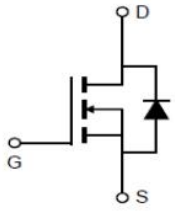
●General Description

The Power MOSFET LH7N70E 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.



VDS =700V

$R_{DS(ON)}$ =0.98Ω

ID =7.0A

TO-220F

■ RoHS COMPLIANT

●Features

- ■100% EAS Guaranteed
- ■Green Device Available
- ■Super Low Gate Charge
- ■Excellent CdV/dt effect decline
- ■Advanced high cell density Trench technology

●Ordering Information:

Part number	LH7N70E
Package	TO-220F
Basic ordering unit (pcs)	1000
Normal Package Material Ordering Code	LH7N70EF-TO-220F-TU
Halogen Free Ordering Code	LH7N70EF-TO-220F-TU-HF

●Absolute Maximum Ratings（TC =25℃）

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	700	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current TC=25℃	I_D	7.0	A
Continuous Drain Current TC=100℃		4.2	
Pulsed Drain Current[1]	I_{DM}	28	A
Single Pulse Avalanche Energy[2]	E_{AS}	515	mJ
Power Dissipation	P_D	48	W
Soldering Temperature Distance of 1.6mm from case for 10 seconds	T_J	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	700	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=VDS,I_D=250uA	2.0	--	4.0	V
Drain-source On Resistance[3]	$R_{DS(ON)}$	V_{GS} =10V, I_D=3.5A	--	0.98	1.2	Ω
Drain-Source Leakage Current	I_{DSS}	V_{DS}=700V,V_{GS}=0V,T_J=25℃	--	--	1	uA
		V_{DS}=560V,V_{GS}=0V,T_J=125℃	--	--	10	
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±30V, V_{DS}=0V	--	--	±100	nA
Forward Transconductance[3]	gfs	V_{DS}=40V,I_D=3.5A	--	5.0	--	S
Input Capacitance	Ciss	V_{GS} 0V, V_{DS}= 25V f = 1.0MHz	--	1500	--	pF
Output Capacitance	Coss		--	120	--	
Reverse transfer Capacitance	Crss		--	12	--	
Turn -Off Delay Time[3]	Td(off)	V_{DD}=350V, I_D=7.0A R_G=25Ω	--	7.8	--	ns
Total Gate Charge[3]	Qg	I_D =7.0A, V_{DS} =560V V_{GS} =10V	--	30	---	nC
Gate-to-Source Charge[3]	Qgs		--	7	---	
Gate-to-Drain Charge[3]	Qgd		--	9	---	
Continuous Source Current[1,53]	I_{SD}		--	--	7.0	A
Diode Forward Voltaget[3]	V_{SD}	Tj=25°C, Is=7.0A V_{GS} =0V	--	--	1.4	V
Reverse Recovery Time[3]	trr	IF=7.0A , dI/dt=100A/μs ,TJ=25℃	--	400	--	ns
Reverse Recovery Charge[3]	Qrr		--	3.3	--	nC

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
		TO-220F	
Thermal Resistance Junction-case	Rth_{JC}	2.60	℃/W
Thermal Resistance Junction-ambient	Rth_{JA}	62.5	℃/W

Notes:

1. Repetitive rating: Pulse width limited by maximum junction temperature
2. Starting Tj=25ºC, V_{DD} =50V, L=19.5mH, R_G =25Ω, I_{AS}=8.0A
3. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤2%

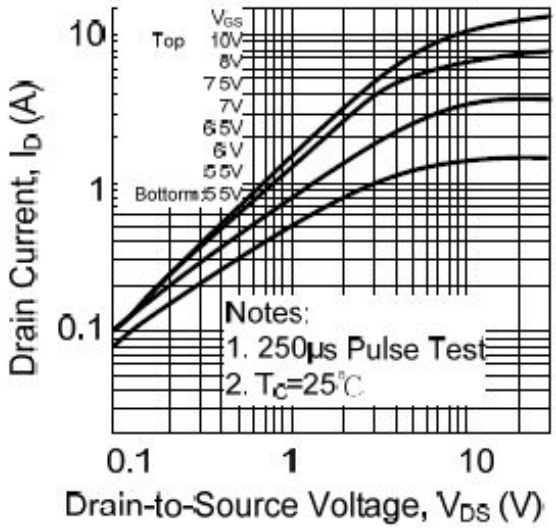


Fig1 Typical Output Characteristics, Tc=25℃

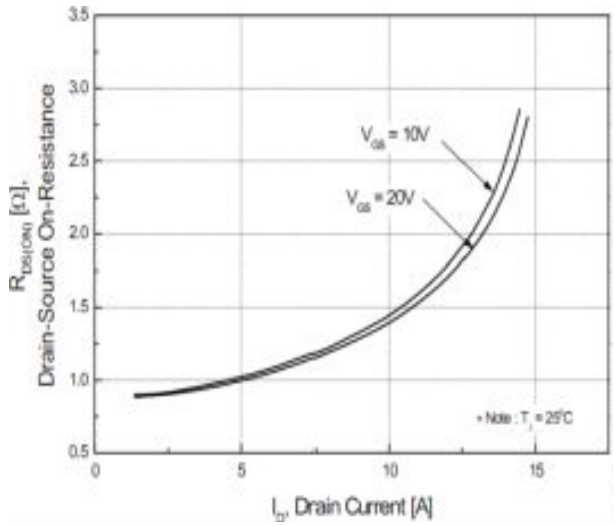


Fig2 On-Resistance Vs.Drain Current and Gate Voltage

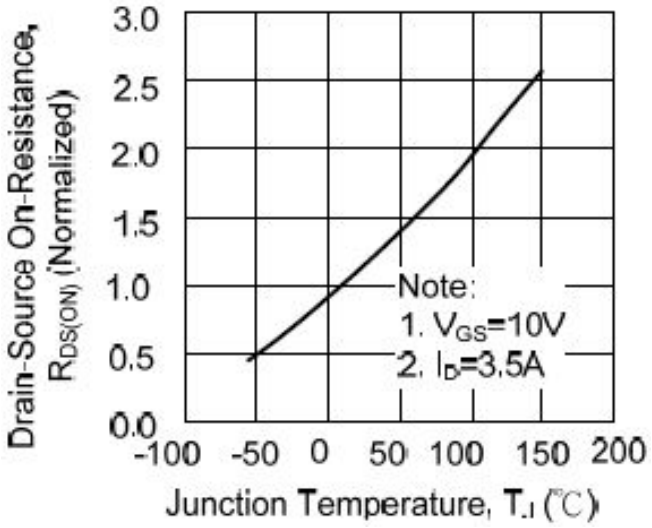


Fig3 Normalized On-Resistance Vs.Temperature

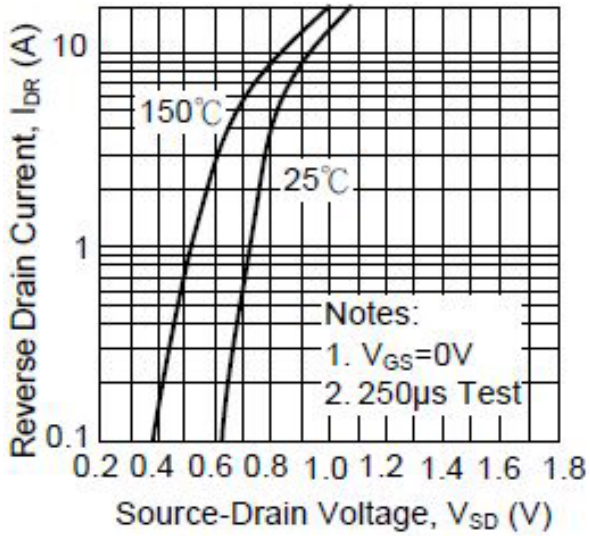


Fig4 Typical Source-Drain Diode Forward Voltage

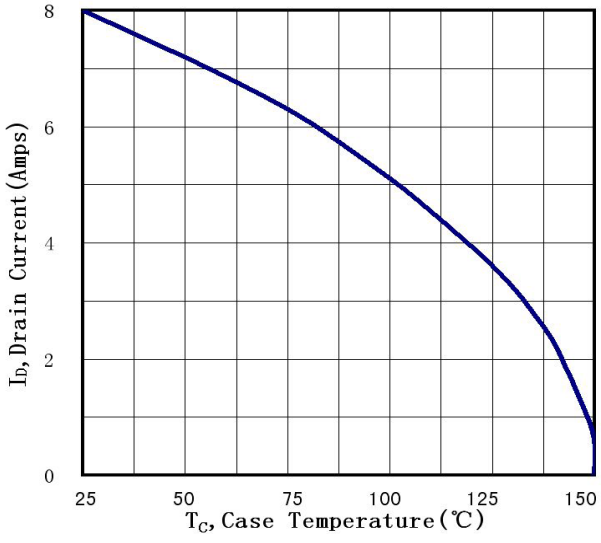


Fig5 Maximum Drain Current Vs.Case Temperature

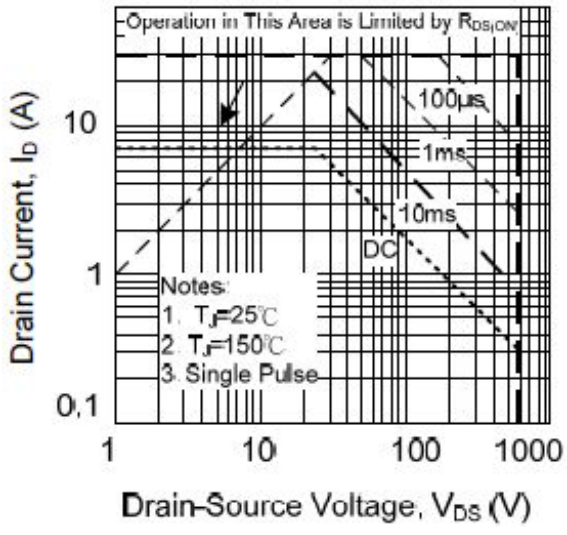


Fig6-2 Maximum Safe Operating Area

●Dimensions（TO-220F)

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	4.20	4.80	E1	8.30	8.70
A1	2.50	2.90	e	2.40	2.70
A2	2.90	3.30	e1	4.95	5.25
b	0.40	0.80	F	2.50	2.90
b1	1.10	1.50	L	13.00	14.00
c	0.50	0.70	L1	3.00	4.00
D	9.80	10.60	⌀P	2.90	3.50
E	14.60	15.60