N-Channel Enhancement Mode MOSFET

BL2N100D

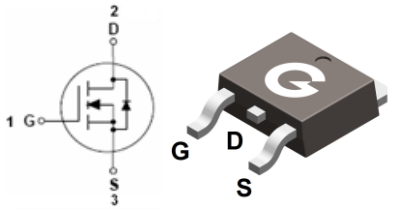
Features

HF

- Low gate charge minimize switching loss
- Fast recovery body diode
- RoHS compliant with Halogen-free

Mechanical Data

- Case: TO-252
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



TO-252

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL2N100D	TO-252	80 pcs / Tube & 2500 pcs / Tape & Reel	2N100D

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	60	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	75	°C/W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	2.08	°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)

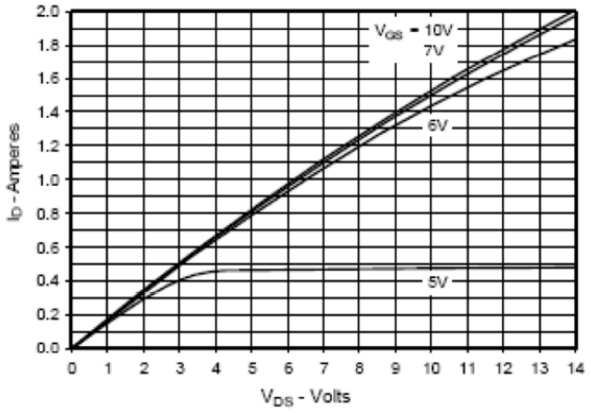


Fig 1 Typical Output Characteristics

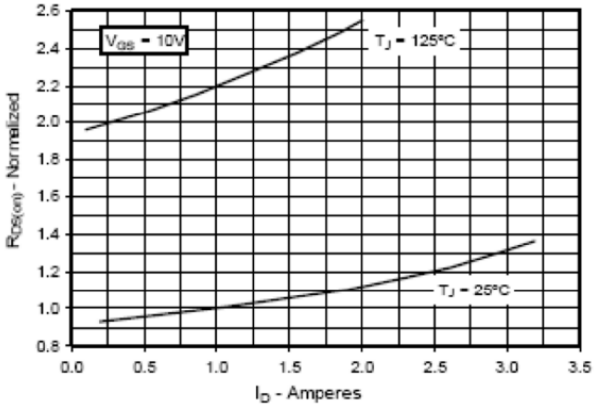


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

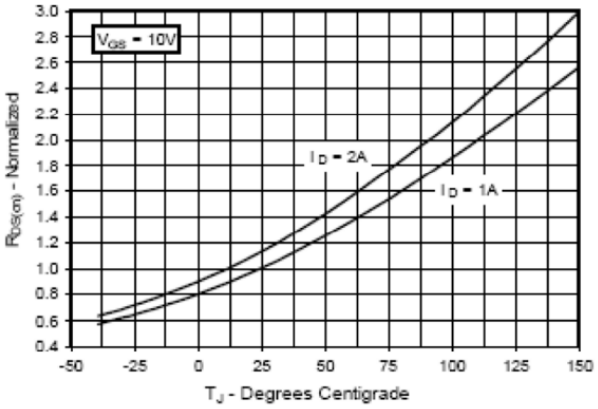


Fig 3 On-Resistance vs. Junction Temperature

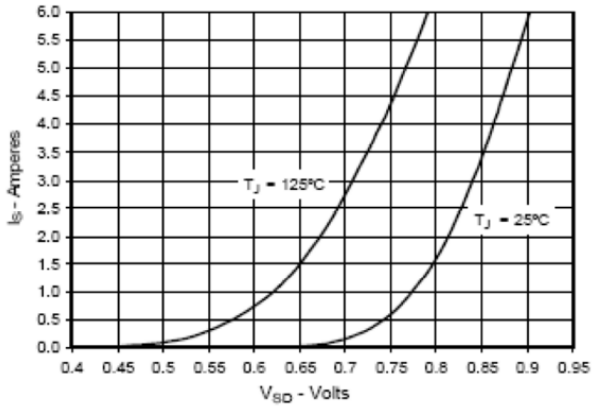


Fig 4 Body-Diode Characteristics

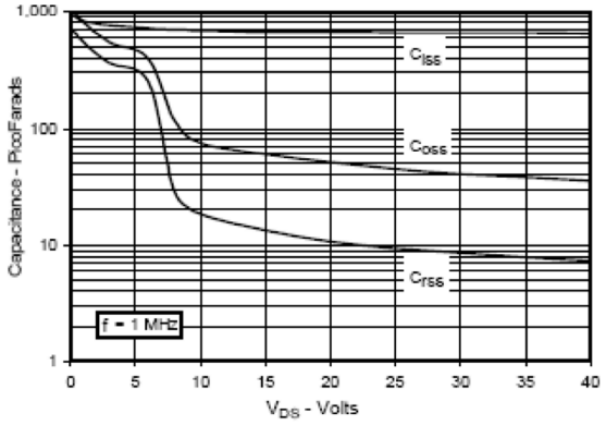


Fig 5 Capacitance Characteristics

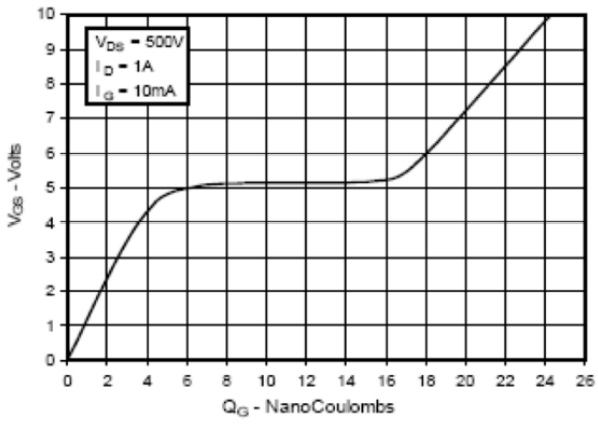


Fig 6 Gate-Charge Characteristics

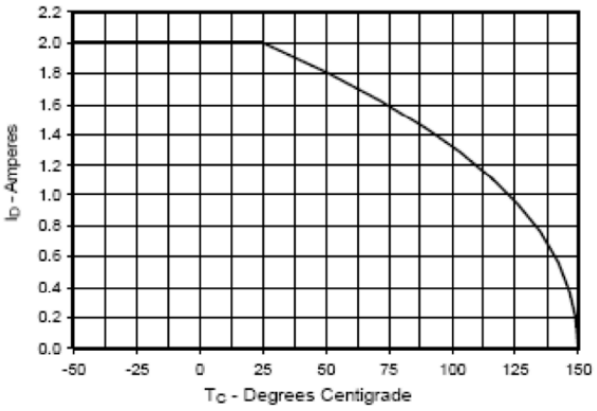


Figure 7 Maximum Continuous Drain Current vs. Case Temperature

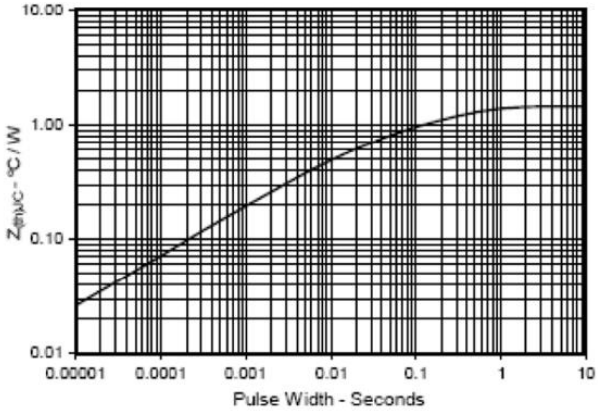
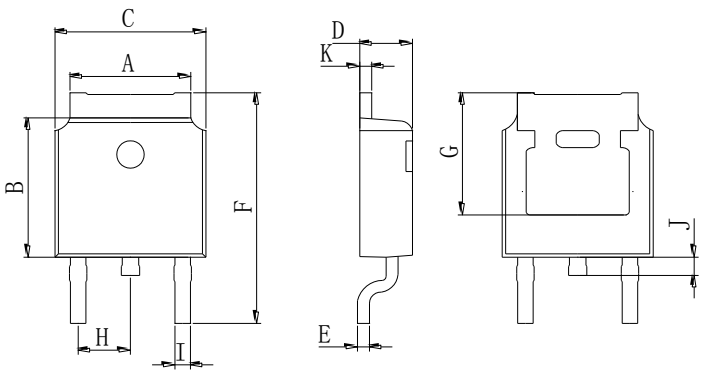


Figure 8 Maximum Effective Transient Thermal Impedance, Junction-to-Case

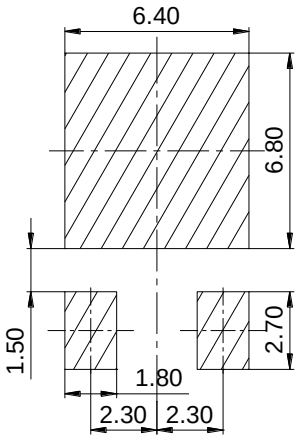
Package Outline Dimensions (Unit: mm)



TO-252		
Dimension	**Min.**	**Max.**
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.70
K	0.40	0.60

Mounting Pad Layout (Unit: mm)

TO-252



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