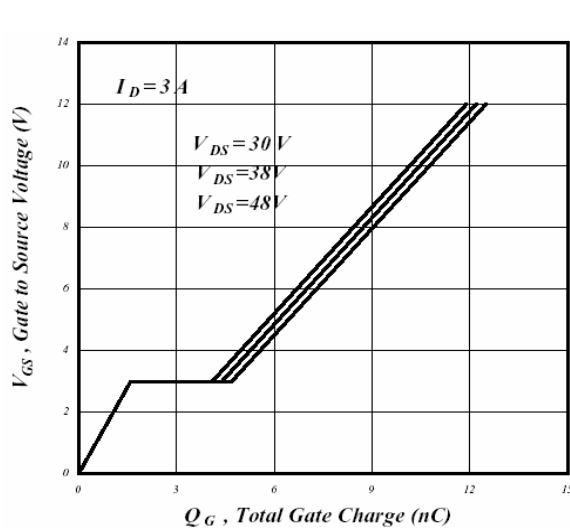


Fig 7. Gate Charge Characteristics

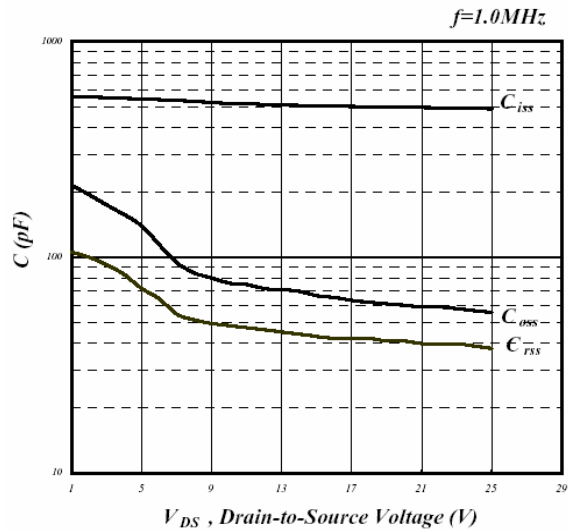


Fig 8. Typical Capacitance Characteristics

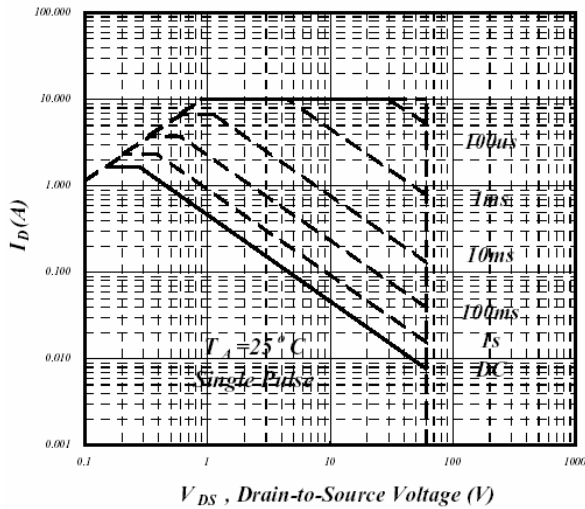


Fig 9. Maximum Safe Operating Area

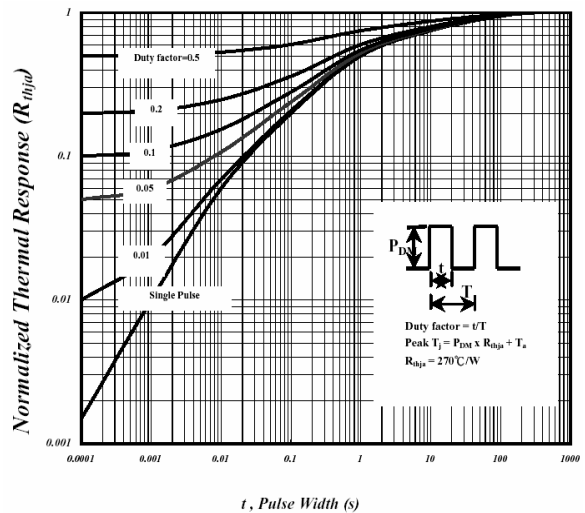


Fig 10. Effective Transient Thermal Impedance

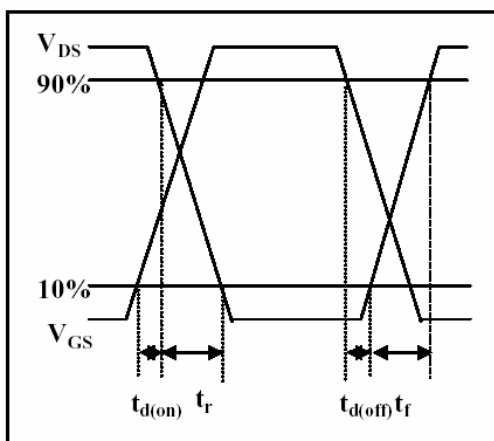


Fig 11. Switching Time Waveform

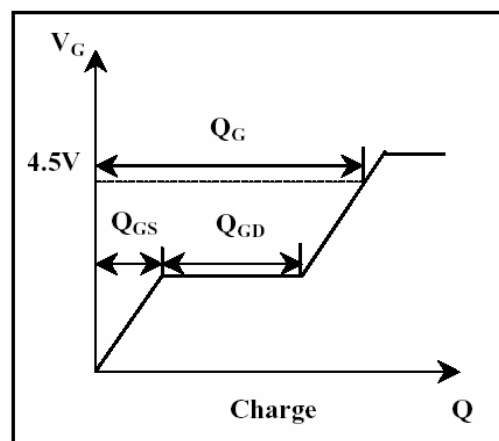


Fig 12. Gate Charge Waveform

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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