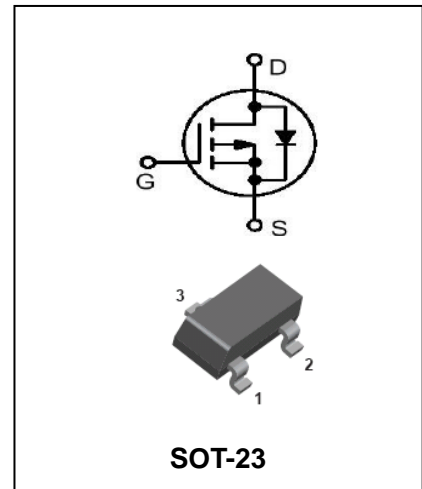# P-Channel Enhancement Mode Power Mosfet   **BL2305**

FEATURES

- Super High Dense Cell Design for Extremely Low $R_{DS(ON)}$

- Reliable and Rugged

- Electrostatic Sensitive Devices.

- MSL1

Pb Lead-free

HF

APPLICATIONS

- Power Management in Notebook.

- Portable Equipment.

- Battery Powered System.

SOT-23

ORDERING INFORMATION

Type No.	Marking	Package Code
BL2305□	2305	SOT-23

□: none is for Lead Free package;

"G" is for Halogen Free package.

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{DSS}	Drain-Source voltage		-12	V
V_{GSS}	Gate -Source voltage		±8	V
I_D	Maximum Drain current	T_A=25℃	-4.2	A
		T_A=70℃	-3.4	
I_{DM}	Pulsed Drain current		-10	A
P_D	Power Dissipation		1.37	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient		90	℃/W
T_J, T_{stg}	Operating Junction and Storage Temperature Range		-55~+150	℃

P-Channel Enhancement Mode Power Mosfet   **BL2305**

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-12	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-	-	
Forward Transconductance	gfs	$V_{DS}=-5V, I_D=-2.8A$	-	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
Drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-4.5A$	-	-	53	mΩ
		$V_{GS}=-4.5V, I_D=-4.2A$	-	-	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
Total Gate Charge	Qg	$V_{DS}=-16V, V_{GS}=-4.5V,$ $I_D=-4.2A$	-	10.6	-	nC
Gate-Source Charge	Qgs		-	2.32	-	
Gate-Drain Charge	Qgd		-	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_R		-	2.6	-	
Reverse Recovery Time	Trr	$I_S=-4.2A, V_{GS}=0$	-	27.7	-	ns
Reverse Recovery Charge	Qrr	dI/dt=100A/us	-	22	-	nC

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified
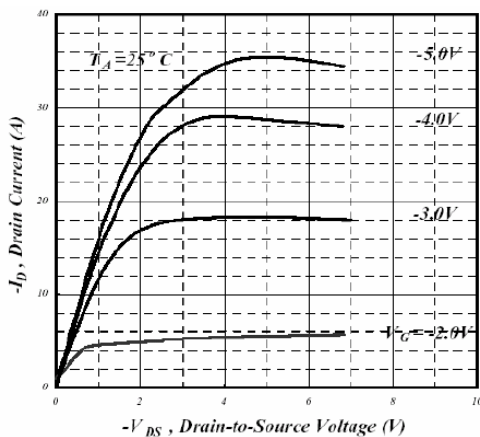

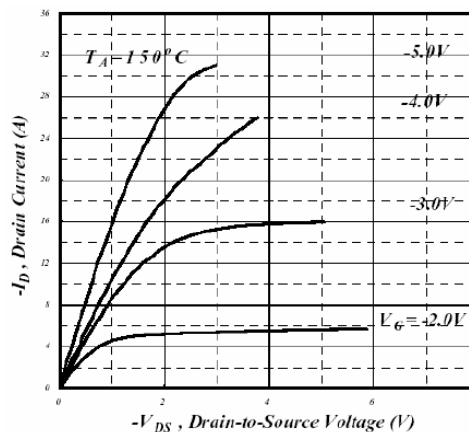Fig 1. Typical Output Characteristics

Fig 2. Typical Output Characteristics

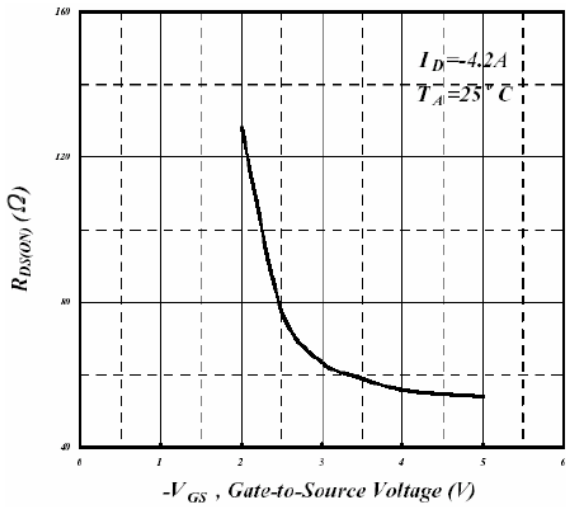# P-Channel Enhancement Mode Power Mosfet   **BL2305**
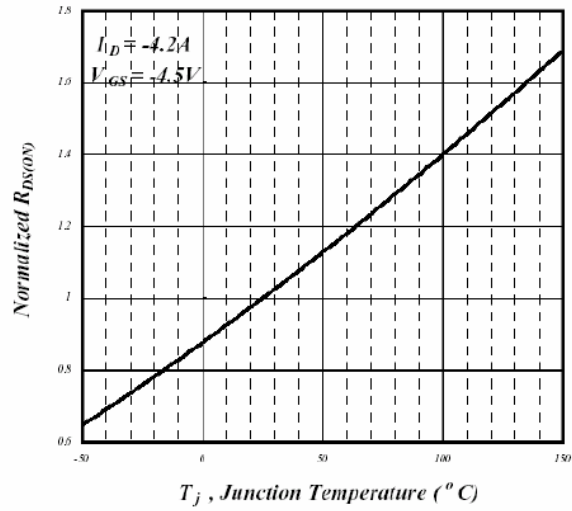

Fig 3. On-Resistance v.s. Gate Voltage

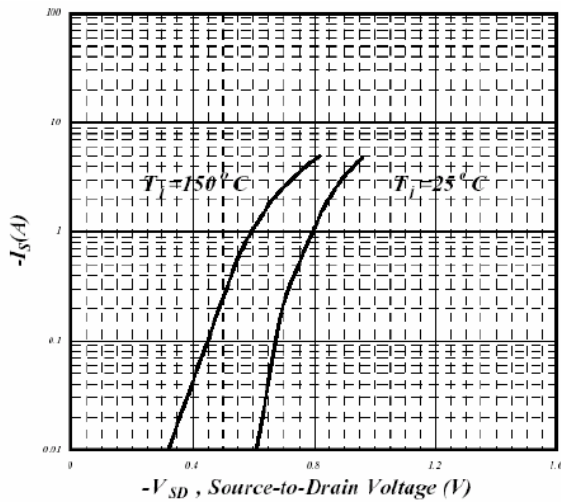Fig 4. Normalized On-Resistance
v.s. Junction Temperature

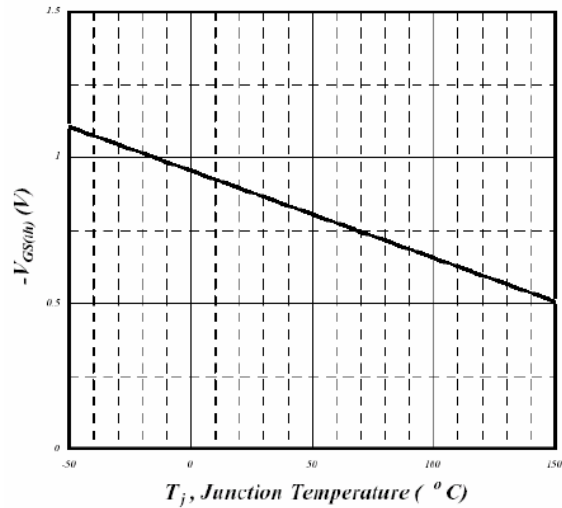Fig 5. Forward Characteristic of
Reverse Diode

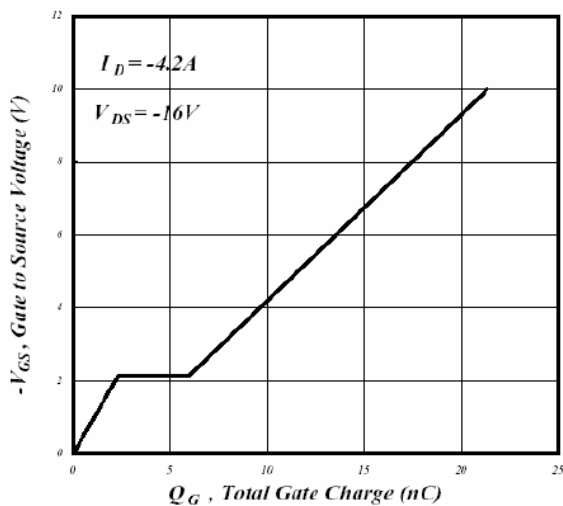Fig 6. Gate Threshold Voltage v.s.
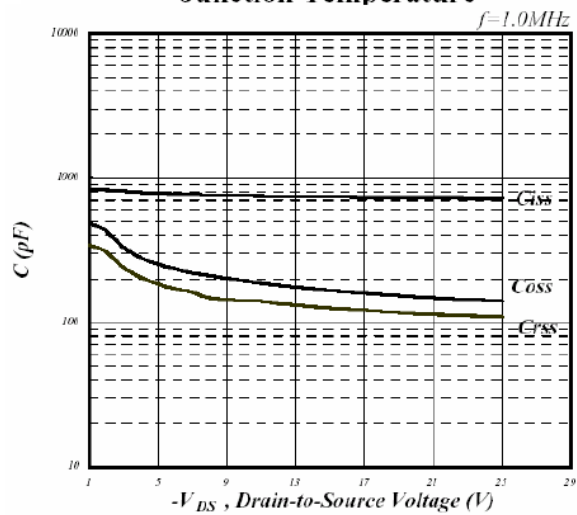Junction Temperature

Fig 7. Gate Charge Characteristics

Fig 8. Typical Capacitance Characteristics

P-Channel Enhancement Mode Power Mosfet **BL2305**
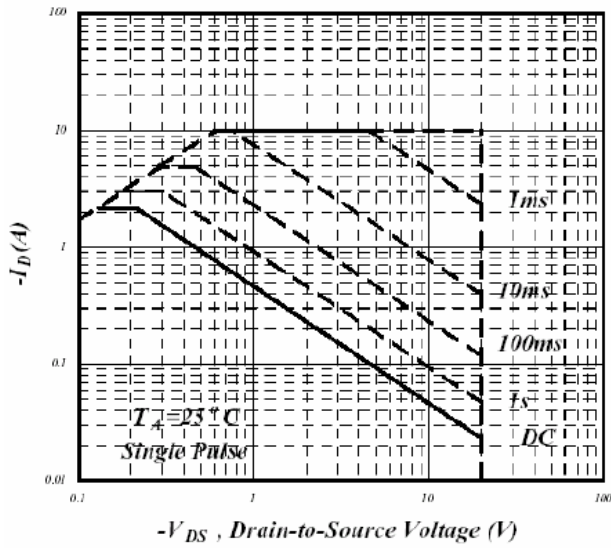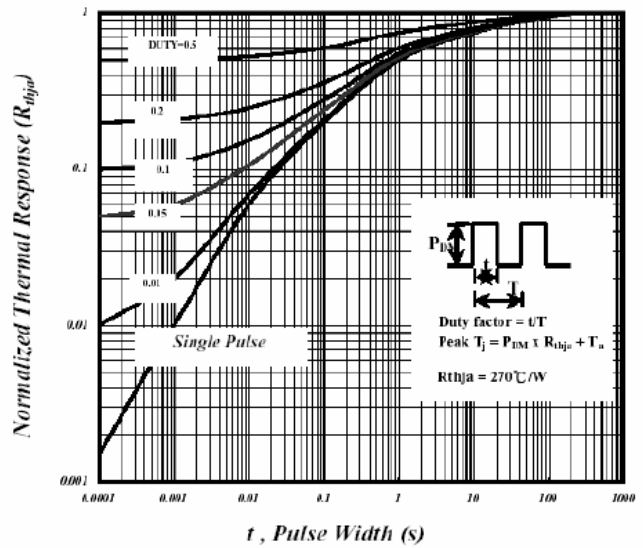

Fig 9. Maximum Safe Operating Area

Fig 10. Effective Transient Thermal Impedance
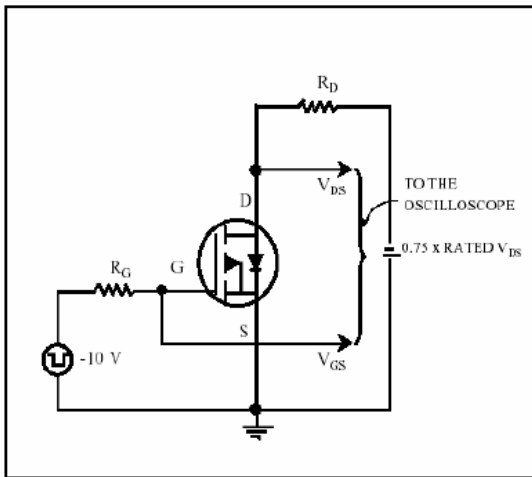

Fig 11. Switching Time Circuit
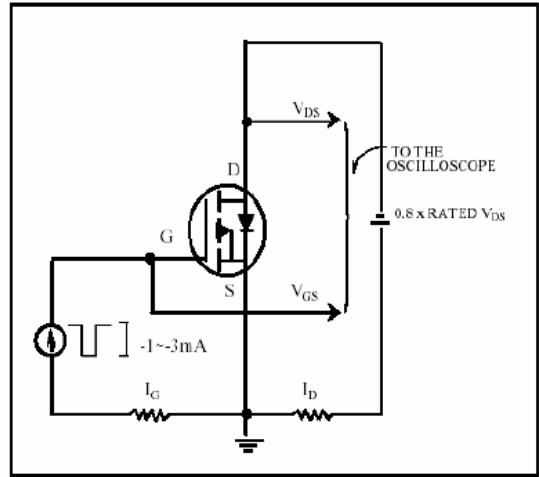

Fig 12. Gate Charge Circuit

P-Channel Enhancement Mode Power Mosfet | **BL2305**

PACKAGE OUTLINE

Plastic surface mounted package   SOT-23

SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT

0.95   0.95

2.00

0.90

0.80

Unit : mm

PACKAGE   INFORMATION

Device	Package	Shipping
BL2305	SOT-23	3000/Tape&Reel

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