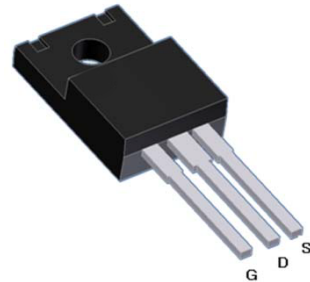


N-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

BV _{DSS}	80V
R _{DS(on)} (MAX.)	5mΩ
I _D	75A



UIS, R_g 100% Tested

Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNIT
Gate-Source Voltage		V _{GS}	±30	V
Continuous Drain Current	T _C = 25 °C	I _D	75	A
	T _C = 100 °C		45	
Pulsed Drain Current ¹		I _{DM}	160	
Avalanche Current		I _{AS}	70	mJ
Avalanche Energy	L = 0.1mH, I _D =70A, R _G =25Ω	E _{AS}	245	
Repetitive Avalanche Energy ²	L = 0.05mH	E _{AR}	122	
Power Dissipation	T _C = 25 °C	P _D	50	W
	T _C = 100 °C		20	
Operating Junction & Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C

100% UIS testing in condition of V_D=40V, L=0.1mH, V_G=10V, I_L=40A, Rated V_{DS}=80V N-CH

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNIT
Junction-to-Case	R _{θJC}		2.5	°C / W
Junction-to-Ambient	R _{θJA}		65	

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	80			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.0	3.0	4.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±30V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 64V, V _{GS} = 0V			1	μA
		V _{DS} = 60V, V _{GS} = 0V, T _J = 125 °C			25	
On-State Drain Current ¹	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	75			A
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 10V, I _D = 20A		4.5	5.0	mΩ
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 20A		60		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 40V, f = 1MHz		5548		pF
Output Capacitance	C _{oss}			557		
Reverse Transfer Capacitance	C _{rss}			29		
Gate Resistance	R _g	V _{GS} = 15mV, V _{DS} = 0V, f = 1MHz		1.8		Ω
Total Gate Charge ^{1,2}	Q _g	V _{DS} = 40V, V _{GS} = 10V, I _D = 20A		58		nC
Gate-Source Charge ^{1,2}	Q _{gs}			38		
Gate-Drain Charge ^{1,2}	Q _{gd}			8.5		
Turn-On Delay Time ^{1,2}	t _{d(on)}	V _{DS} = 40V, I _D = 1A, V _{GS} = 10V, R _{GS} = 6Ω		80		nS
Rise Time ^{1,2}	t _r			150		
Turn-Off Delay Time ^{1,2}	t _{d(off)}			100		
Fall Time ^{1,2}	t _f			170		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _c = 25 °C)						
Continuous Current	I _S				75	A
Pulsed Current ³	I _{SM}				160	
Forward Voltage ¹	V _{SD}	I _F = 20A, V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}	I _F = 20A, dI _F /dt = 100A / μS		70		nS
Reverse Recovery Charge	Q _{rr}			250		nC

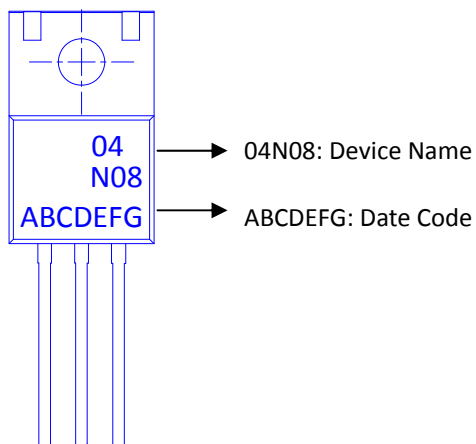
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

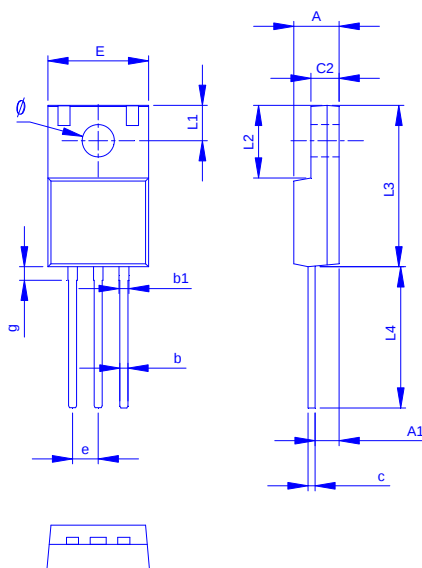
³Pulse width limited by maximum junction temperature.

Ordering & Marking Information:

Device Name: LB04N08GF for TO-220F



Outline Drawing



Dimension in mm

Dimension	A	A1	b	b1	c	c2	E	L1	L2	L3	L4	ø	e	g
Min.	4.30	2.50	0.60	0.60	0.45	2.50	9.70	2.90	6.30	14.70	13.40	3.00	2.35	1.00
Max.	4.70	2.70	0.80	0.90	0.60	2.90	10.30	3.10	6.70	15.30	13.80	3.40	2.75	1.20

TYPICAL CHARACTERISTICS

