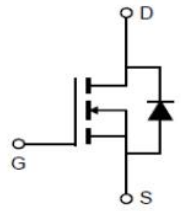
LH10N65F

N-Channel Power MOSFET

•General Description

The Power MOSFET LH10N65F 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.

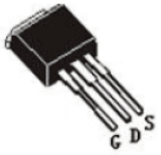


VDS =650V

$R_{DS(ON)}$ =0.8Ω

ID =10A

RoHS COMPLIANT



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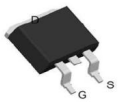

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•Features

- ■Low Thermal Resistance
- ■Fast Switching
- ■High Input Resistance

•Application

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

•Ordering Information:

Part number	LH10N65F	LH10N65F
Package	TO-262	TO-263
Basic ordering unit (pcs)	1000	800
Normal Package Material Ordering Code	LH10N65FT62-T0262-TU	LH10N65FT63-T0263-TU
Halogen Free Ordering Code	LH10N65FT62-T0262-TU-HF	LH10N65FT63-T0263-TU-HF

•Absolute Maximum Ratings（TC =25℃）

PARAMETER		SYMBOL	Value		UNIT
Drain-Source Breakdown Voltage		BV_{DSS}	650		V
Gate-Source Voltage		V_{GS}	±30		V
Continuous Drain Current	TC = 25°C	I_D	10		A
	TC = 100°C		6.0		
Pulsed drain current (TC = 25°C, tp limited by Tjmax)[1]		I_{DM}	38		A
Single Pulse Avalanche Energy[2]		E_{AS}	230		mJ
Repetitive Avalanche Energy[1]		E_{AR}	14		mJ
Power Dissipation(TC=25℃)		P_D	TO-263: 40	TO-262: 150	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	650	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=VGS,I_D=250uA	2.0	--	4.0	V
Drain-source On Resistance[3]	$R_{DS(ON)}$	V_{GS} =10V, I_D=4A	--	0.8	1.0	Ω
Drain-Source Leakage Current	I_{DSS}	V_{DS}=650V,V_{GS}=0V,T_J=25℃	--	--	1	uA
		V_{DS}=480V,V_{GS}=0V,T_J=125℃	--	--	100	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±30	--	--	±100	nA
Forward Transconductance[3]	gfs	V_{DS}=15V,I_D=4A	--	3	--	S
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 25V f = 1.0MHz	--	1450	--	pF
Output Capacitance	Coss		--	108	--	
Reverse transfer Capacitance	Crss		--	19	--	
Turn-Off Delay Time[3]	Td(off)	V_{DD}=300V,I_D=8A R_G=25Ω	--	81	--	ns
Total Gate Charge[3]	Qg	I_D =8A, V_{DS} =520V V_{GS} = 10V	--	31.6	60	nC
Gate-to-Source Charge[3]	Qgs		--	7.4	15	
Gate-to-Drain Charge[3]	Qgd		--	11	20	
Continuous Diode Forward Current	I_S		--	--	8	A
Pulsed Diode Forward Current	I_{SM}		--	--	32	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=8A V_{GS} =0V	--	--	1.4	V
Reverse Recovery Time[3]	trr	If=Is di_F/dt=100A/μs	--	365	--	ns
Reverse Recovery Charge[3]	Qrr		--	3.4	--	uC

●Thermal Characteristics

PARAMETER	SYMBOL	MAX		UNIT
		TO-220F	TO-220	
Thermal Resistance Junction-case	Rth_{JC}	3.13	0.9	℃/W
Thermal Resistance Junction-ambient	Rth_{JA}	62.5	62.5	℃/W

Notes:

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

2. I_{AS} = 8A, V_{DD} = 50V, R_G = 25Ω,L=10Mh, Starting T_J = 25°C

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

●Typical Characteristics

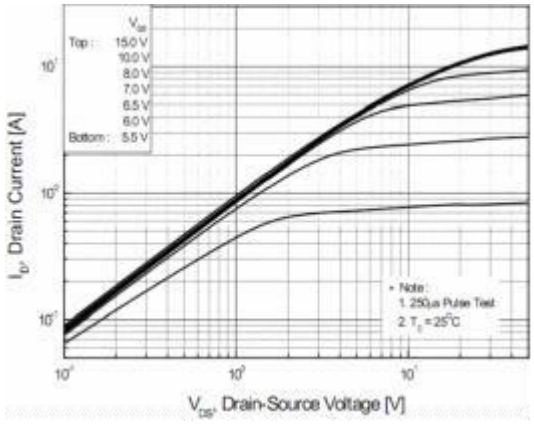

Fig1 Typical Output Characteristics, Tc=25℃

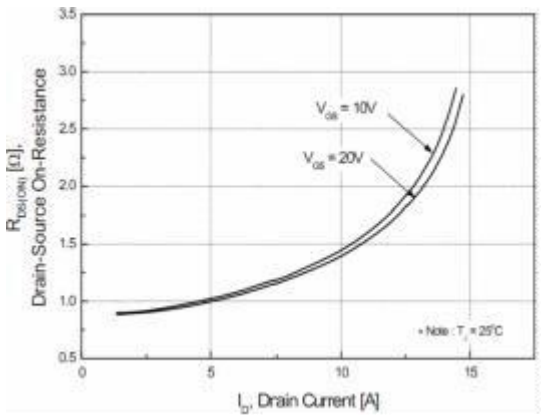

Fig2 On-Resistance Vs.Drain Current and Gate Voltage

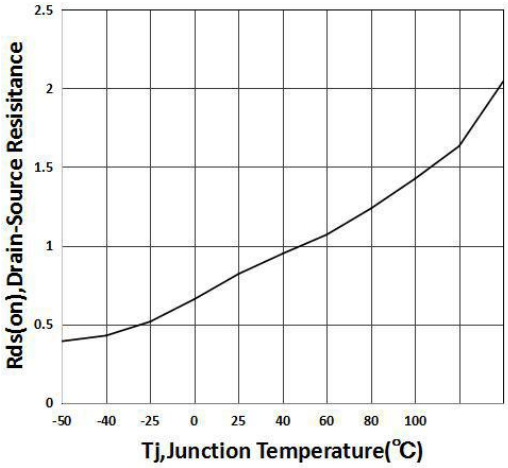

Fig3 Normalized On-Resistance Vs.Temperature

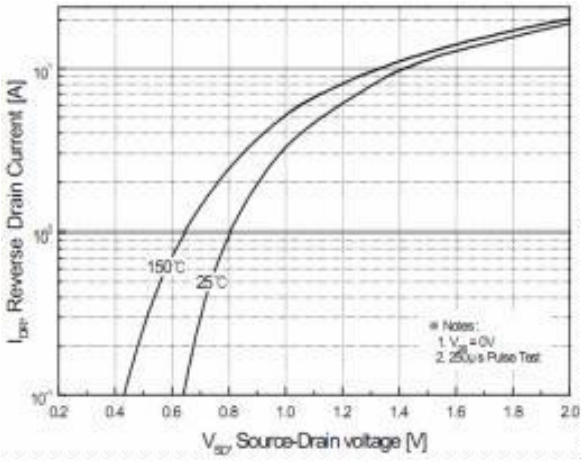

Fig4 Typical Source-Drain Diode Forward Voltage

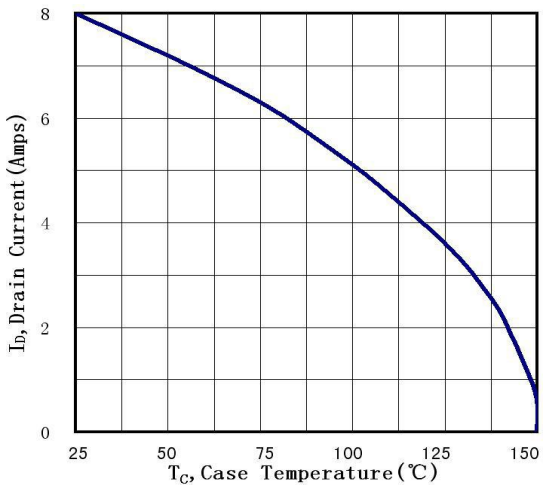

Fig5 Maximum Drain Current Vs.Case Temperature

●Typical Characteristics(cont.)

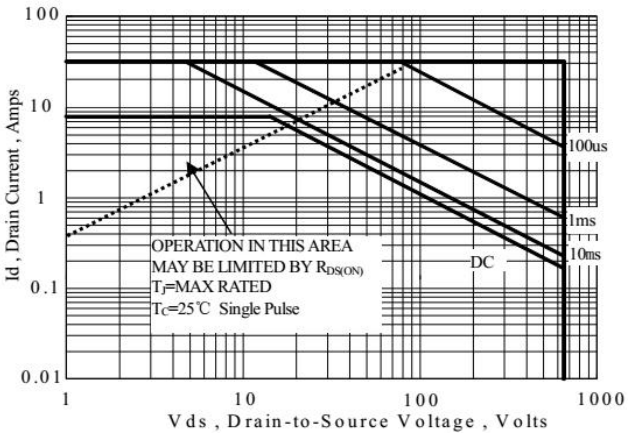

Fig6 Maximum Safe Operating Area（TO-262）

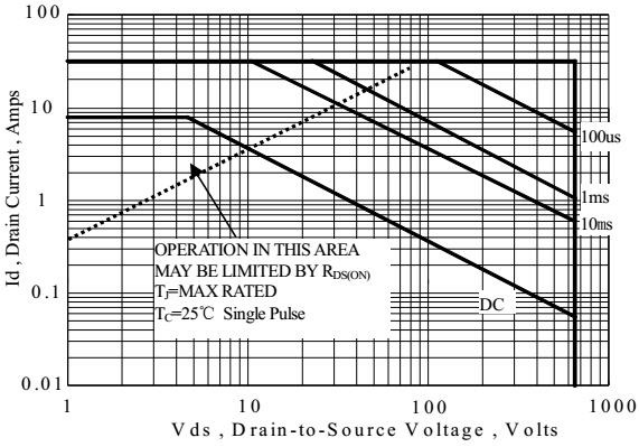

Fig7 Maximum Safe Operating Area（TO-263）