

•General Description

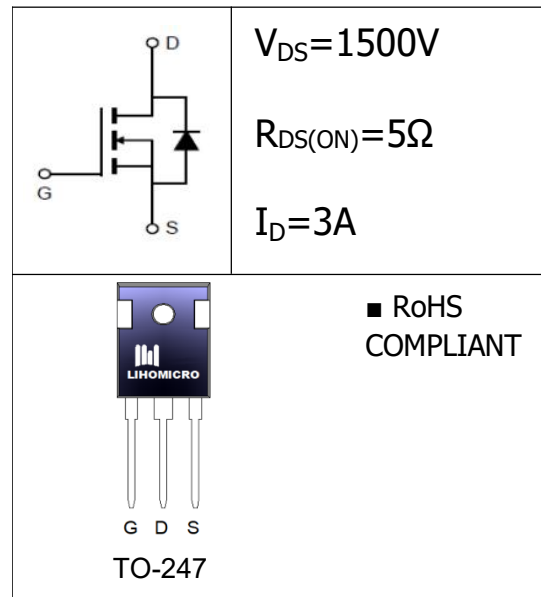
The Power MOSFET LH3N150 has the low $R_{DS(on)}$, low gate charge, fast switching and excellent avalanche characteristics. This device offers extremely fast and robust body diode, and is suitable for telecom and power supplies.

•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-247
Basic ordering unit (pcs)	330
Normal Package Material Ordering Code	LH3N150T2-TO247-TU
Halogen Free Ordering Code	LH3N150T2-TO247-TU-HF

•Absolute Maximum Ratings (TC = 25°C)

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}	720	mJ
Power Dissipation (TC=25°C)		P_D	220	W
Junction Temperature		T_J	-55~+150	°C
Storage Temperature		T_{STG}	-55~+150	°C

●Electronic Characteristics

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	1500	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	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}	$V_{DS}=1200V, V_{GS}=0V, T_J=25^\circ C$	--	--	10	μA
		$V_{DS}=1200V, V_{GS}=0V, T_J=125^\circ C$	--	--	200	
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30$	--	--	± 10	μA
Forward Transconductance ³	g_{fs}	$V_{DS}=15V, I_D=1.5A$	--	--	5	S
Input Capacitance	C_{iss}	$V_{GS}=0V,$ $V_{DS}=25V$ $f=1.0MHz$	--	2070	--	pF
Output Capacitance	C_{oss}		--	102	--	
Reverse transfer Capacitance	C_{rss}		--	2.6	--	
Turn -Off Delay Time ³	$T_d(off)$	$V_{DD}=600V,$ $R_G=25\Omega$	--	62	--	ns
Total Gate Charge	Q_g	$I_D=1.5A,$ $V_{DS}=960V$ $V_{GS}=10V$ 3	--	38	---	nC
Gate-to-Source Charge	Q_{gs}		--	10.4	--	
Gate-to-Drain Charge	Q_{gd}		--	15	---	
Continuous Diode Forward Current	I_S		--	--	3	A
Pulsed Diode Forward Current	I_{SM}		--	--	12.0	A
Diode Forward Voltage	V_{SD}	$T_J=25^\circ C, I_S=12A$ $V_{GS}=0V$	--	--	1.4	V
Reverse Recovery Time	t_{rr}	$I_f=I_S$ $di_F/dt=100A/\mu s$ 3	--	888	--	ns
Reverse Recovery Charge	Q_{rr}		--	6.2	--	μC

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	R_{thJC}	0.56	$^\circ C/W$
Thermal Resistance Junction-ambient	R_{thJA}	62.5	$^\circ C/W$

Notes:

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

2. $I_{AS}=3A, V_{DD}=50V, R_G=25\Omega, L=10mH$, Starting $T_J=25^\circ C$

3. Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

•Typical Characteristics

Fig1 Typical Output Characteristics, $T_c=25^\circ\text{C}$

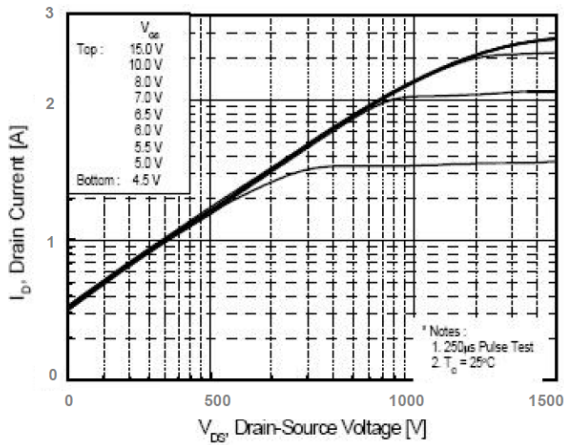


Fig2 On-Resistance Vs.Drain Current and Gate Voltage

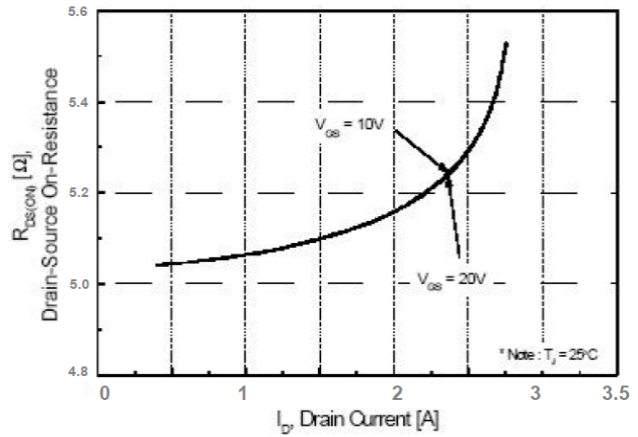


Fig3 Normalized On-Resistance Vs.Temperature

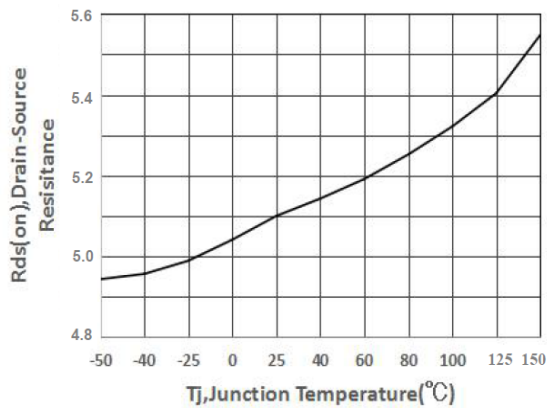


Fig4 Typical Source-Drain Diode Forward Voltage

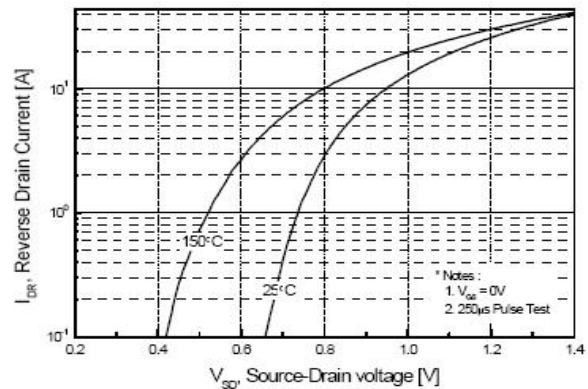


Fig5 Maximum Drain Current Vs.Case Temperature

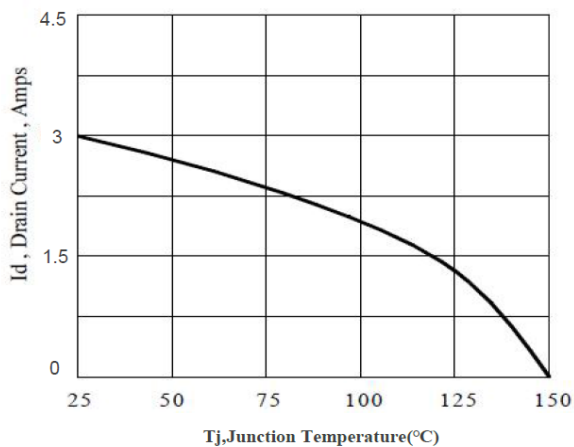
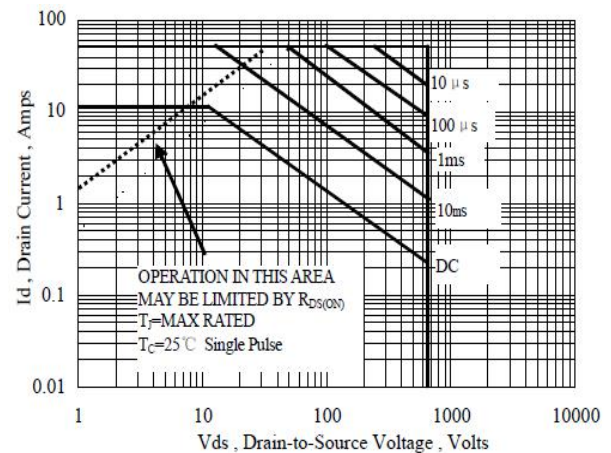


Fig6 Maximum Safe Operating Area



● **Test Circuits & Waveforms**

Fig7. Gate Charge Test Circuit and Waveform

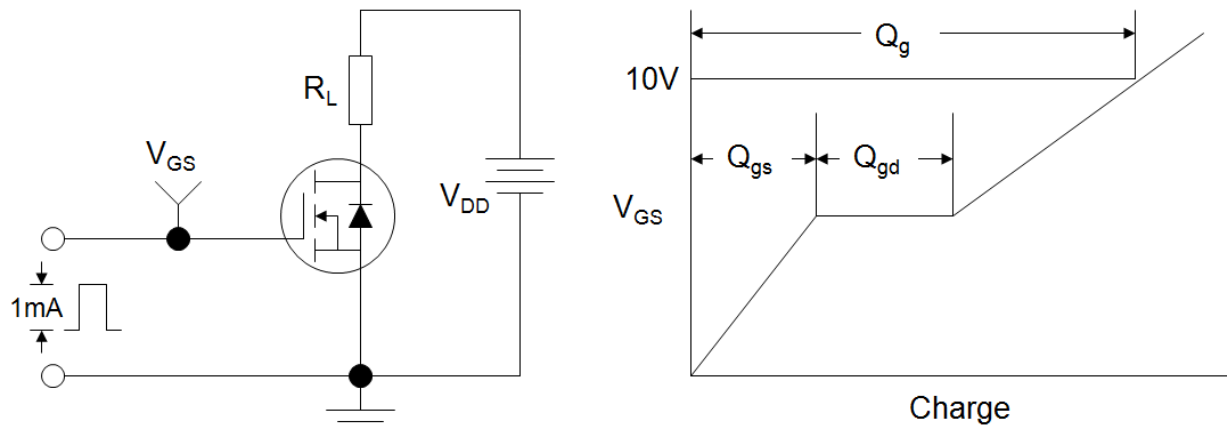


Fig 8. Resistive Switching Test Circuit and Waveform

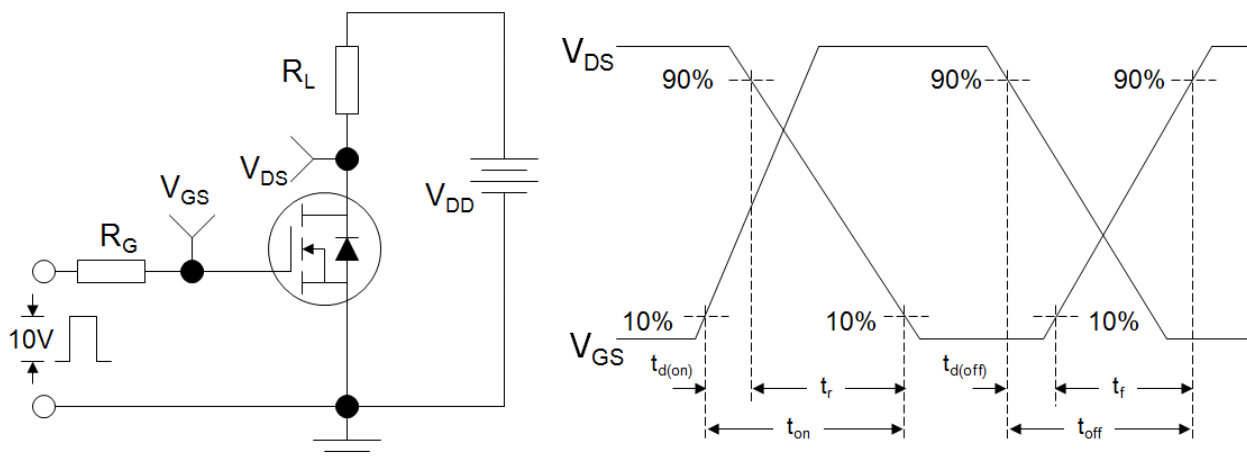
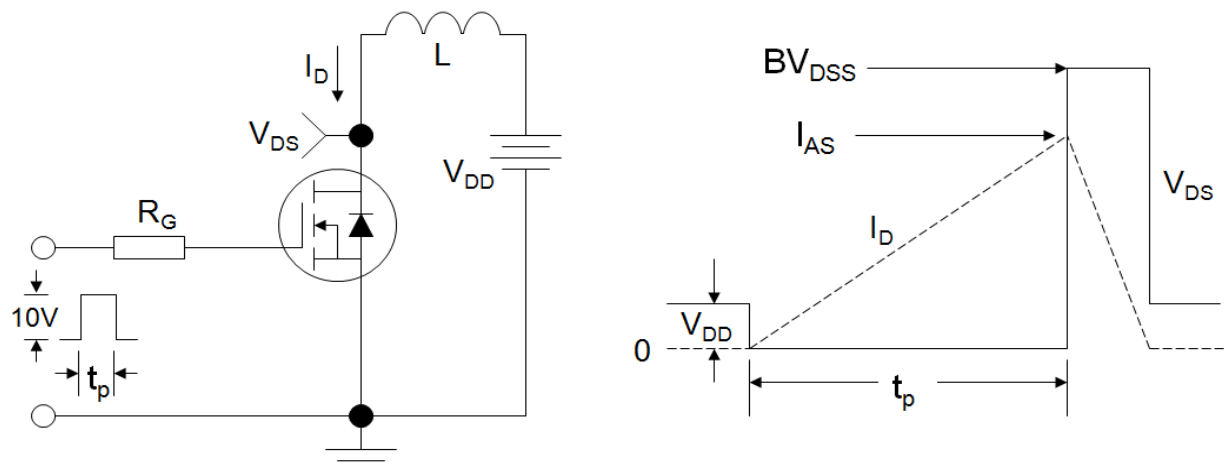


Fig 9. Unclamped Inductive Switching Test Circuit and Waveform



•Dimensions (TO-247)

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	15.60	16.00	G2	1.95	2.25
B	20.80	21.20	N	5.25	5.65
C	4.85	5.15	L1	4.00	4.30
D	1.85	2.15	L	19.60	20.40
E	1.00	1.40	I	2.30	2.50
F	0.50	0.70	ΦP	3.30	3.70
G1	3.00	3.30			

