

**●General Description**

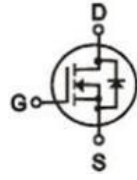

The N-Channel MOSFET LH30N03 has the low  $R_{DS(on)}$ , low gate charge, fast switching and excellent avalanche characteristics. This device is suitable for fast charge and lighting.

**●Features**

- Advance high cell density Trench technology
- Low  $R_{DS(ON)}$  to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance

**●Application**

- PC Power
- PD Fast Charging
- BLDC Motor driver
- Lighting

	<b><math>V_{DS} = 30V</math></b>  <b><math>R_{DS(ON)} = 9.0m\Omega</math></b>  <b><math>I_D = 35A</math></b>
	<b>■ RoHS COMPLIANT</b>
<b>SOP-8</b>	

**●Ordering Information:**

Part Number	LH30N03
Package	SOP-8
Basic Ordering Unit (pcs)	4000
Normal Package Material Ordering Code	LH30N03S-SOP8-TAP
Halogen Free Ordering Code	LH30N03S-SOP8-TAP-HF

**●Absolute Maximum Ratings (TC =25°C)**

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current @TA=25°C	$I_D$	35	A
Pulsed drain current	$I_{DM}$	70	A
Avalanche Current	$I_{AS}$	12	A
Power Dissipation	$P_D$	22	W
Power Dissipation @TA=25°C		1	
Operating Temperature	$T_J$	-55~+150	°C
Storage Temperature	$T_{STG}$	-55~+150	°C
Single Pulse Avalanche Energy	$E_{AS}$	30	mJ

**●Electronic Characteristics**

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	--	2.4	V
Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=8A$	--	9.0	12	mΩ
		$V_{GS}=4.5V, I_D=6A$	--	10	14	
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V, T_J=25^\circ C$	--	--	1	μA
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	±100	nA
Forward Transconductance	$g_{FS}$	$V_{DS}=10V, I_{DS}=5A$	--	9	--	S
Input Capacitance	$C_{iss}$	f=1MHz	--	850	--	pF
Output Capacitance	$C_{oss}$		--	190	--	
Reverse Transfer Capacitance	$C_{rss}$		--	100	--	
Total Gate Charge(10V)	$Q_g$	$V_{GS}=10V, V_{DD}=25V, I_D=8A, f=1MHz$	--	19	--	nC
Gate-to-Source Charge	$Q_{gs}$		--	4	--	
Gate-to-Drain Charge	$Q_{gd}$		--	6	--	

**●Thermal Characteristics**

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	$R_{thJC}$	5.6	°C/W
Thermal Resistance Junction-ambient	$R_{thJA}$	125	°C/W
Soldering temperature, wavesoldering for 10s	$T_{sold}$	265	°C

Notes:

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

2.Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate;

•Typical Characteristics

Fig.1 Power Dissipation Derating Curve

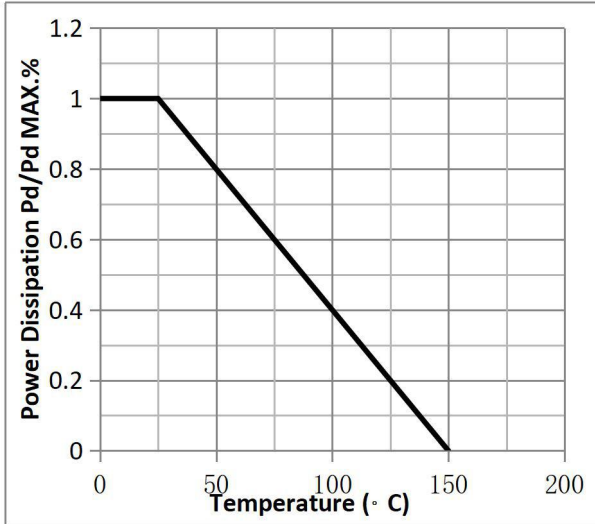


Fig.2 Typical output Characteristics

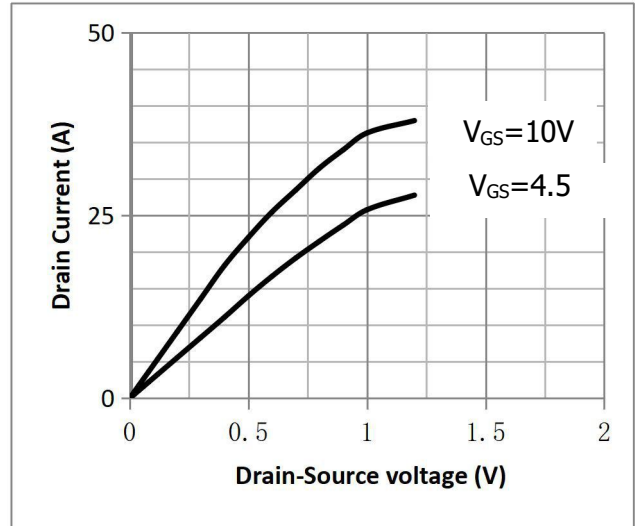


Fig.3 Threshold Voltage V.S Junction Temperature

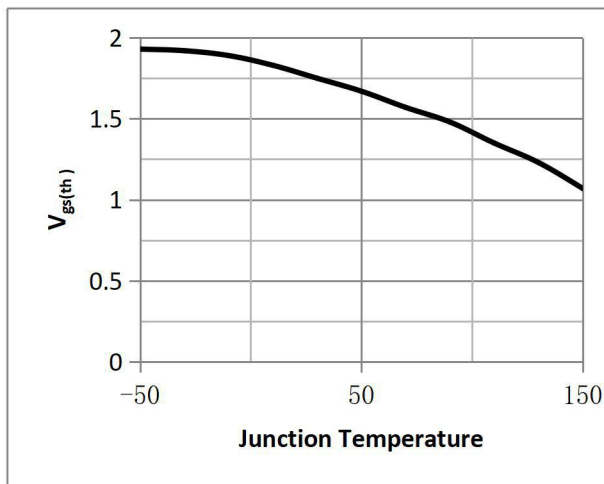


Fig.4 Resistance V.S Drain Current

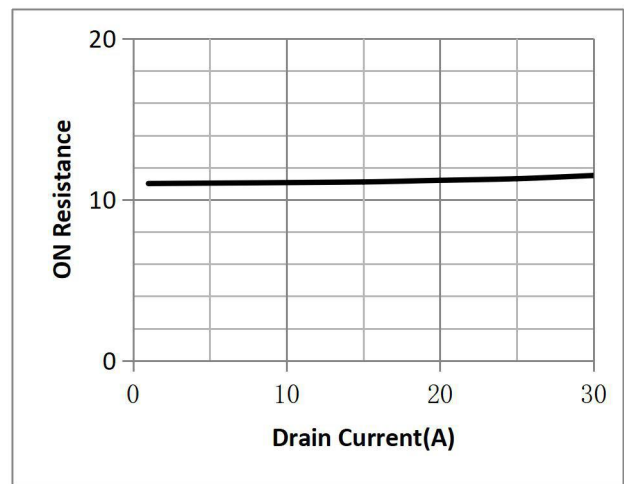


Fig.5 On-Resistance VS Gate Source Voltage

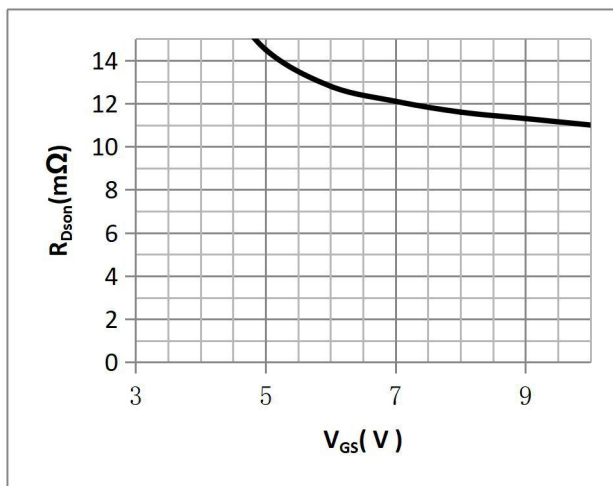
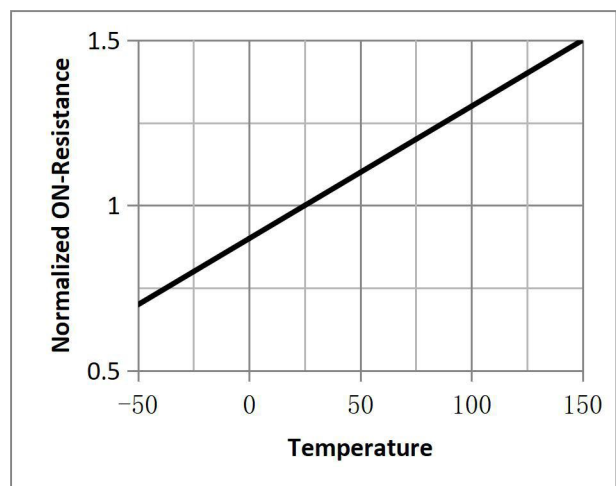


Fig.6 On-Resistance V.S Junction Temperature



• Test Circuits & Waveforms

Fig.7 Switching Time Measurement Circuit

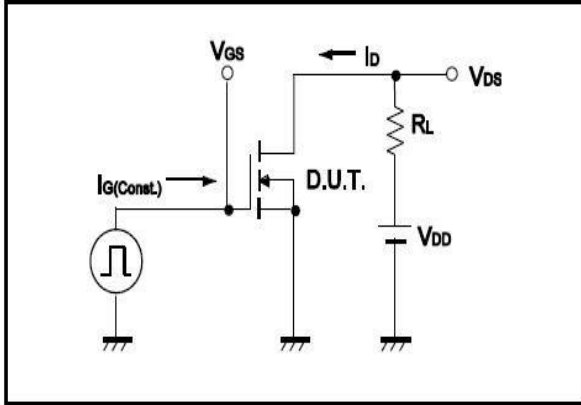


Fig.8 Gate Charge Waveform

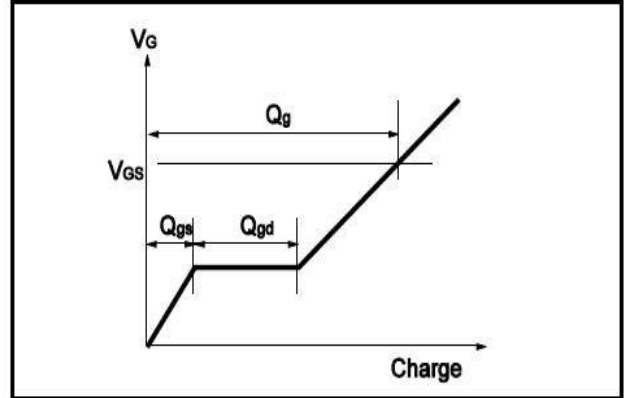


Fig.9 Switching Time Measurement Circuit

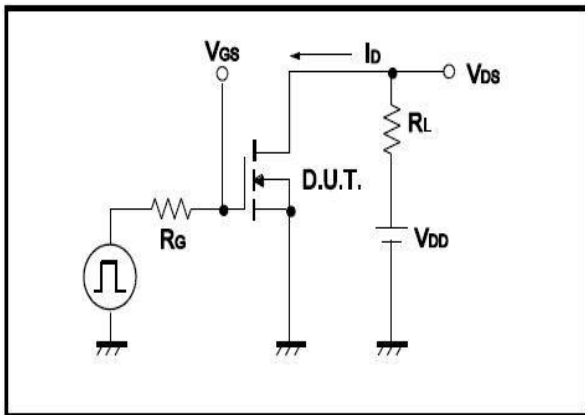


Fig.10 Gate Charge Waveform

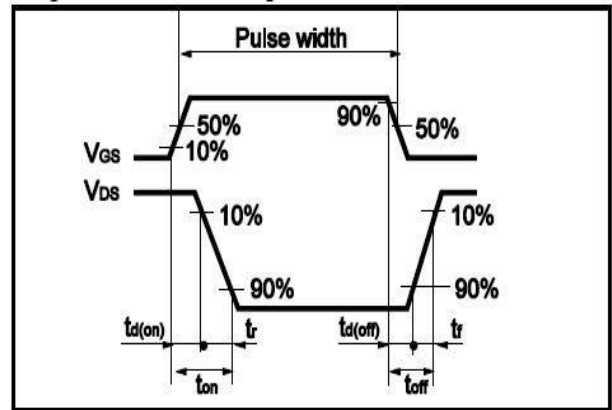


Fig.11 Avalanche Measurement Circuit

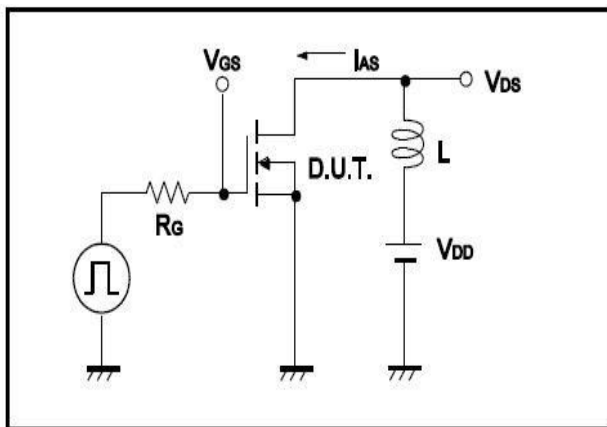
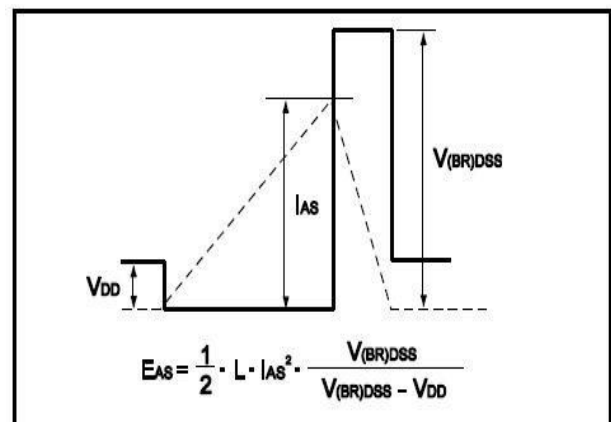


Fig.12 Avalanche Waveform



●Dimensions (SOP-8)

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	1.30	1.60	e	1.27BSC	
A1	1.35	1.85	L	0.40	1.30
b	0.30	0.60			
C	0.15	0.35			
D	4.60	5.20			
E	3.70	4.10			
E1	5.70	6.30			

