N-Channel Enhancement Mode MOSFET

BL2N100

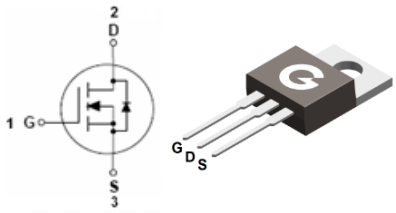
Features

- Low gate charge minimize switching loss
- Fast recovery body diode

HF

Mechanical Data

- Case: TO-220AB
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



TO-220AB

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL2N100	TO-220AB	50 pcs / Tube	2N100

Maximum Ratings (@ T_C = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	1000	V
Gate-to-Source Voltage	V_{GSS}	±30	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current (V_{GS} = 10V)	I_{DM}	8	A
Single Pulse Avalanche Energy *1	E_{AS}	24	mJ

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_C = 25°C)	P_D	70	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.79	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_J = 25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 1mA	1000	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 1000V, V_{GS} = 0V	-	-	1	μA
		V_{DS} = 800V, V_{GS} = 0V, T_J = 125°C	-	-	250	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±30V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance	V_{GS} = 10V, I_D = 1A	-	-	10	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2	-	4	V
gfs	Forward Threshold Voltage	V_{DS} = 15V, I_D = 2A	-	2.5	-	S
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1.0MHz	-	380	-	pF
C_{OSS}	Output Capacitance		-	40	-	
C_{RSS}	Reverse Transfer Capacitance		-	4	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	V_{DS} = 500V R_G = 12Ω I_D = 2A V_{GS} = 10V	-	8	-	ns
t_r	Turn-on Rise Time		-	6	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	36	-	
t_f	Turn-Off Fall Time		-	15	-	
Q_G	Total Gate-Charge	V_{DS} = 500V V_{GS} = 10V I_D = 2A	-	15	-	nC
Q_{GS}	Gate to Source Charge		-	2.1	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	6	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD} = 2A, V_{GS} = 0V	-	-	1.5	V
I_S	Continuous Source Current		-	-	2	A
I_{SM}	Maximum Pulsed Current		-	-	8	A
trr	Reverse Recovery Time	I_S = I_F , V_{GS} = 0V dI_{SD}/d_t = 100A/μs	-	320	-	ns
Qrr	Reverse Recovery Charge		-	1000	-	nC

Note 1: The E_{AS} test condition is V_{DS} = 50V, V_{GS} = 15V, L = 10mH

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

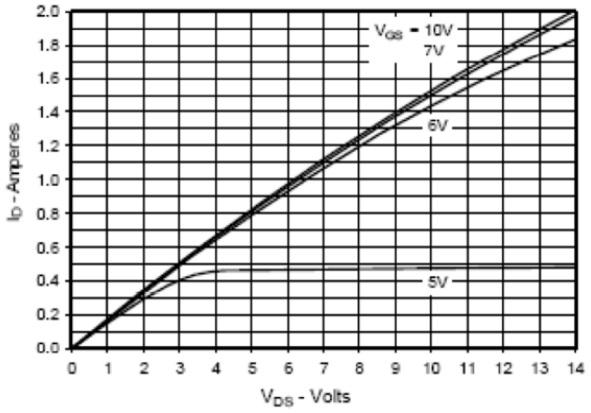


Fig 1 Typical Output Characteristics

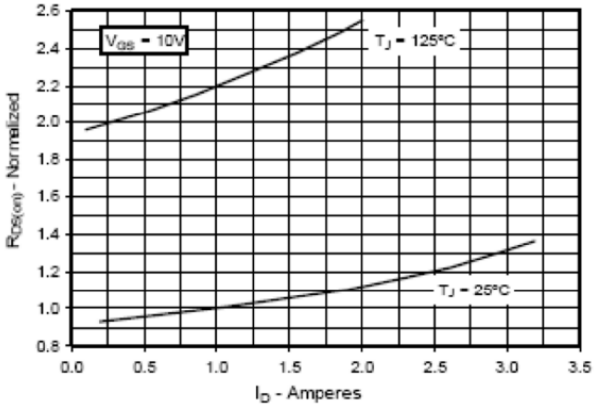


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

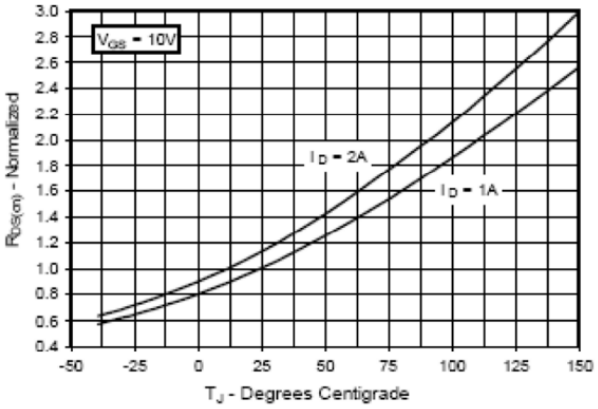


Fig 3 On-Resistance vs. Junction Temperature

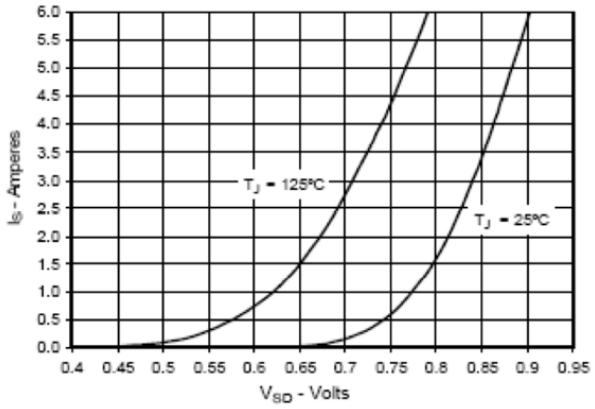


Fig 4 Body-Diode Characteristics

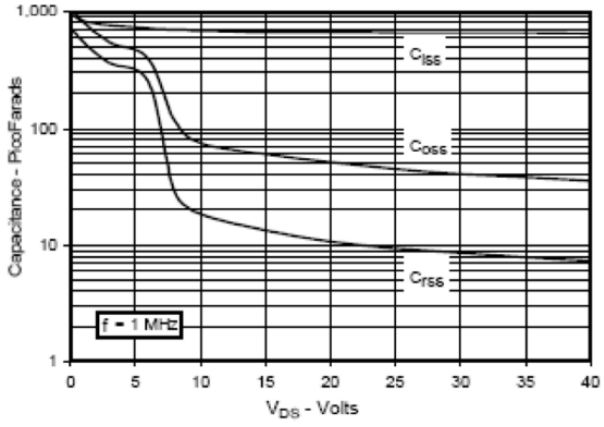


Fig 5 Capacitance Characteristics

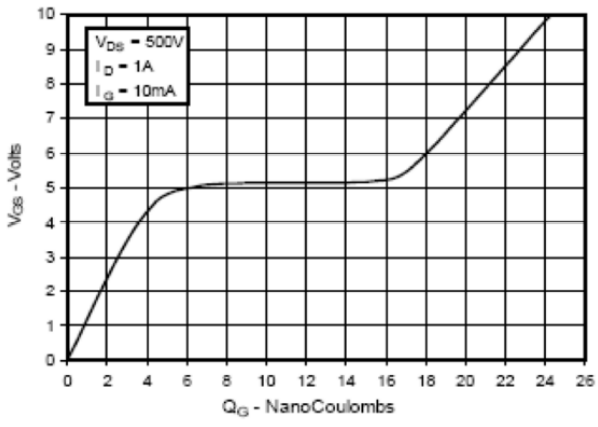


Fig 6 Gate-Charge Characteristics

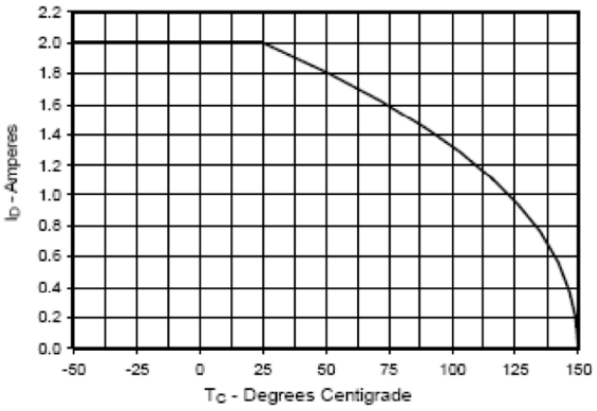


Figure 7 Maximum Continuous Drain Current vs. Case Temperature

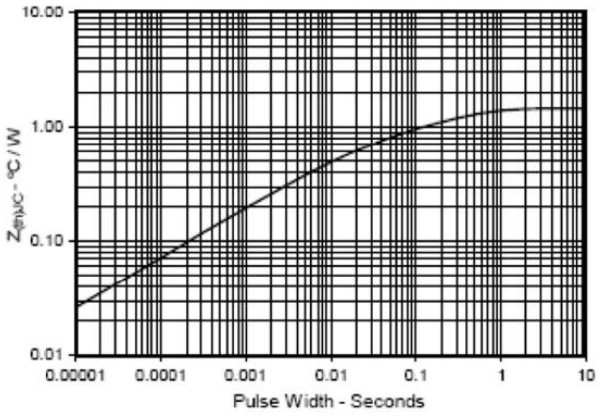
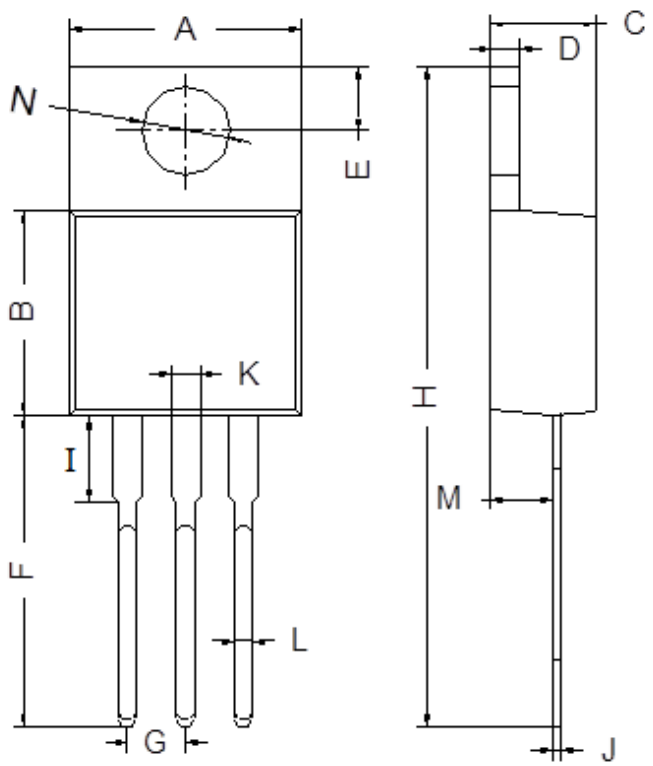


Figure 8 Maximum Effective Transient Thermal Impedance, Junction-to-Case

Package Outline Dimensions (Unit: mm)



TO-220AB		
Dimension	**Min.**	**Max.**
A	9.80	10.30
B	8.70	9.10
C	4.37	4.77
D	1.07	1.47
E	2.64	2.84
F	13.14	13.74
G	2.44	2.64
H	28.03	28.83
I	3.50	4.00
J	0.28	0.48
K	1.22	1.32
L	0.71	0.91
M	2.40	2.60
N	3.76	3.96

Important Notice