

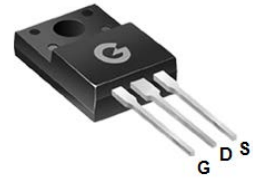
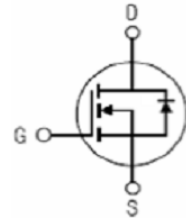
Features

- Fast Switching.
- Low ON Resistance ($R_{ds(on)} \leq 0.3\Omega$).
- Low Gate Charge (Typical Data: 63nC).
- Low Reverse transfer capacitances (Typical: 25pF).

HF

Mechanical Data

- Case: ITO-220AB.
- Molding Compound, UL Flammability Classification Rating 94V-0.
- Terminals: Matte Tin Plated Leads, Solderable Per MIL-STD-202, Method 208.



ITO-220AB

Ordering Information

Part Number	Package	Shipping	Marking Code
BL20N50F	ITO-220AB	50 pcs / Tube	20N50F

Maximum Ratings (@ $T_c=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	500	V
V_{GS}	Gate -Source Voltage	± 30	V
I_D	Continuous Drain Current	20	A
	Continuous Drain Current $T_c=100^\circ\text{C}$	12.5	A
$I_{DM}^{(Note\ 1)}$	Pulsed Drain Current	80	A
$E_{AS}^{(Note\ 2)}$	Single Pulse Avalanche Energy	1500	mJ
$E_{AR}^{(Note\ 1)}$	Avalanche Energy ,Repetitive	90	mJ
$I_{AR}^{(Note\ 1)}$	Avalanche Current	4.3	A
P_D	Power Dissipation	85	W
$R_{\theta JA}$	Junction-to- Ambient	100	$^\circ\text{C/W}$
$R_{\theta JC}$	Junction-to- Case	1.47	$^\circ\text{C/W}$
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_C=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	MIN	TYP	MAX	UNIT
OFF Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	500	-	-	V
I _{DSS}	Drain to Source Leakage Current	V _{DS} =500V, V _{GS} =0V, T _A =25°C V _{DS} =400V, V _{GS} =0V, T _A =125°C	-	-	1 100	uA
I _{GSS}	Gate-body Leakage	V _{GS} =±30V, V _{DS} =0V	-	-	±100	nA
ON Characteristics						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} =10V, I _D =10A	-	0.24	0.3	Ω
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250μA	2	-	4	V
Pulse width tp≤300μs, δ≤2%						
Dynamic Characteristics						
Ciss	Input Capacitance	V _{GS} = 0V	-	2863	-	pF
Coss	Output Capacitance	V _{DS} = 25V	-	285	-	
Crss	Reverse Transfer Capacitance	f = 1.0MHz	-	25	-	
gfs	Forward Trans conductance	V _{DS} =15V, I _D =10A	-	17	-	S
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =250V, I _D =20A R _G =25Ω	-	33	-	nS
t _r	Turn-on Rise Time		-	75	-	
t _{d(off)}	Turn-Off Delay Time		-	181	-	
t _f	Turn-Off Fall Time		-	83	-	
Q _g	Total Gate Charge	V _{DD} =250V, I _D =20A V _{GS} =10V	-	63	-	nC
Q _{gs}	Gate-Source Charge		-	14	-	
Q _{gd}	Gate-Drain Charge		-	24	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _S =20A, V _{GS} =0V	-	-	1.5	V
I _S	Diode Continuous Forward Current		-	-	20	A
I _{SM}	Maximum Pulsed Current		-	-	80	A
t _{rr}	Reverse Recovery Time	I _S =20A, T _J =25°C	-	392	-	nS
Q _{rr}	Reverse Recovery Charge	dI _F /dt=100A/us, V _{GS} =0V	-	3.4	-	uC

NOTE:

- 1、 Repetitive rating; pulse width limited by maximum junction temperature.
- 2、 $L=10\text{mH}, I_D=17.3A$, Start $T_J=25^{\circ}\text{C}$.

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

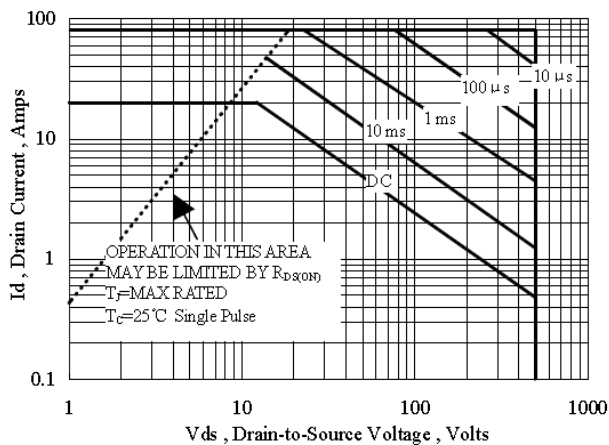


Figure 1 Maximum Forward Bias Safe Operating Area

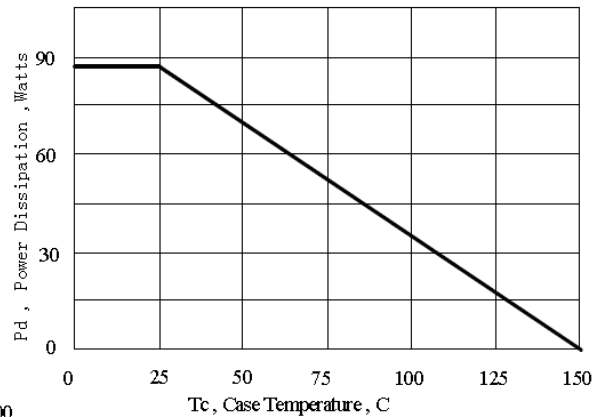


Figure 2 Maximum Power Dissipation vs Case Temperature

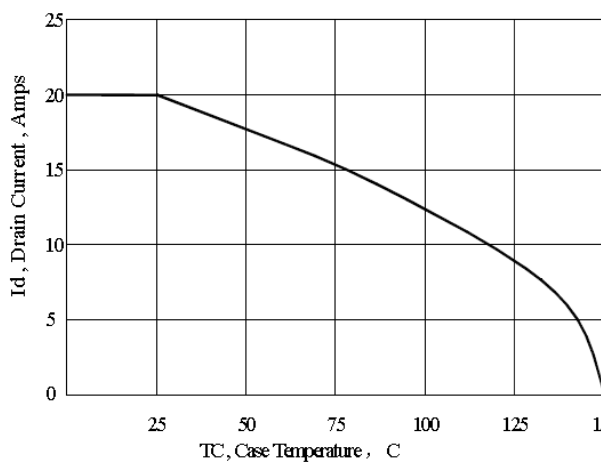


Figure 3 Maximum Continuous Drain Current vs Case Temperature

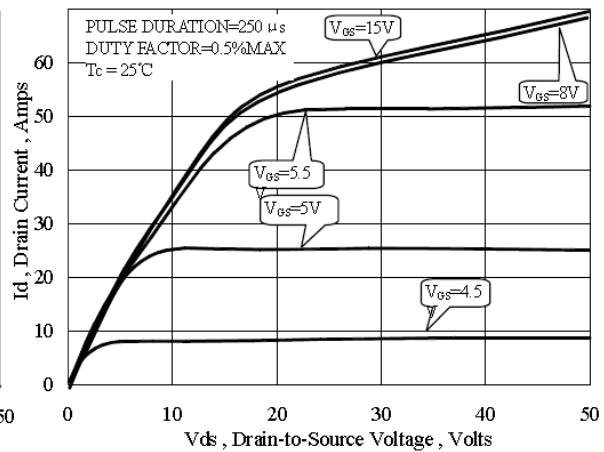


Figure 4 Typical Output Characteristics

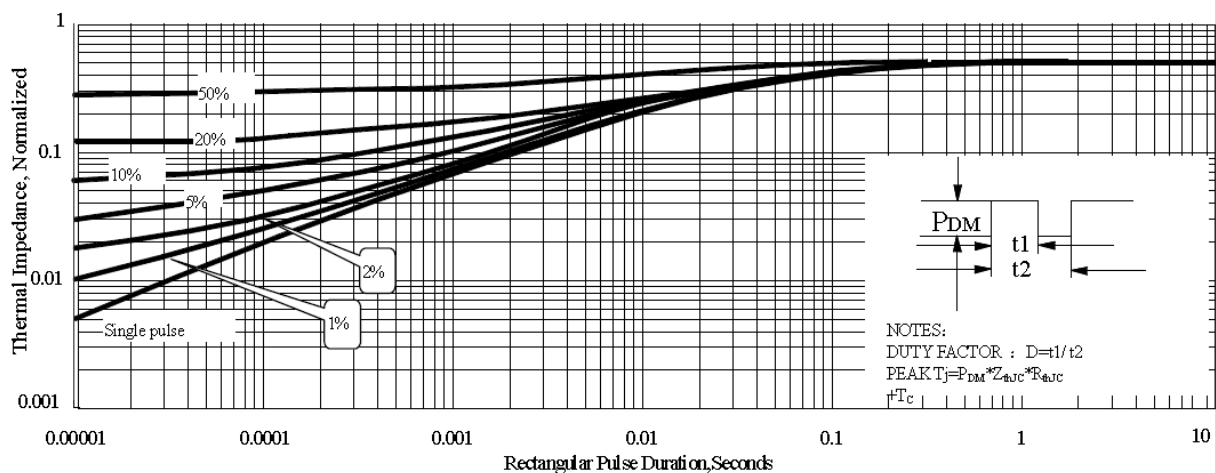


Figure 5 Maximum Effective Thermal Impedance, Junction to Case

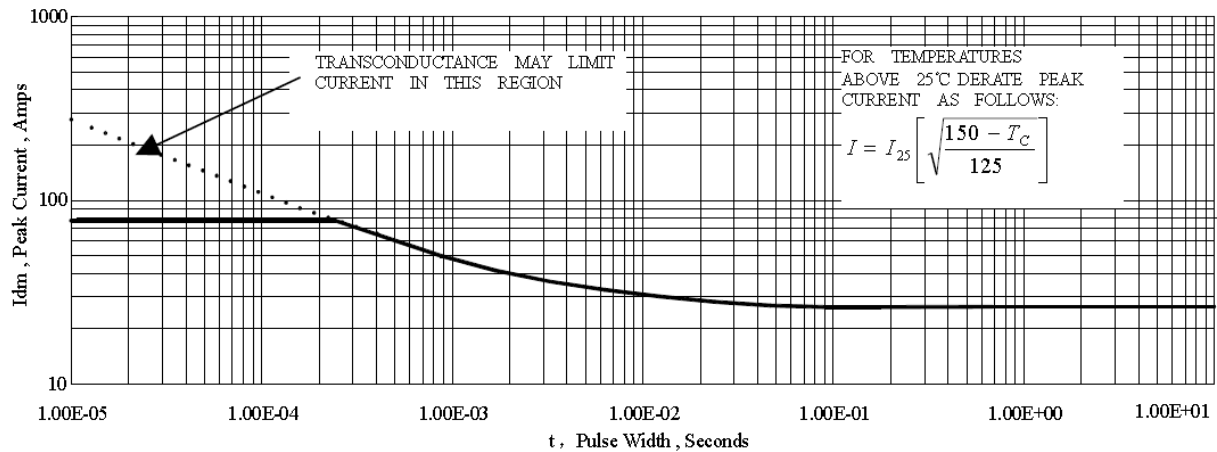


Figure 6 Maximum Peak Current Capability

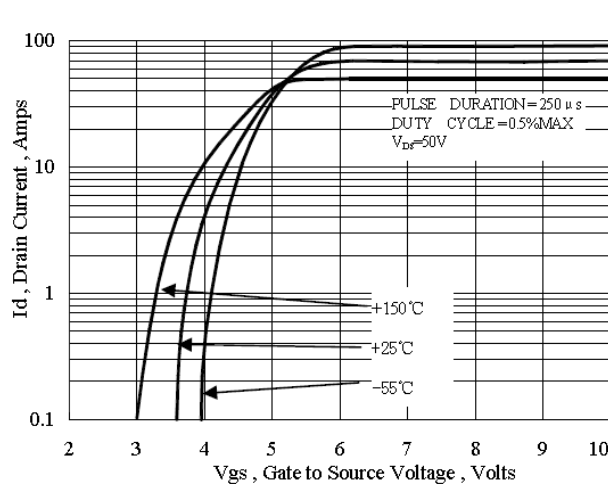


Figure 7 Typical Transfer Characteristics

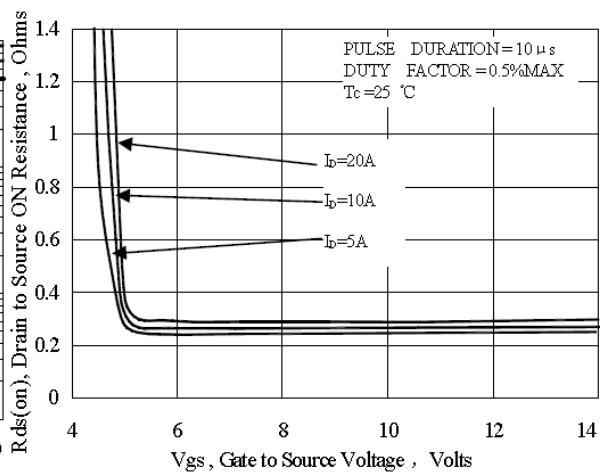


Figure 8 Typical Drain to Source ON Resistance vs Gate Voltage and Drain Current

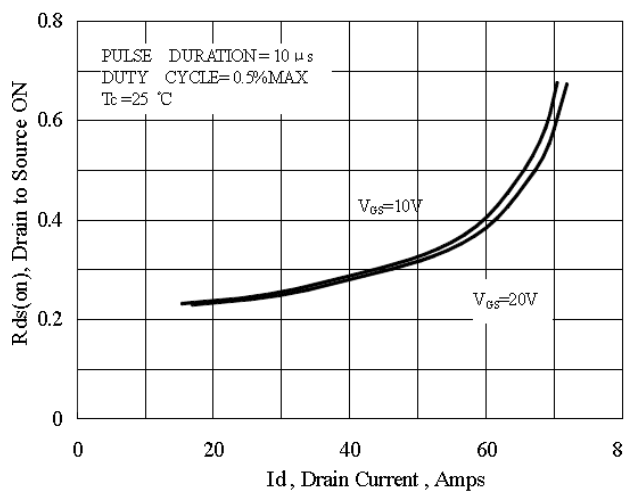


Figure 9 Typical Drain to Source ON Resistance vs Drain Current

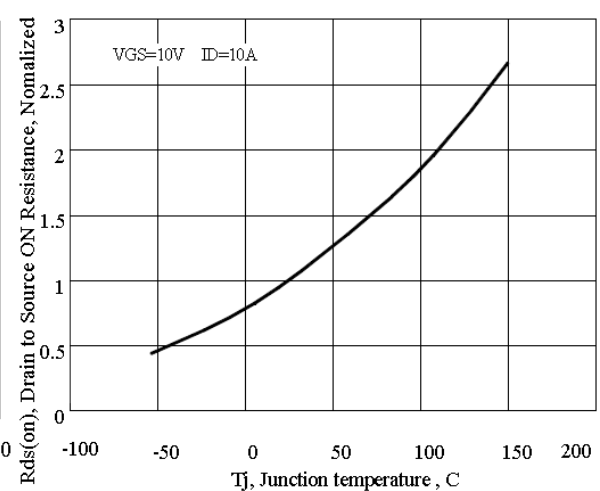


Figure 10 Typical Drain to Source on Resistance vs Junction Temperature

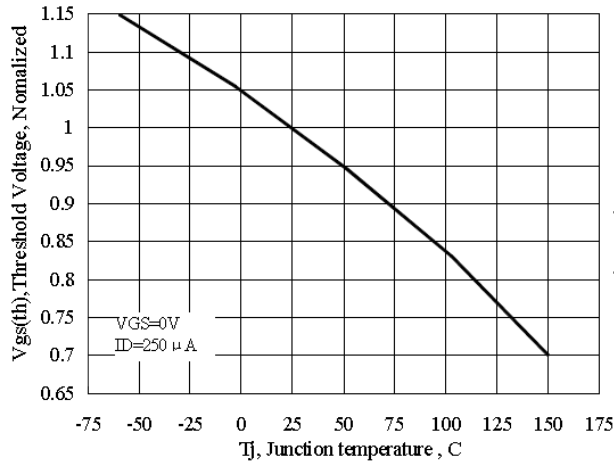


Figure 11 Typical Theshold Voltage vs Junction Temperature

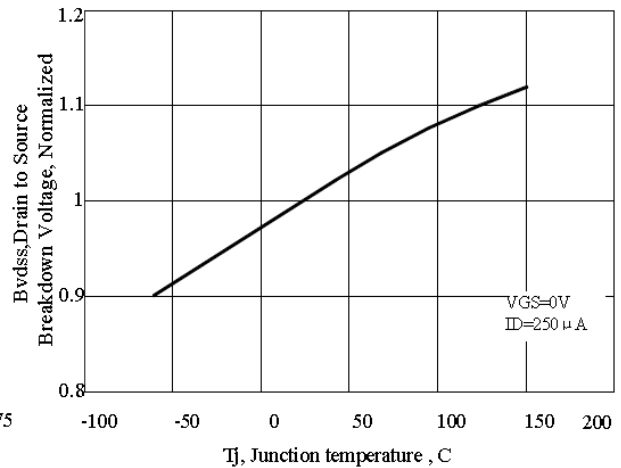


Figure 12 Typical Breakdown Voltage vs Junction Temperature

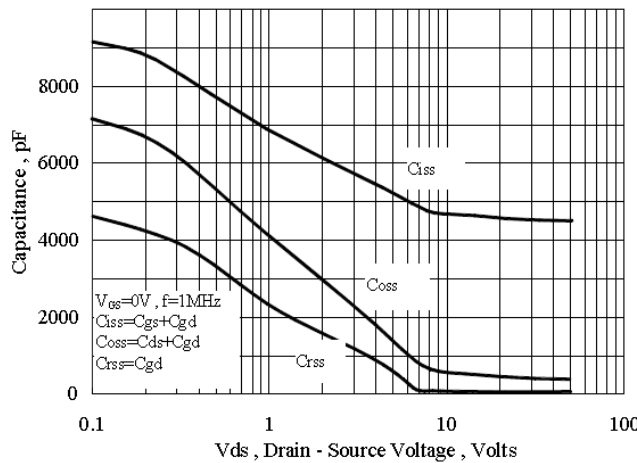


Figure 13 Typical Capacitance vs Drain to Source Voltage

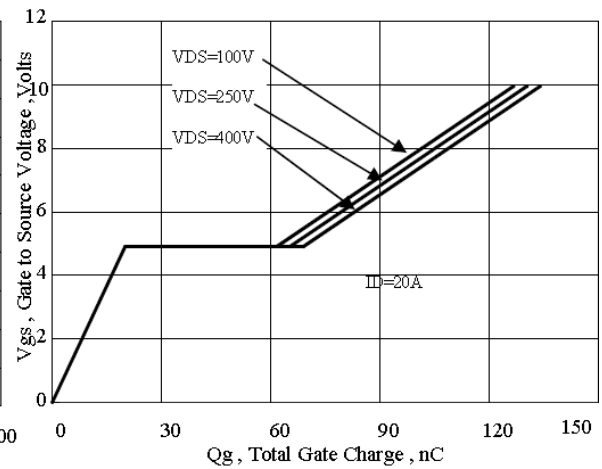


Figure 14 Typical Gate Charge vs Gate to Source Voltage

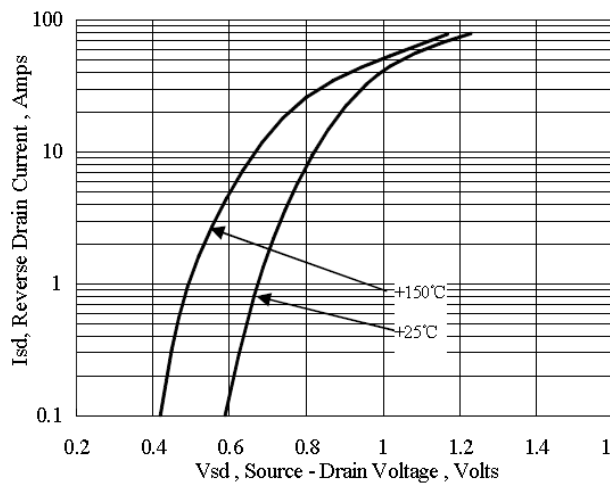


Figure 15 Typical Body Diode Transfer Characteristics

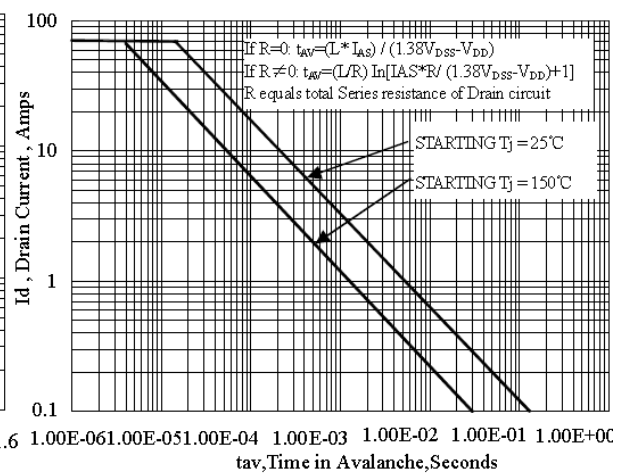
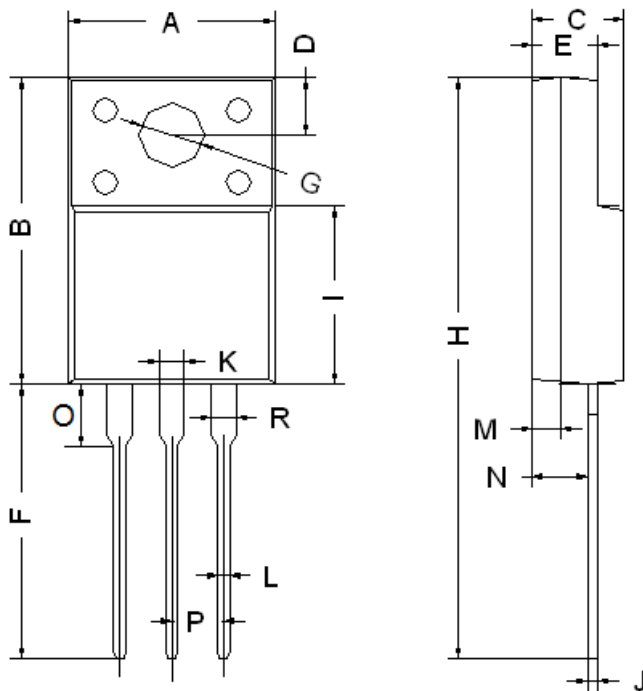


Figure 16 Unclamped Inductive Switching Capability

Package Outline Dimensions(unit:mm)

ITO-220AB



ITO-220AB		
Dim	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

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