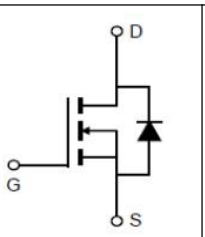
•General Description

The SGT MOSFET LH015N03S has the low $R_{DS(on)}$, low gate charge,fast switching and excellent avalanche characteristics.This device is suitable for fast charge and lighting.

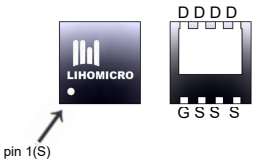


V_{DS} =30V

$R_{DS(ON)}$ =1.5mΩ

ID =150A

■ RoHS COMPLIANT



TDFN3*3

•Features

■Fast switching
■Low $R_{DS(on)}$ & FOM
■Low Gate Charge

•Application

■PD Charger
■Power Supplies
■DC/DC Converters

•Ordering Information:

Part Number	LH015N03S
Package	TDFN3*3
Basic Ordering Unit (pcs)	5000
Normal Package Material Ordering Code	LH015N03STD3-TDFN3*3-TAP
Halogen Free Ordering Code	LH015N03STD3-TDFN3*3-TAP-HF

•Absolute Maximum Ratings（TC =25℃）

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ,T_C = 25°C	I_D	150	A
Pulsed drain current (TC = 25°C, tp limited by Tjmax)[1]	I_D pulse	300	A
Single Pulse Avalanche Energy[2]	E_{AS}	306	mJ
Power Dissipation(TC=25℃)	P_D	68	W
Operating 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	30	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=250uA	1.2	--	2.2	V
Drain-source On Resistance[3]	$R_{DS(ON)}$	V_{GS} =10V, I_D=20A	--	1.5	2.4	mΩ
		V_{GS} =4.5V, I_D=10A	--	3.2	3.8	
Drain-Source Leakage Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V,T_J=25℃	--	--	1	uA
		V_{DS}=24V,V_{GS}=0V,T_J=85℃	--	--	5	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20,V_{DS}=0V	--	--	±100	nA
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 15V f = 1.0MHz	--	3483	--	pF
Output Capacitance	Coss		--	1810	--	
Reverse transfer Capacitance	Crss		--	190	--	
Turn -Off Delay Time	Td(off)	V_{GS}=10V, I_D =20A R_G=3.3Ω	--	56	--	ns
Turn-on delay time	Td(on)		--	10	--	
Rise time	Tr		--	6.2	--	
Fall time	Tf		--	8.2	--	
Total Gate Charge	Qg	I_D =20A, V_{DS} = 15V V_{GS} = 10V	--	40	---	nC
Gate-to-Source Charge	Qgs		--	9.8	--	
Gate-to-Drain Charge	Qgd		--	6.8	---	
Continuous Diode Forward Current	I_S	--	--	--	150	A
Pulsed Diode Forward Current	I_{SM}	--	--	--	300	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=10.0A V_{GS} =0V	--	--	1.2	V

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	Rth_{JC}	1.84	℃/W
Thermal Resistance Junction-ambient	Rth_{JA}	50	℃/W

Notes:

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

2. I_{AS} = 35A, V_{DD} = 15V, R_G = 25Ω, Starting T_J = 25°C

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

●Typical Characteristics

Fig.1 Typical Output Characteristics

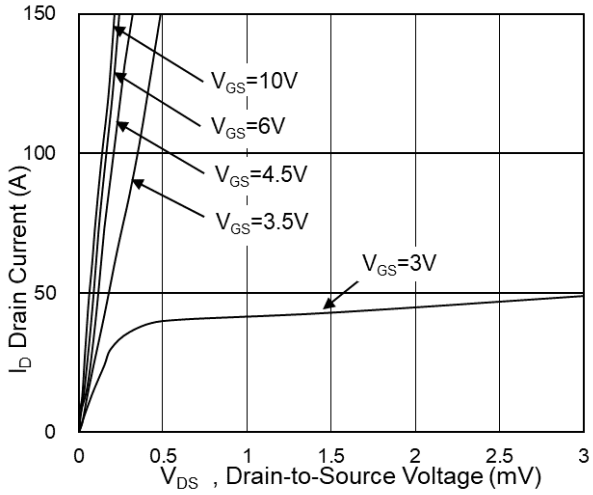


Fig.2 On-Resistance vs G-S Voltage

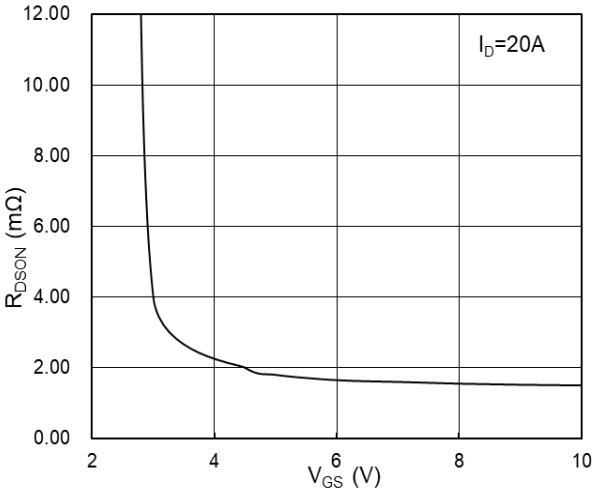


Fig.3 Source Drain Forward Characteristics

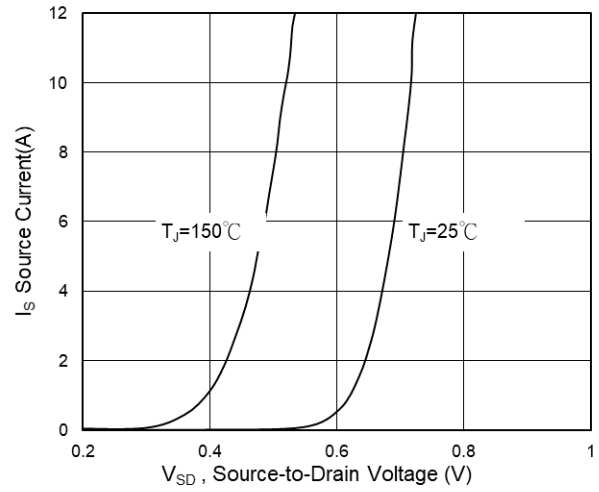


Fig.4 Capacitance

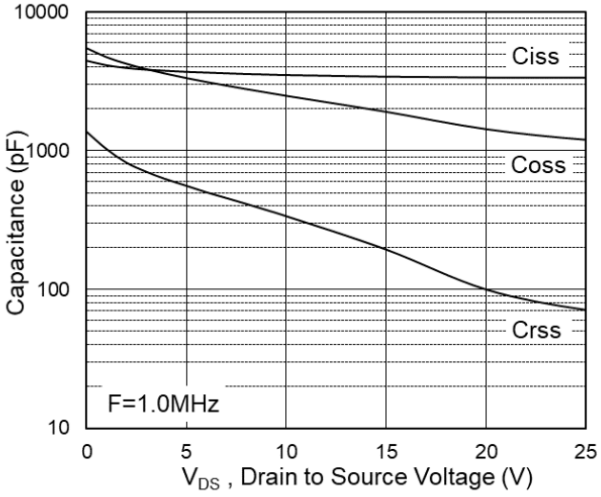


Fig.5 Normalized $V_{GS(th)}$ vs T_J

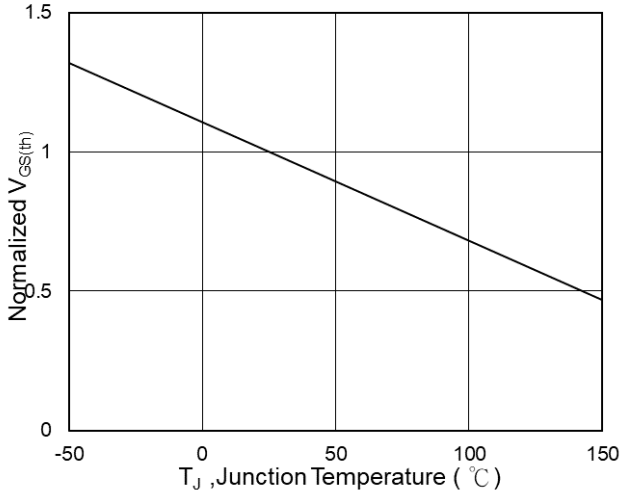
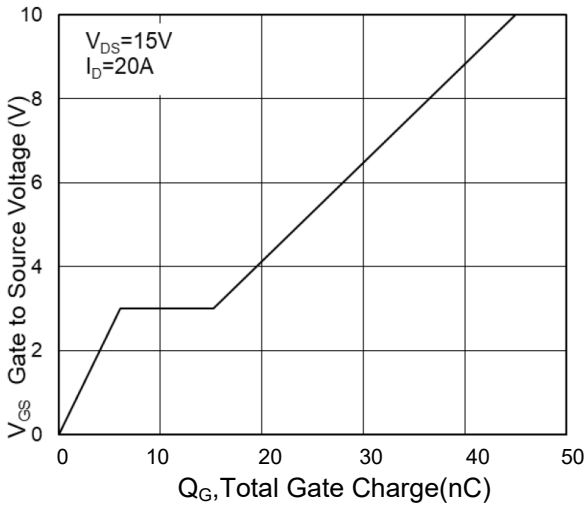


Fig.6 Gate-Charge Characteristics



●Typical Characteristics(cont.)

Fig.7 Normalized R_{DSON} vs T_J

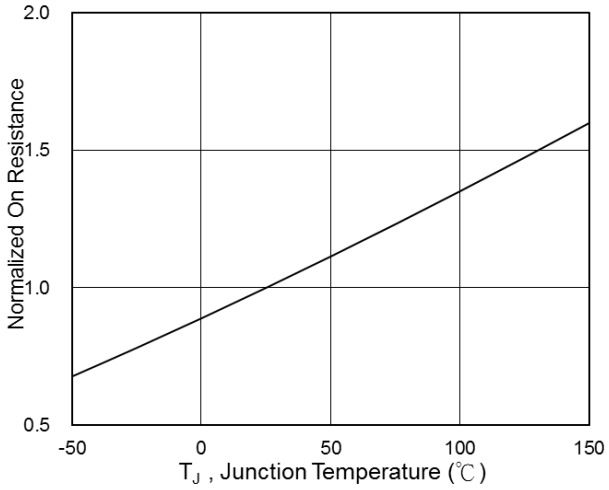


Fig.8 Safe Operating Area

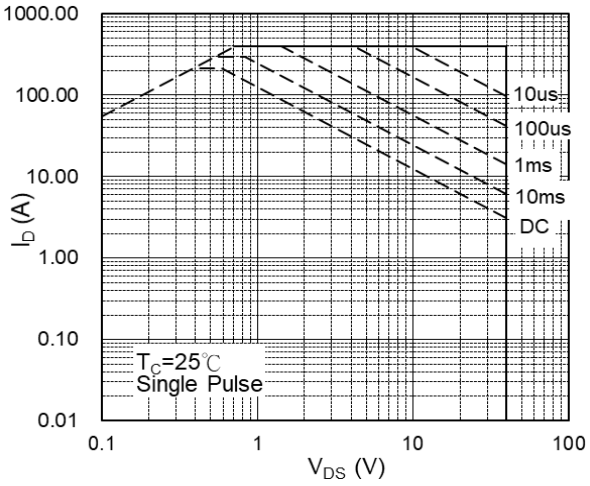
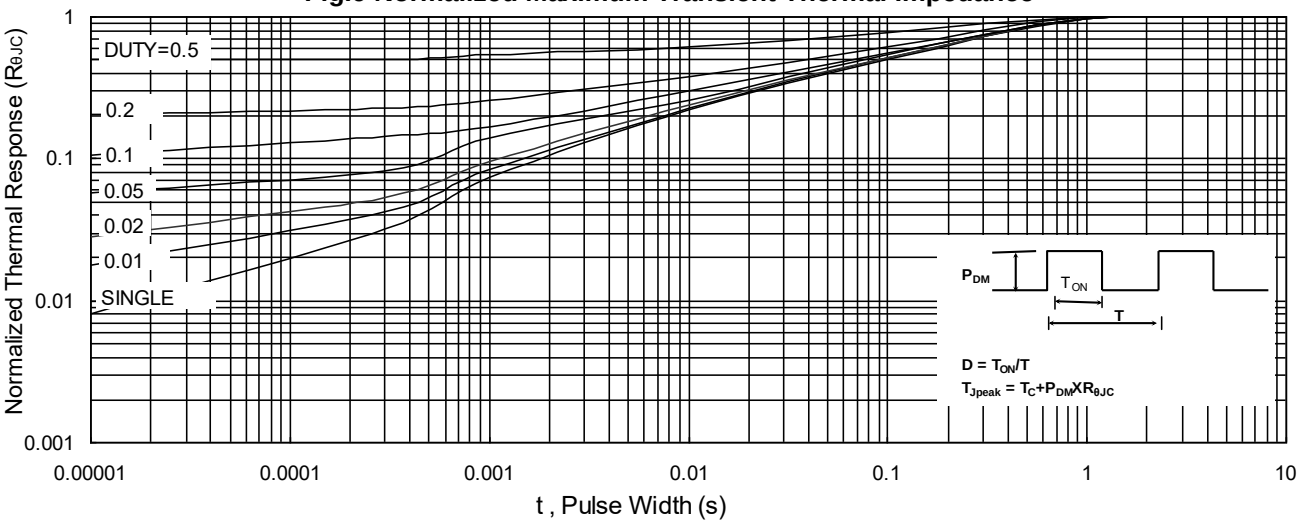


Fig.9 Normalized Maximum Transient Thermal Impedance



• Test Circuits & Waveforms

Fig1.E_{AS} test Circuits

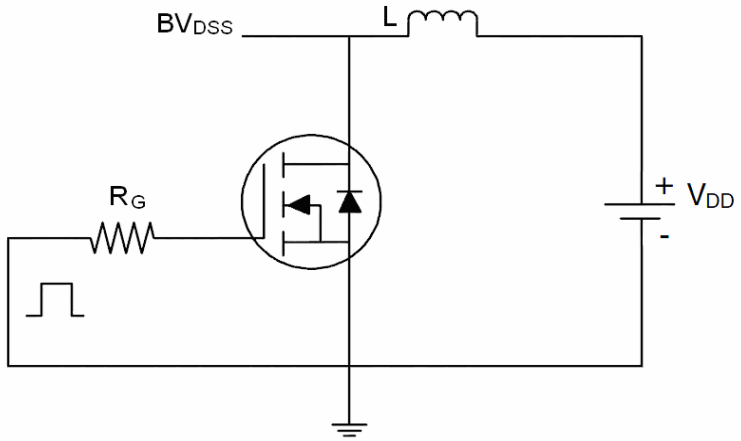


Fig2.Gate charge test Circuit

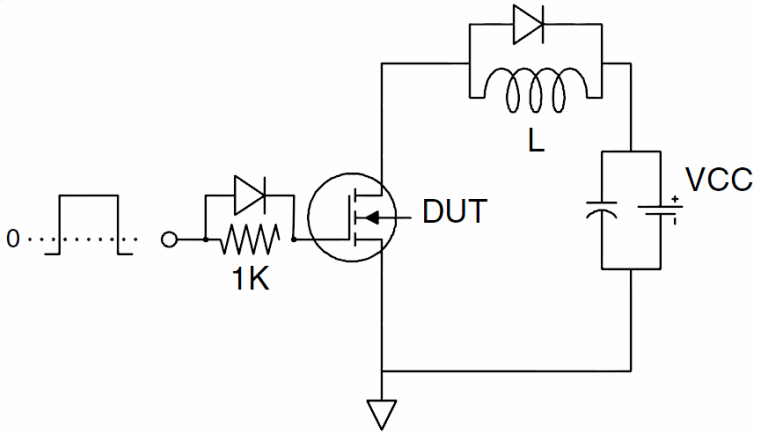
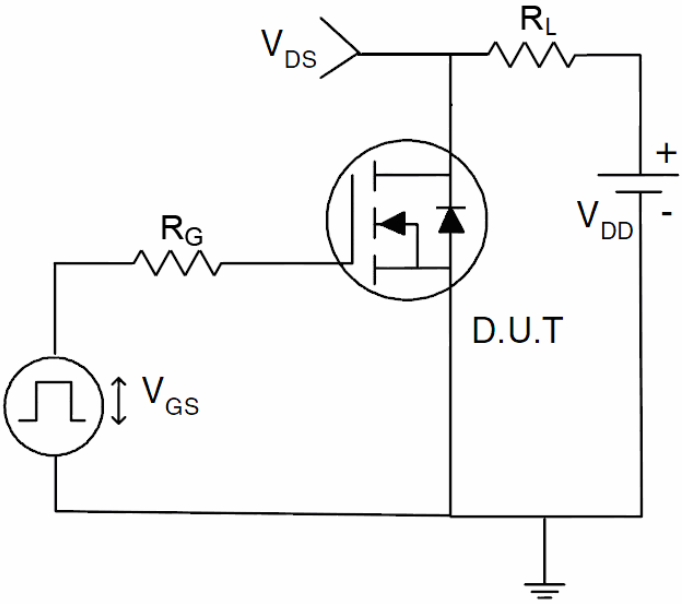


Fig3.Switch Time Test Circuit



•Dimensions（TDFN3*3 ）

Unit：mm

SYMBOL	min	max	SYMBOL	min	max
A	0.75	1.05	E2	2.05	2.25
b	0.30	0.40	e	0.65BSC	
c	0.15	0.25	K	0.25	0.45
D	3.20	3.40	A1	0.00	0.05
D2	2.65	2.85			
L	0.40	0.60			
E	3.20	3.40