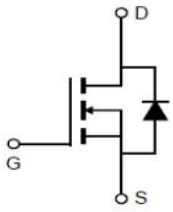
•General Description

The Power MOSFET LH3N150 has the low $R_{DS(on)}$,low gate charge,fast switching and excellent avalanche characteristics.This device offers extremely fast and robust body diode,and is suitable for telecom and power supplies.



V_{DS}=1500V

$R_{DS(ON)}$=5Ω

I_D=3A

TO-220F1

■ RoHS COMPLIANT

•Features

■Low Thermal Resistance
■Fast Switching
■High Input Resistance

•Application

■LED/LCD/PDP TV and monitor Lighting
■Power Supplies

•Ordering Information:

Part number	LH3N150
Package	TO-220F
Basic ordering unit (pcs)	1000
Normal Package Material Ordering Code	LH3N150F1-TO220F1-TU
Halogen Free Ordering Code	LH3N150F1-TO220F1-TU-HF

•Absolute Maximum Ratings（TC =25℃）

PARAMETER		SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage		BV_{DSS}	1500	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current	TC = 25°C	I_D	3	A
	TC = 100°C		1.8	
Pulsed drain current (TC = 25°C, tp limited by Tjmax)[1]		I_{DM}	12	A
Single Pulse Avalanche Energy[2]		E_{AS}	180	mJ
Power Dissipation(TC=25℃)		P_D	45	W
Junction Temperature		T_J	-55~+150	℃
Storage Temperature		T_{STG}	-55~+150	℃

●Electronic Characteristics

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0V, I_D=250uA	1500	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=VGS,I_D=250uA	3.0	--	5.0	V
Drain-source On Resistance[3]	$R_{DS(ON)}$	V_{GS}=10V,I_D=1.5A	5.0	--	6.2	Ω
Drain-Source Leakage Current	I_{DSS}	V_{DS}=1200V,V_{GS}=0V,T_J=25℃	--	--	10	uA
		V_{DS}=1200V,V_{GS}=0V,T_J=125℃	--	--	200	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±30	--	--	±10	uA
Forward Transconductance[3]	gfs	V_{DS}=15V,I_D=1.5A	--	--	5	S
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 25V f = 1.0MHz	--	2070	--	pF
Output Capacitance	Coss		--	102	--	
Reverse transfer Capacitance	Crss		--	2.6	--	
Turn -Off Delay Time[3]	Td(off)	V_{DD}=600V, R_G=25Ω	--	62	--	ns
Total Gate Charge	Qg	I_D =1.5A, V_{DS} = 960V V_{GS} = 10V [3]	--	38	---	nC
Gate-to-Source Charge	Qgs		--	10.4	--	
Gate-to-Drain Charge	Qgd		--	15	---	
Continuous Diode Forward Current	I_S		--	--	3	A
Pulsed Diode Forward Current	I_{SM}		--	--	12.0	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=12A V_{GS} =0V	--	--	1.4	V
Reverse Recovery Time	trr	If=Is di_F/dt=100A/μs [3]	--	888	--	ns
Reverse Recovery Charge	Qrr		--	6.2	--	uC

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	Rth_{JC}	2.78	℃/W
Thermal Resistance Junction-ambient	Rth_{JA}	62.5	℃/W

Notes:

1.Repetitive Rating: Pulse width limited by maximum junction temperature.

2. I_{AS} = 3A, V_{DD} = 50V, R_G = 25Ω,L=10Mh, Starting T_J = 25°C

3. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%

●Typical Characteristics

Fig1 Typical Output Characteristics, Tc=25℃

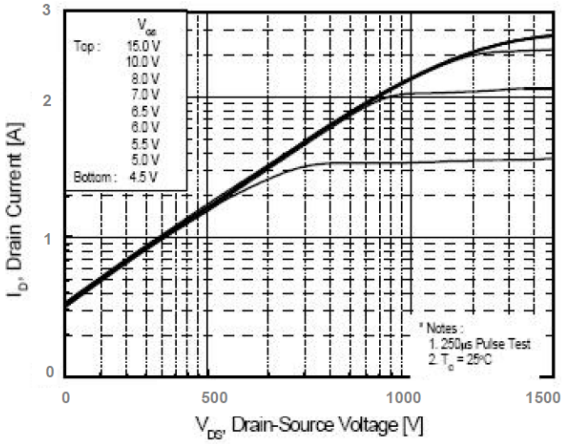


Fig2 On-Resistance Vs.Drain Current and Gate Voltage

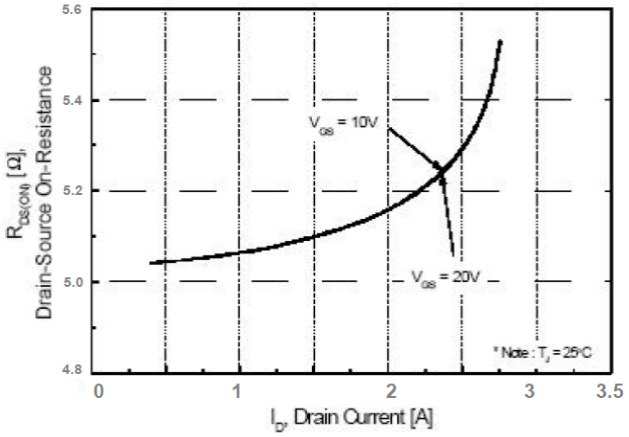


Fig3 Normalized On-Resistance Vs.Temperature

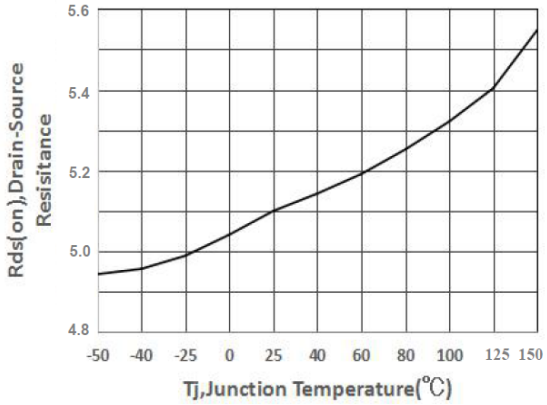


Fig4 Typical Source-Drain Diode Forward Voltage

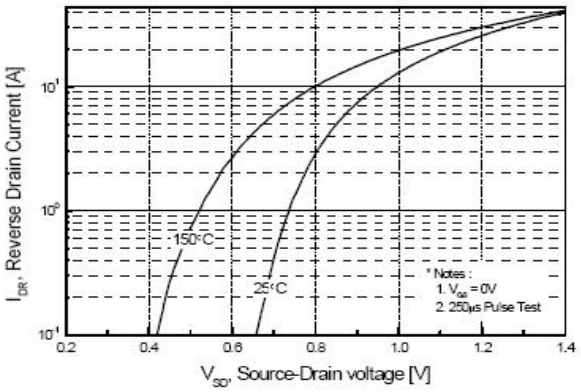


Fig5 Maximum Drain Current Vs.Case Temperature

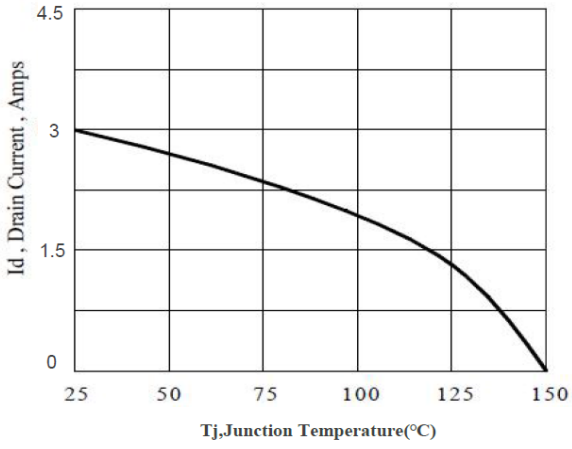
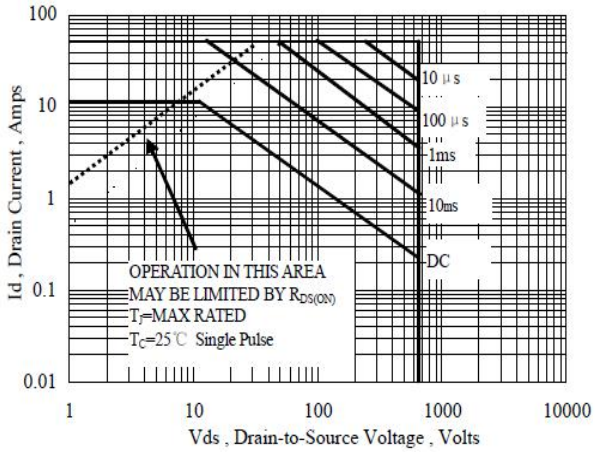


Fig6 Maximum Safe Operating Area



●Test Circuits & Waveforms

Fig7. Gate Charge Test Circuit and Waveform

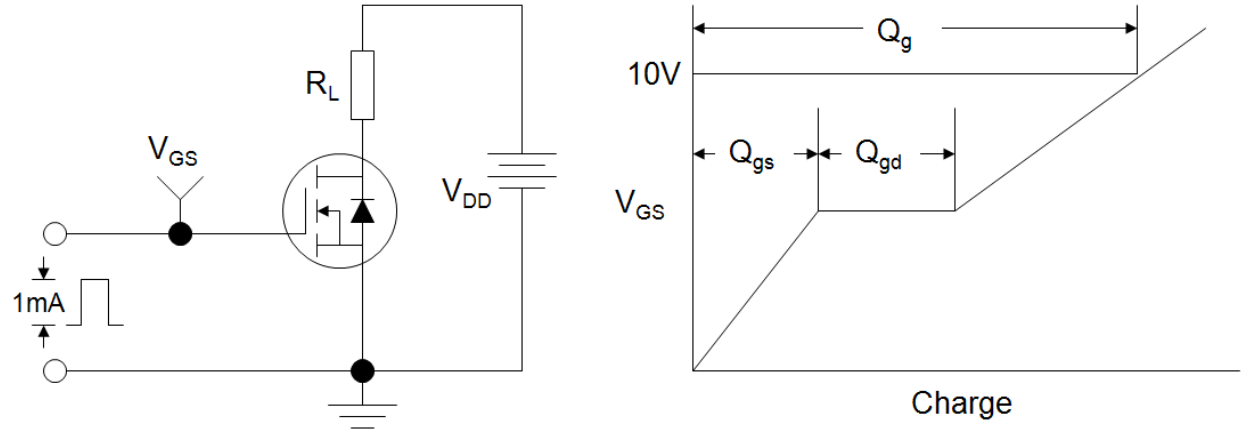


Fig 8. Resistive Switching Test Circuit and Waveform

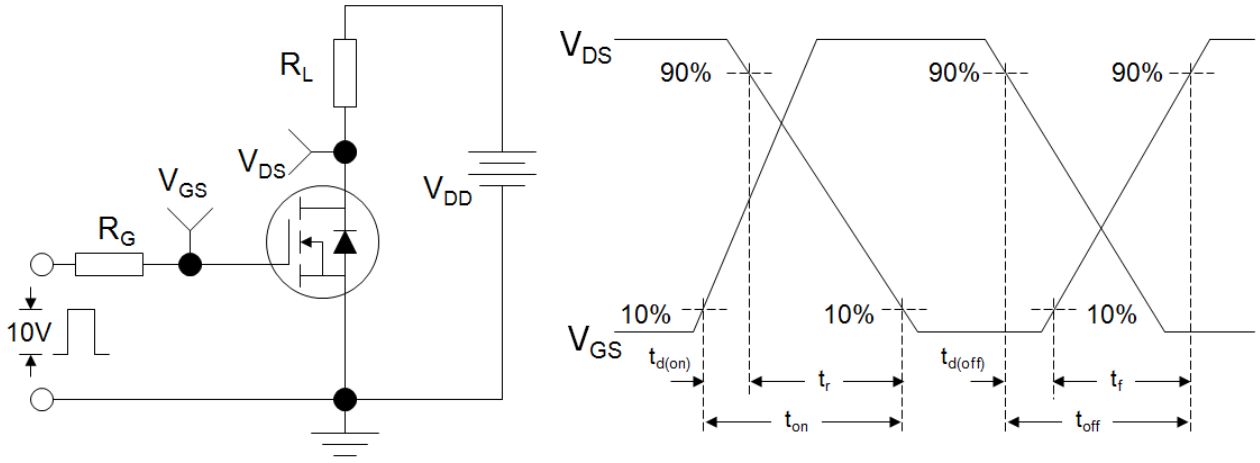
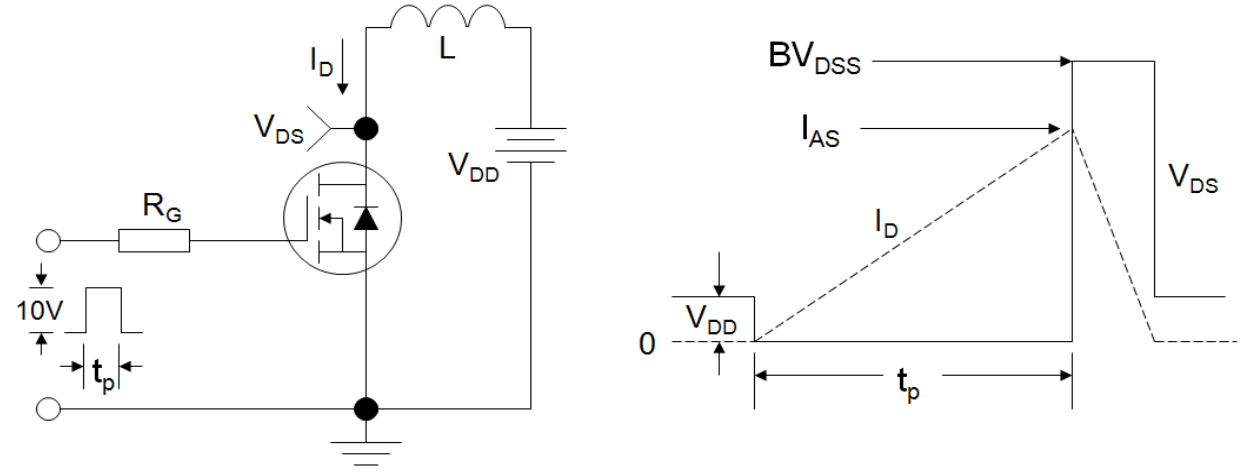


Fig 9. Unclamped Inductive Switching Test Circuit and Waveform



●Dimensions（TO-220F1）

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	4.40	4.90	B1	2.90	3.70
A1	2.40	3.00	e	2.40	2.70
A2	2.30	3.00	e1	4.95	5.25
b	0.60	0.90	L	12.40	14.20
b1	1.10	1.70	L1	2.40	3.40
c	0.40	0.70	⌀P	2.90	3.50
D	9.80	10.60			
B	15.40	16.40