

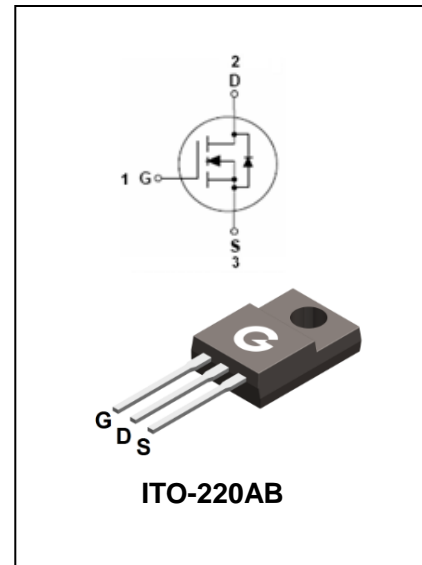
13A, 500V N-Channel Power Mosfet

BL13N50F

FEATURES

- $R_{DS(ON)} = 0.45\Omega @ V_{GS} = 10V$
- Low reverse transfer Capacitance
($C_{RSS} = \text{typical } 27.5 \text{ pF}$)
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness

HF



Ordering Information

Part Number	Package	Shipping	Marking Code
BL13N50F	ITO-220AB	50 pcs / Tube	13N50F

MAXIMUM RATING @ $T_a=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	500	V
V_{GSS}	Gate -Source voltage	± 30	V
I_D	Continuous Drain Current	13.0	A
I_{DM}	Pulsed Drain Current	52	A
E_{AS} E_{AR}	Avalanche Energy Single Pulsed Repetitive	684 19.5	mJ
dv/dt	Peak Diode Recovery dv/dt	4.5	V/ns
P_D	Power Dissipation	140	W
$R_{\theta JA}$	Thermal resistance, Junction-to-Ambient	0.33	$^\circ\text{C}/\text{W}$
T_J	Junction Temperature	-55 to +150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	500	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=500V, V_{GS}=0V$	-	-	1	μA
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$	-	-	± 100	nA
Drain-Source diode forward voltage	V_{FSD}	$V_{GS}=0V, I_S=13A$			1.5	V
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=6.5A$	-	-	0.4	Ω
DYNAMIC CHARACTERISTICS						
Input capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	2140	-	pF
Output capacitance	C_{OSS}		-	214	-	
Reverse transfer capacitance	C_{RSS}		-	27.5	-	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = 2V,$ $I_D = 13.0A,$	-	8	-	ns
Rise Time	t_r		-	54	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	75	-	ns
Fall Time	t_f		-	47	-	ns
Total Gate Charge	Q_g	$V_{DS} = 400V$	-	30	-	nC
Gate-Source Charge	Q_{gs}	$I_D=13.0A$	-	8	-	nC
Gate-Drain Charge	Q_{gd}	$V_{GS}= 10V,$	-	12	-	nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=13.0A$	-	-	1.5	V
Maximum Continuous Drain-Source Diode Forward Current	I_S		-	-	13	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}		-	-	52	A
Body Diode Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_S=13.0A,$ $di/dt=100A/\mu s$	-	160	-	nS
Body Diode Reverse Recovery Charge	Q_{rr}		-	0.6	-	μC

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PACKAGE OUTLINE

Plastic surface mounted package

ITO-220AB

