N-Channel Enhancement Mode MOSFET

BL4N50D

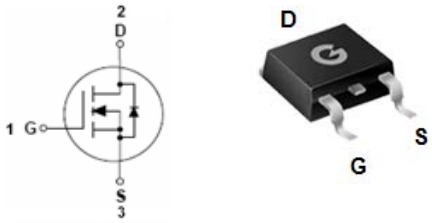
Features

- High switching speed

HF

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
BL4N50D	TO-252	80 pcs / Tube & 2500 pcs / Tape & Reel	4N50D

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	500	V
Gate-to-Source Voltage	V_{GSS}	±30	V
Continuous Drain Current	I_D	4	A
Pulsed Drain Current	I_{DM}	16	A

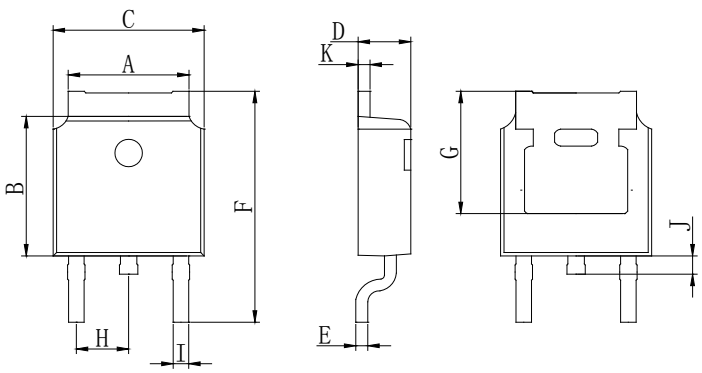
Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_C = 25°C)	P_D	83	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.5	°C/W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	62.5	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_A = 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 = 250μA	500	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 500V, V_{GS} = 0V	-	-	1	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 = 2A	-	-	2	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2	-	4	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1.0MHz	-	485	-	pF
C_{OSS}	Output Capacitance		-	65	-	
C_{RSS}	Reverse Transfer Capacitance		-	5	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	V_{DD} = 250V R_G = 25Ω I_D = 4A	-	14	-	ns
t_r	Turn-on Rise Time		-	21	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	27	-	
t_f	Turn-Off Fall Time		-	20	-	
Q_G	Total Gate-Charge	V_{DD} = 400V V_{GS} = 10V I_D = 4A	-	11	-	nC
Q_{GS}	Gate to Source Charge		-	3	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	5	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD} = 4A, V_{GS} = 0V	-	-	1.6	V
I_{SD}	Diode Continuous Forward Current		-	-	4	A
I_{SM}	Diode Pulsed Forward Current		-	-	16	A
trr	Body Diode Reverse Recovery Time	V_{GS} = 0V, Is = 4A dI/dt = 100A/μs	-	36	-	nS
Qrr	Body Diode Reverse Recovery Charge		-	33	-	μC

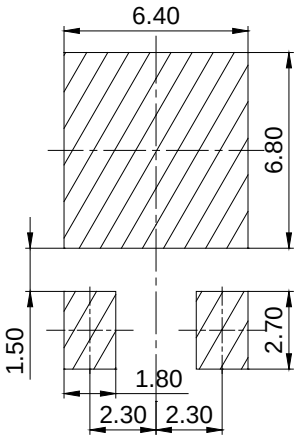
Package Outline Dimensions (Unit: mm)



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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