

P-Channel Enhancement Mode Power Mosfet

BL2311

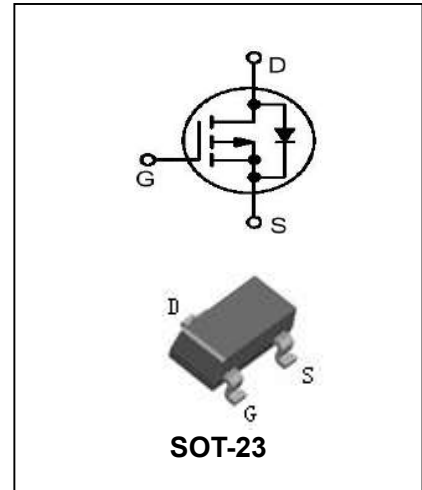
FEATURES

- Super High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Reliable and Rugged
- Electrostatic Sensitive Devices.



APPLICATIONS

- Power Management in Notebook.
- Portable Equipment.
- Battery Powered System.



ORDERING INFORMATION

Type No.	Marking	Package Code
BL2311	2311	SOT-23

MAXIMUM RATING @ $T_a=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	-20	V
V_{GSS}	Gate -Source voltage	± 8	V
I_D	Maximum Drain current $T_A=25^\circ\text{C}$ $T_A=70^\circ\text{C}$	-4.2 -3.4	A
I_{DM}	Pulsed Drain current	-30	A
P_D	Power Dissipation	1.37	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	90	$^\circ\text{C}/\text{W}$
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55~+150	$^\circ\text{C}$

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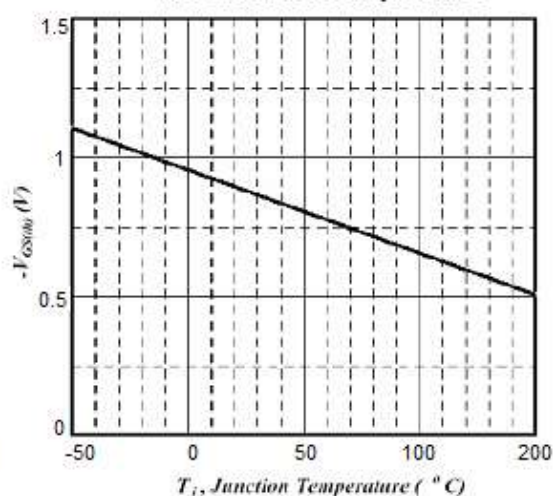
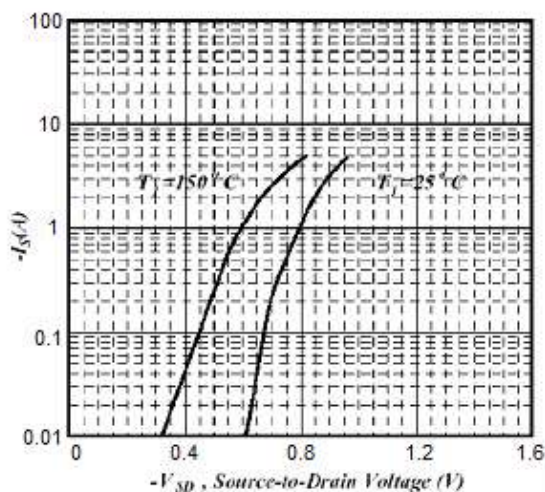
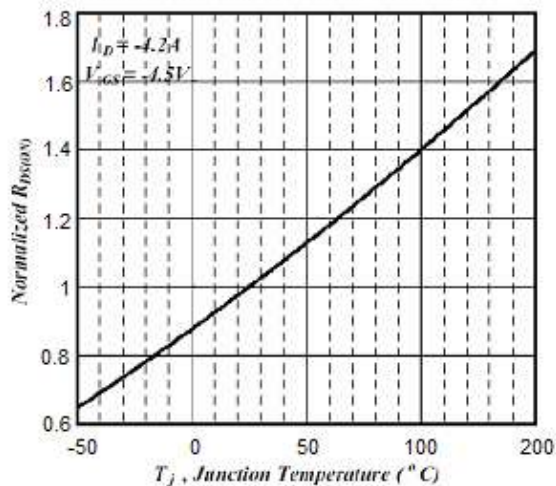
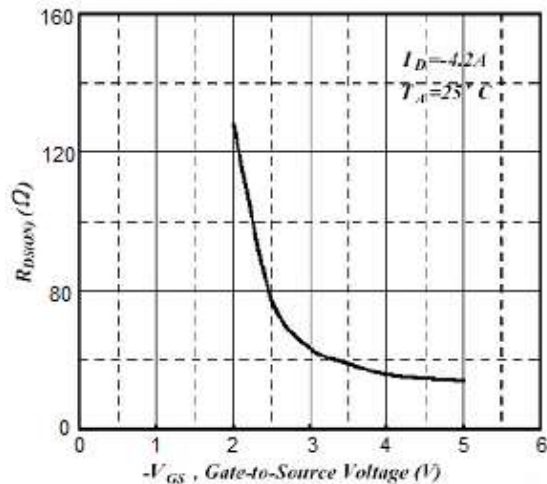
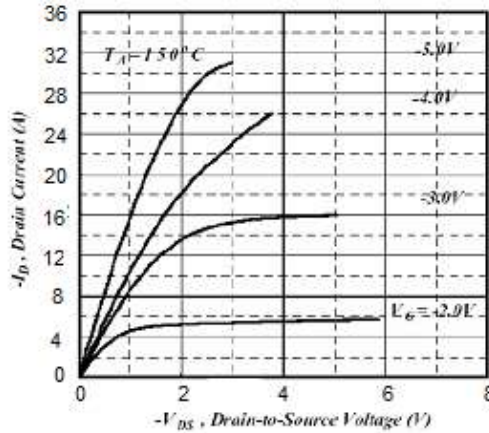
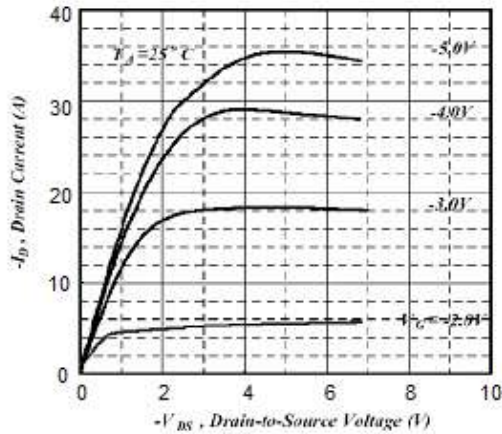
ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.75	-1.2	
Forward Transconductance	g_{fs}	$V_{DS}=-5V, I_D=-2.8A$	-	9	-	S
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=8V$	-	-	100	nA
		$V_{DS}=0V, V_{GS}=-8V$	-	-	-100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-12V, V_{GS}=0V$	-	-	-1	μA
On state drain current	$I_{D(ON)}$	$V_{DS}=-5V, V_{GS}=-4.5V$	-30	-	-	A
Drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-4.5A$	-	-	53	m Ω
		$V_{GS}=-4.5V, I_D=-4.2A$	-	-	65	
		$V_{GS}=-2.5V, I_D=-2.0A$	-	-	100	
		$V_{GS}=-1.8V, I_D=-1.0A$	-	-	250	
Diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=-1.2A$	-	-	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-2	A
Total Gate Charge	Q_g	$V_{DS}=-16V, V_{GS}=-4.5V,$ $I_D=-4.2A$	-	10.6	-	nC
Gate-Source Charge	Q_{gs}		-	2.32	-	
Gate-Drain Charge	Q_{gd}		-	3.68	-	
Input capacitance	C_{ISS}	$V_{DS}=-15V, V_{GS}=0V, f=1.0MHz$	-	740	-	pF
Output capacitance	C_{OSS}		-	167	-	
Reverse transfer capacitance	C_{RSS}		-	126	-	
Turn-On Delay Time	$t_{D(ON)}$	$V_{DS} = -15V, I_D = -4.2A,$ $R_G = 6\Omega, V_{GS} = -10V,$ $R_D = 3.6\Omega$	-	5.9	-	ns
Rise Time	t_R		-	3.6	-	
Turn-Off Delay Time	$t_{D(OFF)}$		-	32.4	-	
Fall Time	t_F		-	2.6	-	
Reverse Recovery Time	T_{rr}	$I_S=-4.2A, V_{GS}=0$	-	27.7	-	ns
Reverse Recovery Charge	Q_{rr}	$di/dt=100A/\mu s$	-	22	-	nC

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TYPICAL CHARACTERISTICS @ $T_a=25^{\circ}\text{C}$ unless otherwise specified



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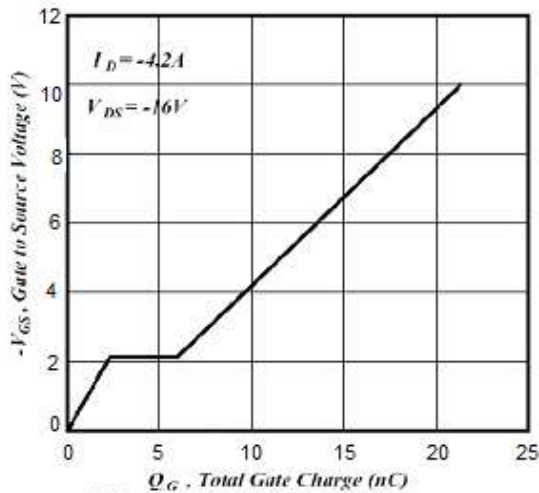


Fig 7. Gate Charge Characteristics

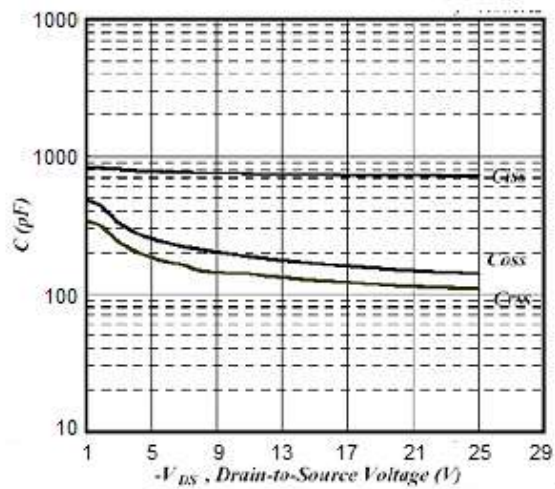


Fig 8. Typical Capacitance Characteristics

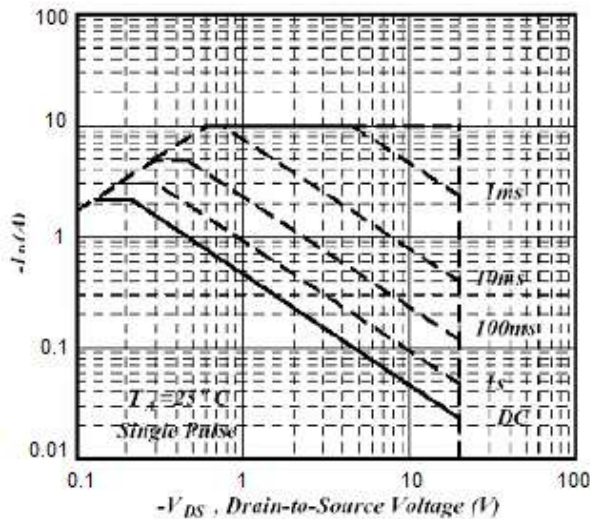


Fig 9. Maximum Safe Operating Area

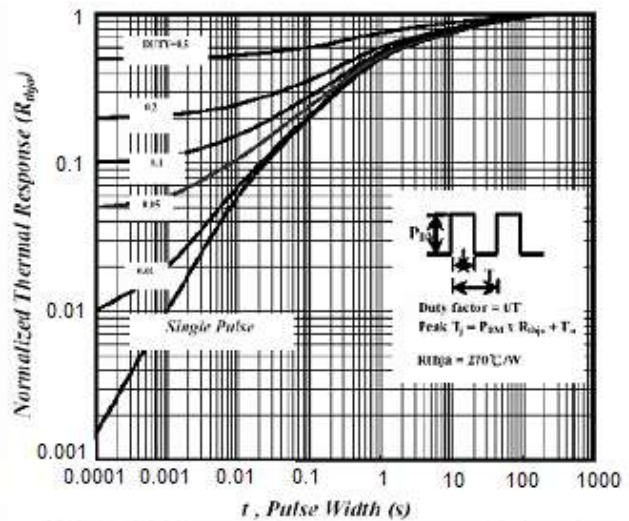


Fig 10. Effective Transient Thermal Impedance

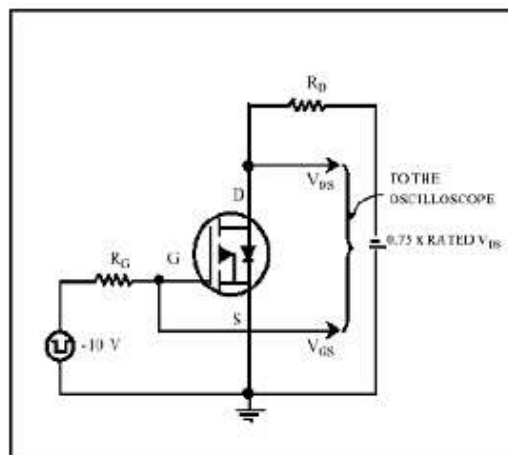


Fig 11. Switching Time Circuit

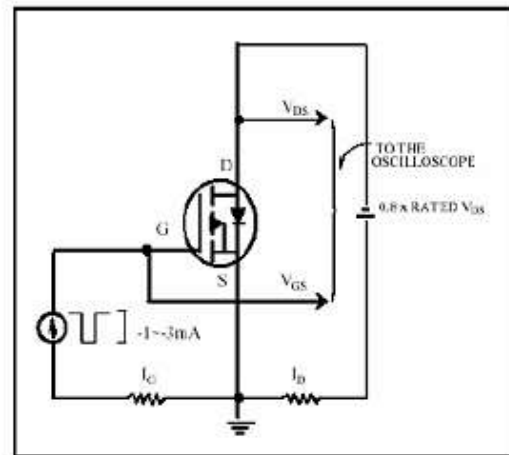


Fig 12. Gate Charge Circuit

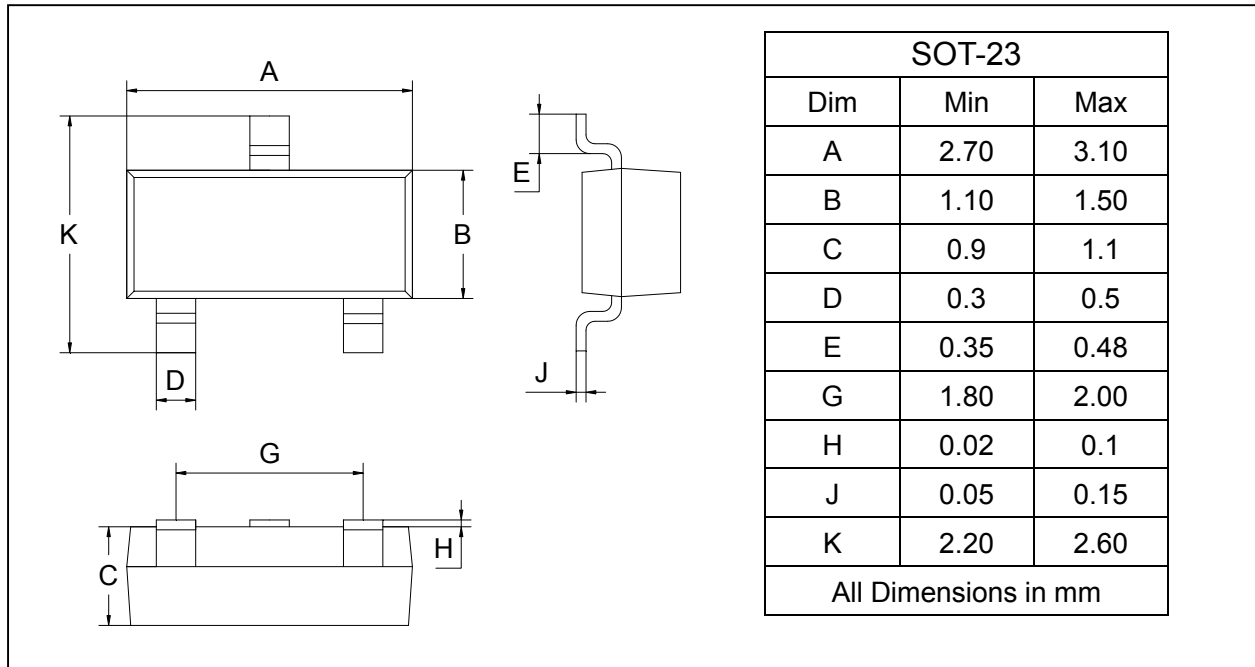
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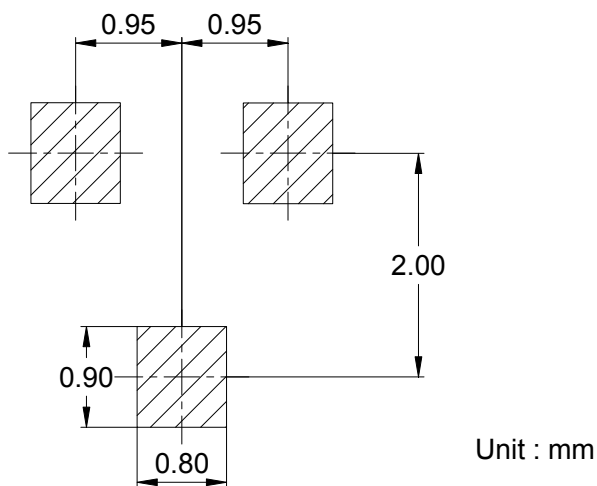
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BL2311	SOT-23	3000/Tape&Reel