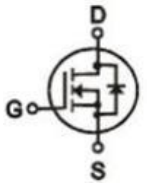
● General Description

The LH4N65F combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.



V DS =650V

$R_{DS(ON)}$=2.5mΩ

I D =4.0A

TO-220FP

■ RoHS COMPLIANT

● Features

■ LOW on-resIstance

■FAST switching

■HIGH input resistance

■ROHS compliant

●Application

■electronic ballast

■electronic transformer

■switch mode rower supply

●Ordering Information:

Marking	LH4N65F
Packing	TO-220F
Basic ordering unit (pcs)	1000
Normal Package Material Ordering Code	LH4N65FF-TO-220F-TU
Halogen Free Ordering Code	LH4N65FF-TO-220F-TU-HF

●Absolute Maximum Ratings (T_C =25℃)

Parameter	Symbol	Ratin	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current(TC=25℃)	I_D	4.0	A
Continuous Drain Current(TC=100℃)		2.5	
Pulsed Drain Current ①	I_{DM}	16	A
Total Power Dissipation(TC=25℃)	P_D@TC=25℃	36	W
Operating Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55-150	℃
Single Pulse Avalanche Energy	E_{AS}	128	mJ

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	650			V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=250μA	2.0		4.0	V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =650V, V_{GS} =0V, Tj=25°C			25	μA
		V_{DS} =480V, V_{GS} =0V, Tj=125°C			250	
Gate- Source Leakage Current	I_{GSS}	V_{GS} =±30V			±100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS} =10V, I_D=2.0A ③		2.0	2.5	mΩ
Transconductance	gfs	V_{DS} =40V, I_D=2.0A ③		2.5		S

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	Ciss	V_{GS} = 0V, V_{DS} = 25V F = 1.0MHZ		590	650	pF
Output capacitance	Coss			48	55	
Reverse transfer capacitance	Crss			5	12	
Turn -Off Delay Time	Td(off)	V_{DD}=300V, I_D =4.0A R_G=25Ω ③		25		ns
Total Gate Charge	Qg	I_D =4.0A, V_{DS} = 520V V_{GS} = 10V ③		13.7		nC
Gate-to-Source Charge	Qgs			2.9		
Gate-to-Drain Charge	Qgd			4.6		
Continuous Diode Forward Current	I_S				4.0	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=4.0A V_{GS} =0V			1.4	V
Reverse Recovery Time	trr	Tj=25°C, If=4.0A di/dt=100A/μs ③		390		ns
Reverse Recovery Charge	Qrr			1.5		uC

● **Thermal Characteristics**

Parameter	Symbol	Mas	Unit
Thermal Resistance Junction-case	Rth_{JC}	3.47	°C/W
Thermal Resistance Junction-ambient	Rth_{JA}	62.5	°C/W

(Notes):

① Repetitive rating: Pulse width limited by maximum junction temperature

② Starting Tj=25°C, V_{DD} =50V, L=25mH, R_G =25Ω, I_{AS}=5.0A

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

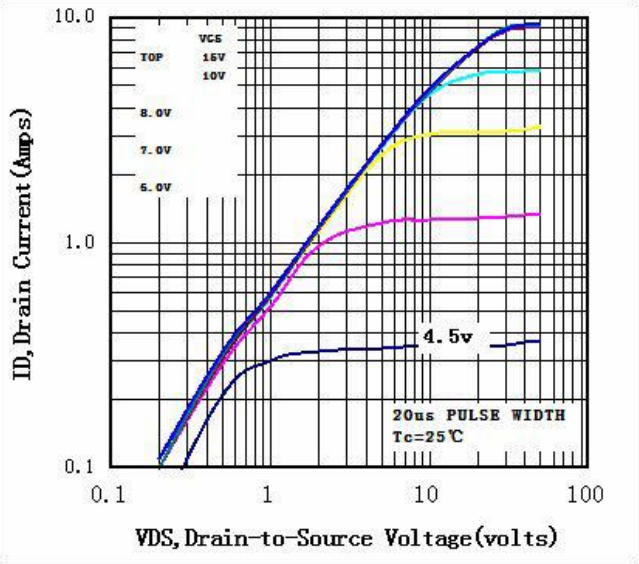


Fig1 Typical Output Characteristics, Tc=25℃

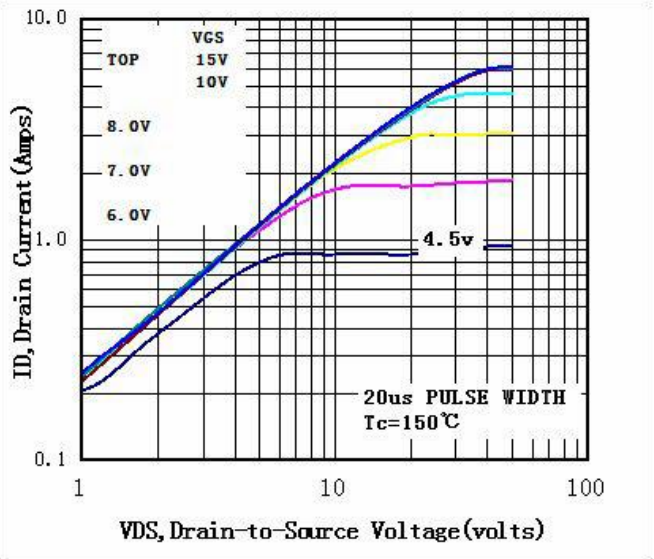


Fig2 Typical Output Characteristics, Tc=150℃

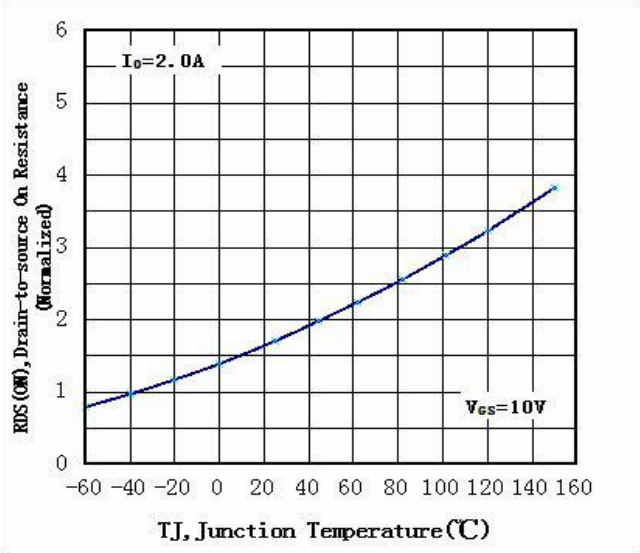


Fig3 Normalized Resistance Vs.Temperature

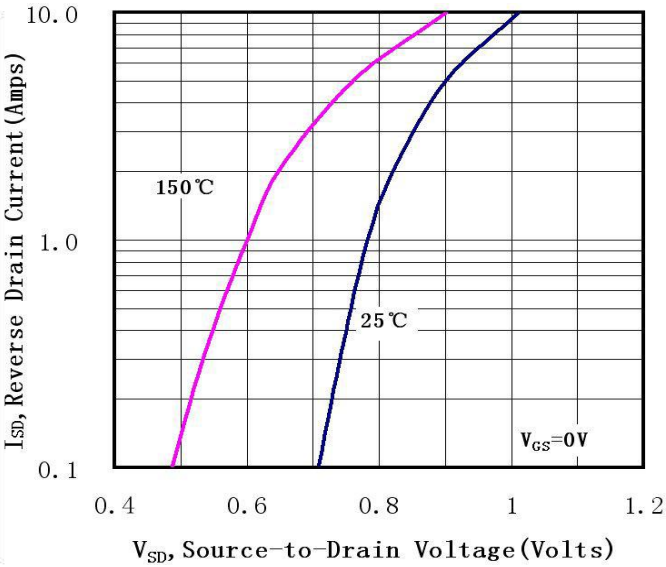


Fig4 Typical Source-Drain Diode Forward Voltage

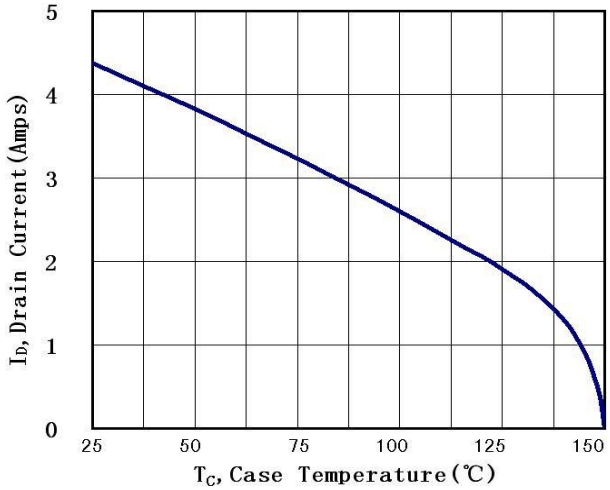


Fig5 Maximum Drain Current Vs.Case Temperature

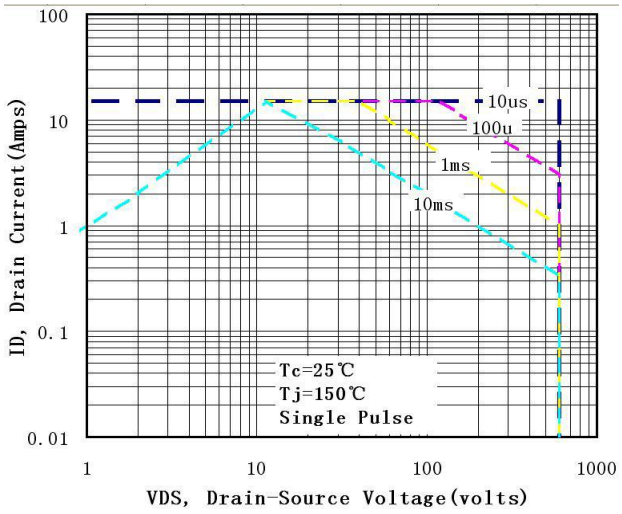


Fig6-1 Maximum Safe Operating Area

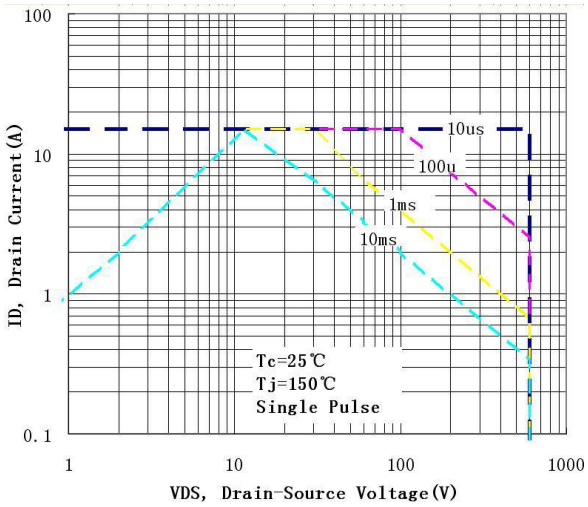


Fig6-2 Maximum Safe Operating Area

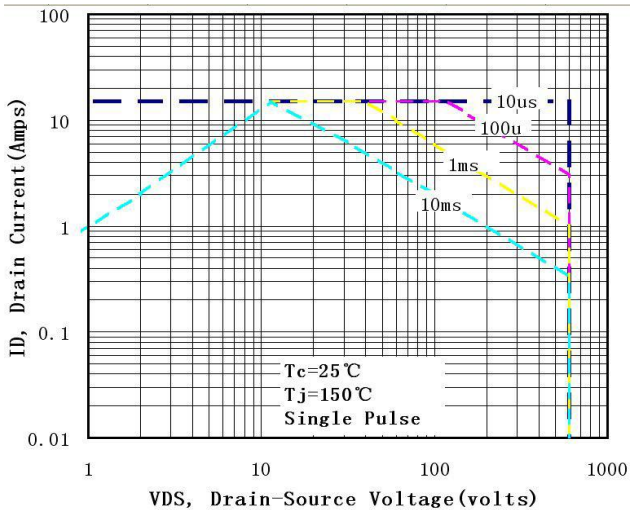
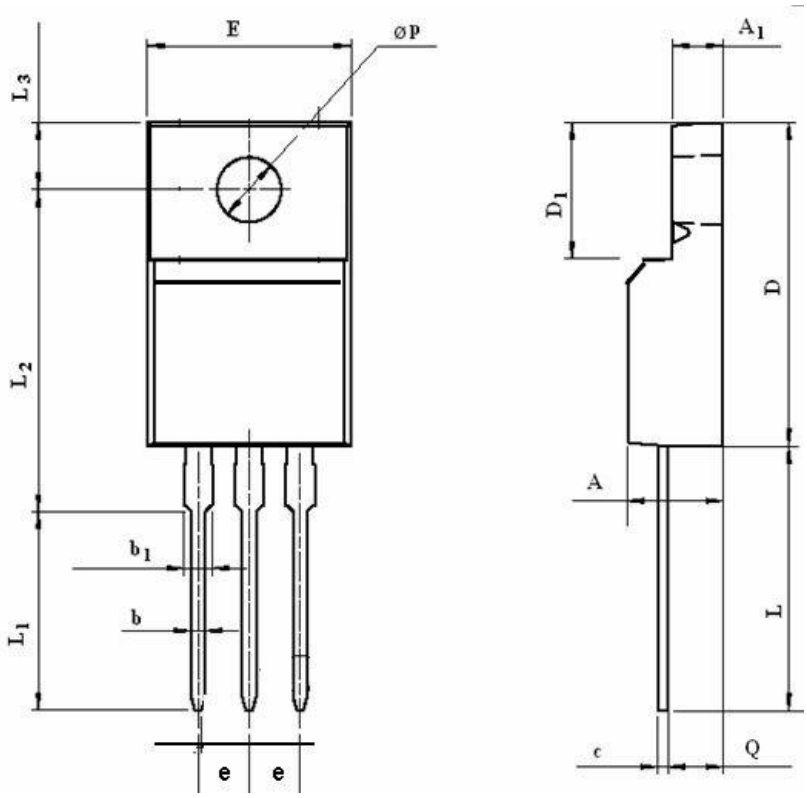


Fig6-3 Maximum Safe Operating Area

TO-220FP MECHANICAL DATA

UNIT：mm

SYMBOL	min	max	SYMBOL	min	nom	max
A	4.40	4.95	**e**		2.54	
A_1	2.30	2.90	**L**	12.50		14.30
b	0.45	0.90	**L_1**	9.10		10.05
b_1	1.10	1.70	**L_2**	15.00		16.00
c	0.35	0.90	**L_3**	3.00		4.00
D	14.50	17.00	**øp**	3.00		3.50
D1	6.10	9.00	**Q**	2.30		2.80
E	9.60	10.30