


## N-Channel Enhancement Mode Field Effect Transistor

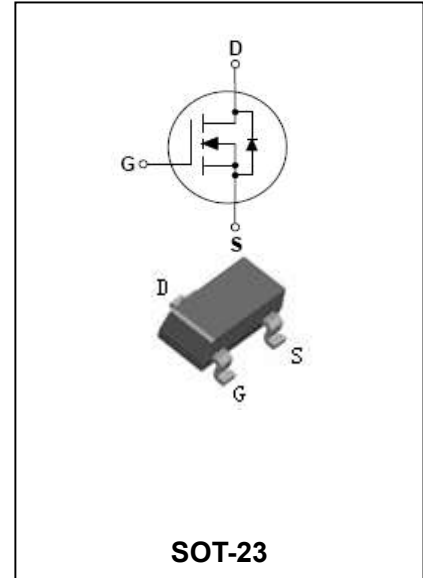
### BL2302

#### FEATURES

- 20V/3.6A, RDS(ON)=85m\_@VGS=4.5V. 
- 20V/3.1A, RDS(ON)=115m\_@VGS=2.5V. Lead-free
- Super high density cell design for extremely low RDS(ON).
- Exceptional on-resistance and maximum DC current capability.
- Electrostatic Sensitive Devices.
- MSL 1.

#### APPLICATIONS

- Power Management in Notebook.
- Portable Equipment.
- DC/DC Converter.



#### ORDERING INFORMATION

Type No.	Marking	Package Code
BL2302	2302	SOT-23

#### MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
V <sub>DSS</sub>	Drain-Source voltage	20	V
V <sub>GSS</sub>	Gate -Source voltage	±8	V
I <sub>D</sub>	Maximum Drain current T <sub>A</sub> =25°C T <sub>A</sub> =70°C	2.8 2.2	A
I <sub>DM</sub>	Pulsed Drain current	10	A
P <sub>D</sub>	Power Dissipation	1.25	W
R <sub>θJA</sub>	Thermal resistance, Junction-to-Ambient	105	°C/W
T <sub>J</sub>	Operating Junction Temperature	150	°C

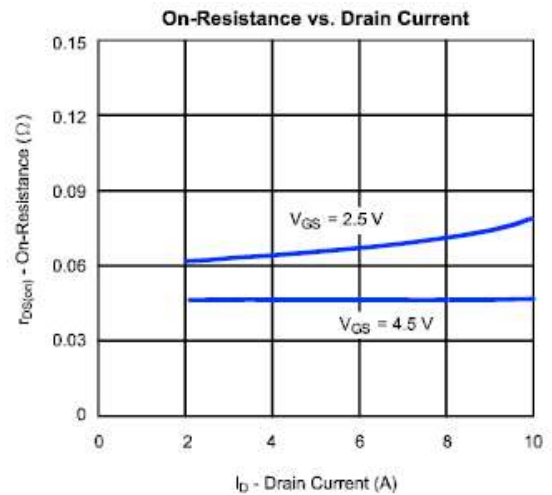
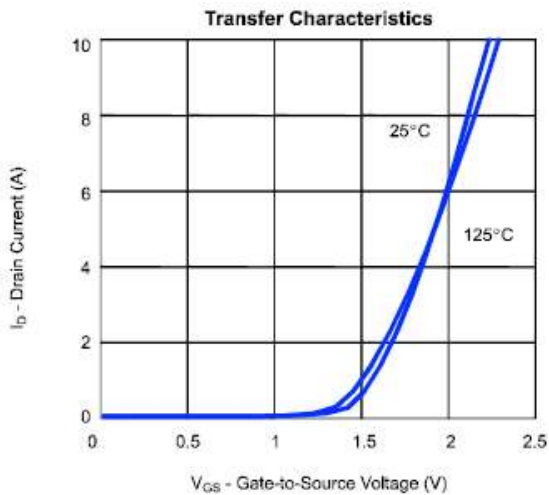
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#### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

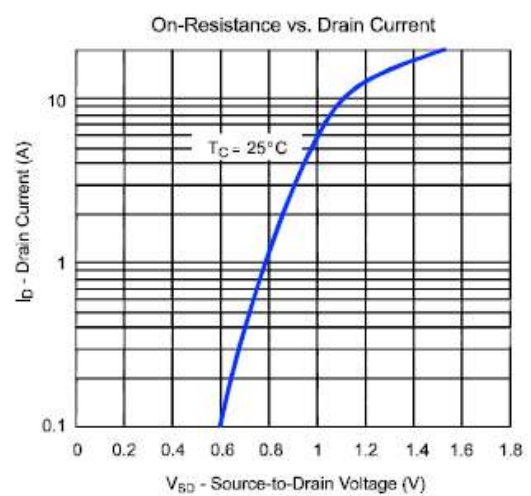
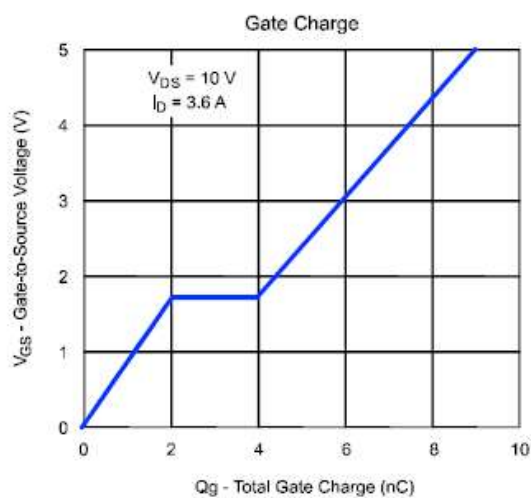
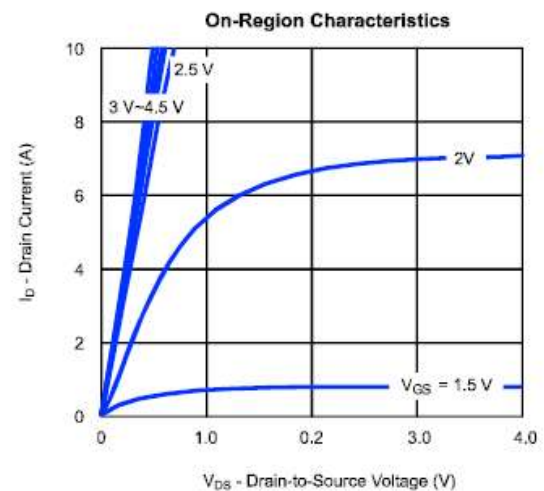
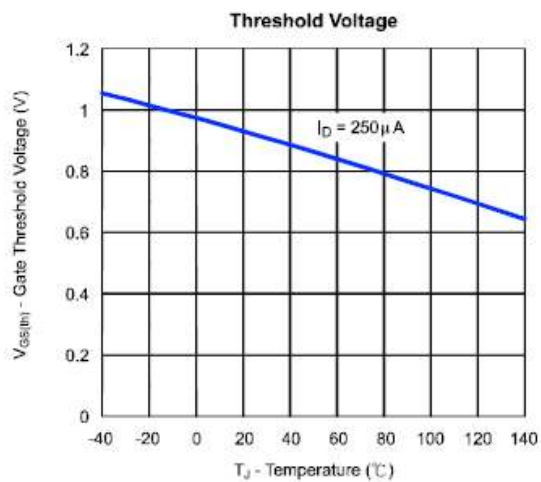
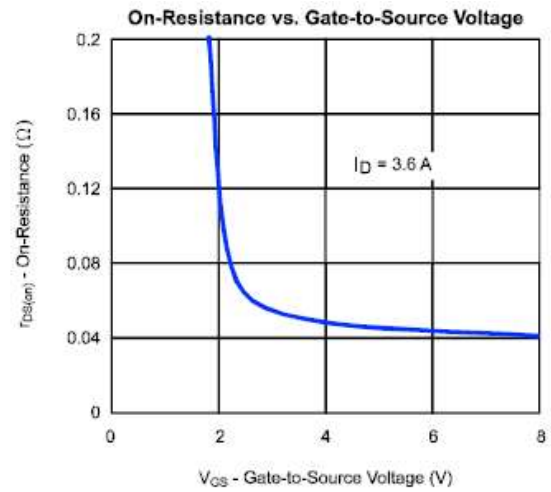
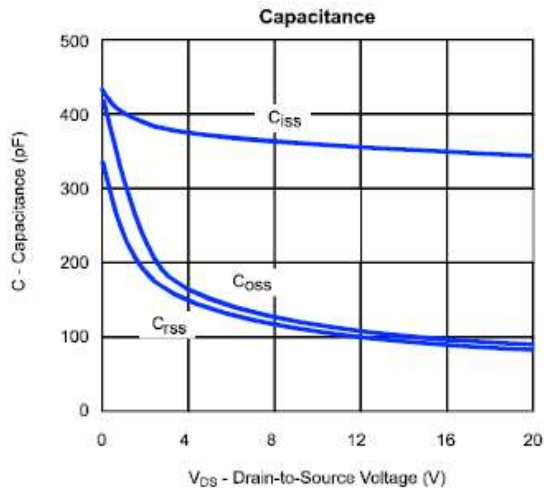
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.6	0.9	1.2	
Gate-body Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=8V$	-	-	100	nA
		$V_{DS}=0V, V_{GS}=-8V$	-	-	-100	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$	-	-	1	$\mu A$
		$V_{DS}=20V, V_{GS}=0V, T_j=55^\circ C$	-	-	10	
On-state Drain Current	$I_{D(on)}$	$V_{GS}=4.5V, V_{DS}\geq 5.0V$	6			A
		$V_{GS}=2.5V, V_{DS}\geq 5.0V$	4			
Drain-Source on-resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=2.9A$	-	-	45	m $\Omega$
		$V_{GS}=2.5V, I_D=2.5A$	-	-	59	
Diode forward voltage	$V_{SD}$	$V_{GS}=0V, I_S=1A$	-	0.75	1.2	V
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=4.5V, I_D=3.6A$	-	9	-	nC
Gate-Source Charge	Qgs		-	2.2	-	
Gate-Drain Charge	Qgd		-	3	-	
Input capacitance	$C_{ISS}$	$V_{DS}=10V, V_{GS}=0V, f=1.0MHz$	-	350	-	pF
Output capacitance	$C_{OSS}$		-	100	-	
Reverse transfer capacitance	$C_{RSS}$		-	90	-	
Turn-On Delay Time	$t_{D(on)}$	$V_{DD} = 10V, I_D = 3.6A,$ $R_L = 2.8\Omega, V_{GEN} = 4.5V,$ $R_{GEN} = 6\Omega$	-	9	-	ns
Rise Time	$t_R$		-	23	-	
Turn-Off Delay Time	$t_{D(off)}$		-	38	-	
Fall Time	$t_F$		-	3	-	

#### TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified



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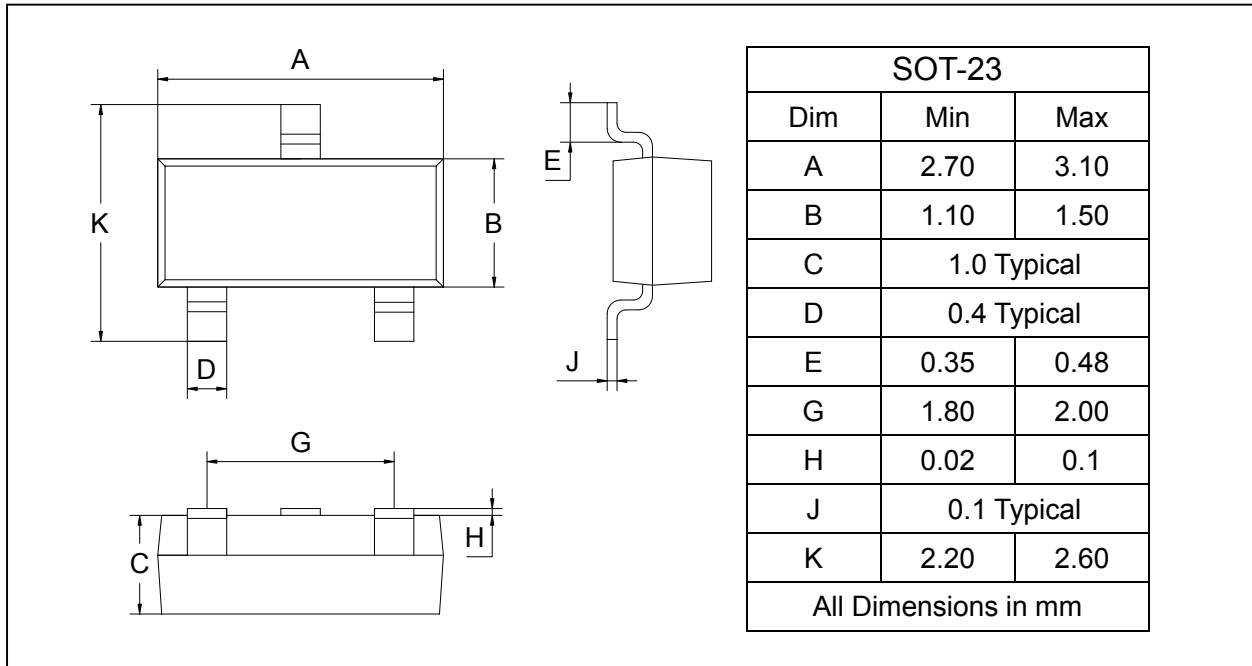
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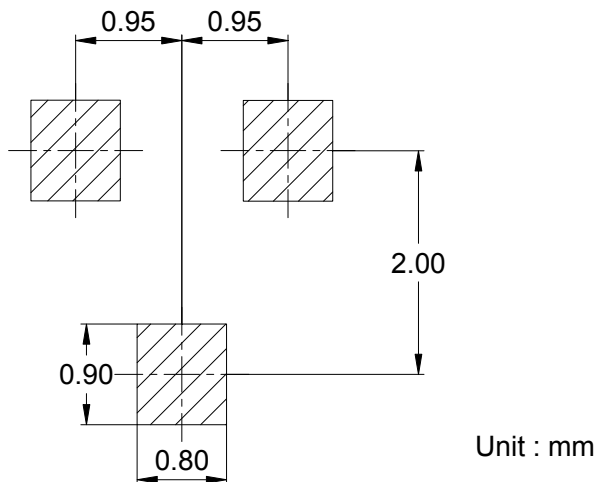
### PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



### SOLDERING FOOTPRINT



### PACKAGE INFORMATION

Device	Package	Shipping
BL2302	SOT-23	3000/Tape&Reel