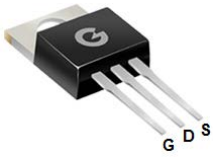
N-Channel Enhancement MOSFET

BL5N80 BL5N80F

Features

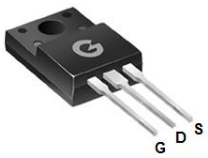
- $R_{DS(ON)}$ = 2.5Ω @ V_{GS} = 10V, I_D = 2.5A
- Improved dv/dt capability
- Fast switching

HF



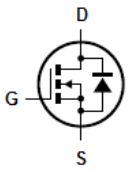
BL5N80

TO-220AB



BL5N80F

ITO-220AB



Mechanical Data

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

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL5N80	TO-220AB	50pcs / Tube	5N80
BL5N80F	ITO-220AB	50pcs / Tube	5N80F

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	800	V
Gate-to-Source Voltage	V_{GSS}	±30	V
Continuous Drain Current(T_C = 25°C)	I_D	5	A
Pulsed Drain Current	I_{DM}	20	A

Thermal Characteristics

Parameter	Symbol	BL5N80	BL5N80F	Unit
Power Dissipation(T_C = 25°C)	P_D	110	45	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.14	2.78	°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	800	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 800V, V_{GS} = 0V	-	-	10	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±30V, V_{DS} = 0V	-	-	±100	nA
On Characteristics *2						
$R_{DS(ON)}$	Static Drain-Source On-resistance	V_{GS} = 10V,I_D = 2.5A	-	1.6	2.5	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	3	-	5	V
Dynamic Characteristics *3						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1.0MHz	-	1010	1310	pF
C_{OSS}	Output Capacitance		-	90	115	
C_{RSS}	Reverse Transfer Capacitance		-	8	11	
Switching Characteristics *3						
$t_{d(ON)}$	Turn-on Delay Time	V_{DD} = 400V R_L = 25Ω I_D = 5A	-	26	60	ns
t_r	Turn-on Rise Time		-	65	140	
$t_{d(OFF)}$	Turn-Off Delay Time		-	47	105	
t_f	Turn-Off Fall Time		-	44	90	
Q_G	Total Gate-Charge	V_{DD} = 640V, V_{GS} = 10V I_D = 5A	-	21	-	nC
Q_{GS}	Gate to Source Charge		-	6	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	9	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage*1	I_{SD} = 5A, V_{GS} = 0V	-	-	1.4	V
I_S	Diode Continuous Forward Current	T_C = 25°C	-	-	5	A

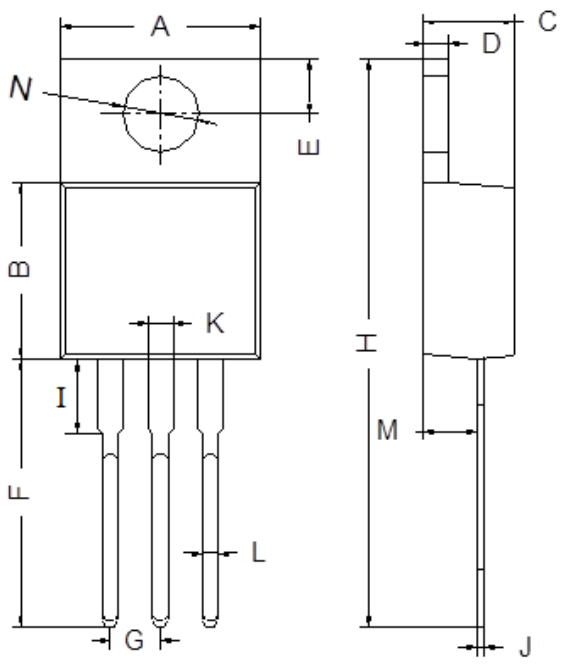
Notes:

1、 Surface mounted on FR4 board, t ≤ 10 sec

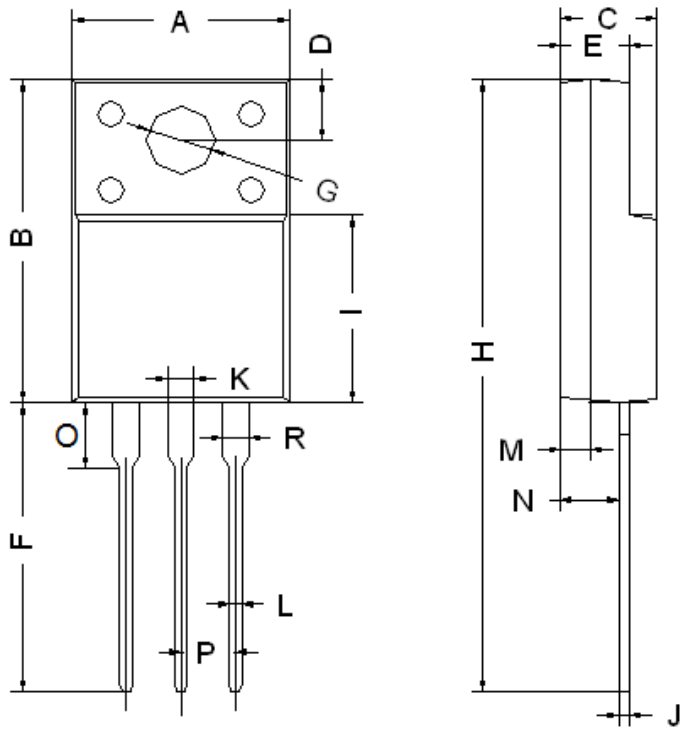
2、 Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%

3、 Guaranteed by design, not subject to production

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



ITO-220AB		
Dimension	**Min.**	**Max.**
A	9.90	10.30
B	14.80	15.20
C	4.30	4.70
D	2.50	2.90
E	2.80	3.30
F	13.00	13.60
G	3.10	3.30
H	28.00	28.60
I	7.90	8.90
J	0.40	0.60
L	0.70	0.90
M	1.30	1.50
N	2.60	2.80
O	2.60	3.10
P	2.45	2.65
K/R	1.10	1.30

Important Notice