

● General Description

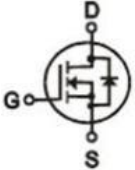
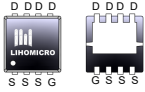
The LH80N03S combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

● Features

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

● Application

- Ω Led Driver
- Ω PD Charger
- Ω POL application
- Ω BLDC Motor driver

	$V_{DS} = 30V$ $R_{DS(ON)} = 3.8m\Omega$ $I_D = 80A$
 ■ RoHS COMPLIANT DFN3*3	

● Ordering Information:

Part number	LH80N03S
Package	DFN3*3
Basic ordering unit (pcs)	5000
Normal Package Material Ordering Code	LH80N03SD3-DFN3*3-TAP
Halogen Free Ordering Code	LH80N03SD3-DFN3*3-TAP-HF

● Absolute Maximum Ratings ($T_c = 25^\circ C$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current($T_C=25^\circ C$)	I_D	80	A
Pulsed Drain Current ^①	I_{DM}	210	A
Total Power Dissipation($T_C=25^\circ C$)	$P_D@T_C=25^\circ C$	80	W
Total Power Dissipation($T_A=25^\circ C$)	$P_D@T_A=25^\circ C$	2.4	W
Operating Junction Temperature	T_J	-55 to 150	$^\circ C$
Storage Temperature	T_{STG}	-55 to 150	$^\circ C$
Single Pulse Avalanche Energy	E_{AS}	260	mJ

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	-	1.56	°C/W
Thermal resistance, junction - ambient	R_{thJA}	-	-	33	°C/W
Soldering temperature, wavesoldering for 10s	T_{sold}	-	-	265	°C

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	-	2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	-	-	1.0	μA
Gate- Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$	-	3.8	4.6	m Ω
		$V_{GS}=4.5V, I_D=10A$	-	6.8	7.8	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=25V, I_D=10A$	-	13	-	S

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	C_{iss}	$f = 1MHz$	-	1830	-	pF
Output capacitance	C_{oss}		-	292	-	
Reverse transfer capacitance	C_{rss}		-	79	-	

●Gate Charge characteristics($T_a = 25^\circ C$)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Q_g	$V_{DD}=25V$ $I_D=8A$ $V_{GS}=10V$	-	15	-	nC
Gate - Source charge	Q_{gs}		-	5	-	
Gate - Drain charge	Q_{gd}		-	8	-	

Note: ① Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$;

● **Typical Characteristics**

Fig.1 On Resistance VS. Junction Temperature

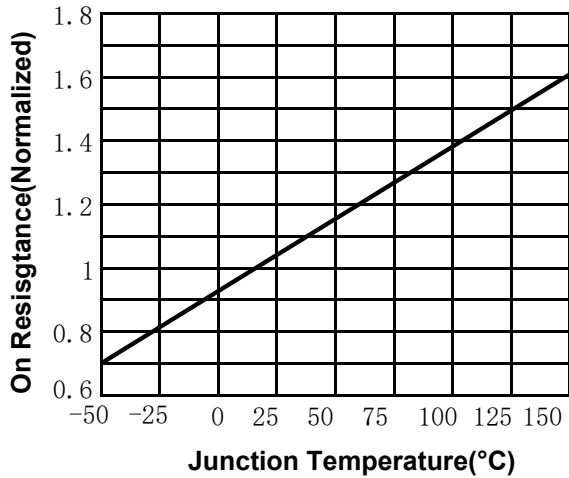


Fig.2 On Resistance VS. Gate to Source Voltage

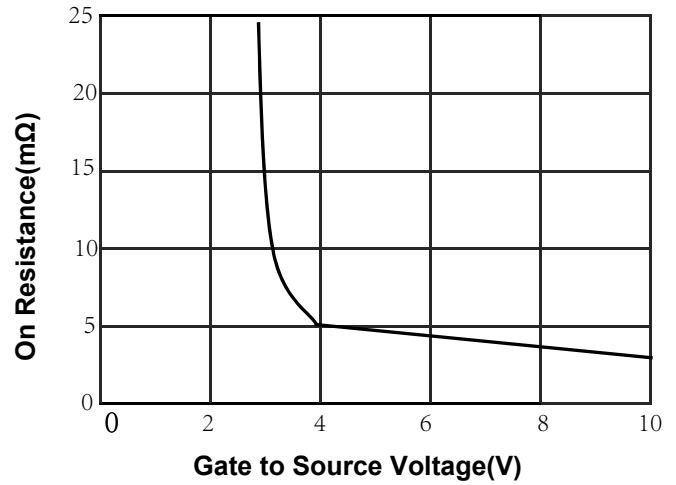


Fig.3 Threshold Voltage VS. Junction Temperature

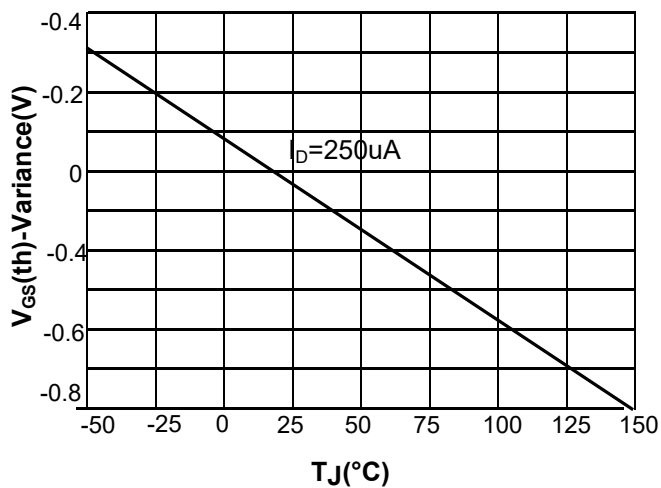


Fig.4 Resistance VS. Drain Current

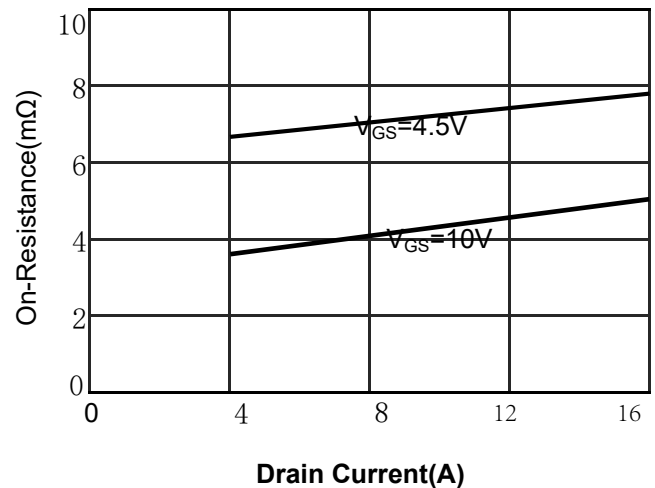


Fig.5 Capacitance

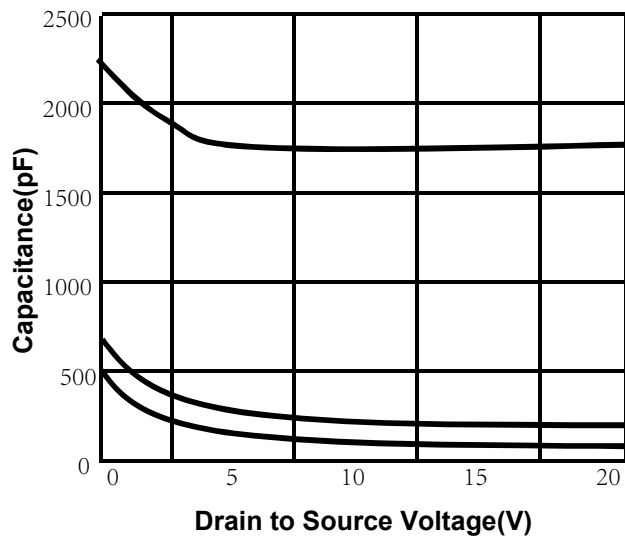
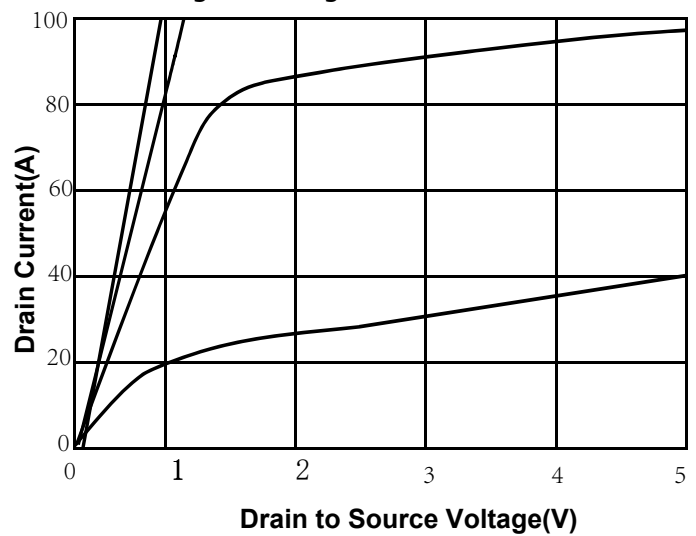


Fig.6 On-Regi0n Characteristics



•Test Circuits & Waveforms

Fig.7 Switching Time Measurement Circuit

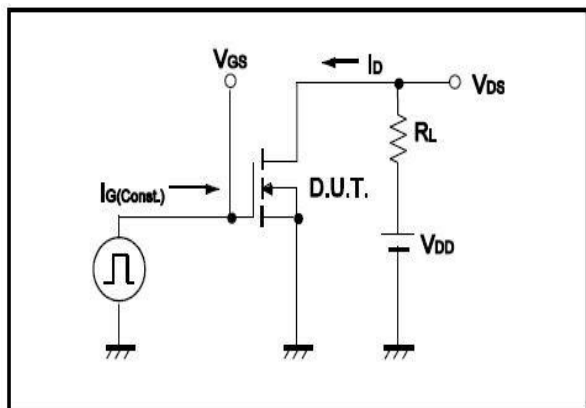


Fig.8 Gate Charge Waveform

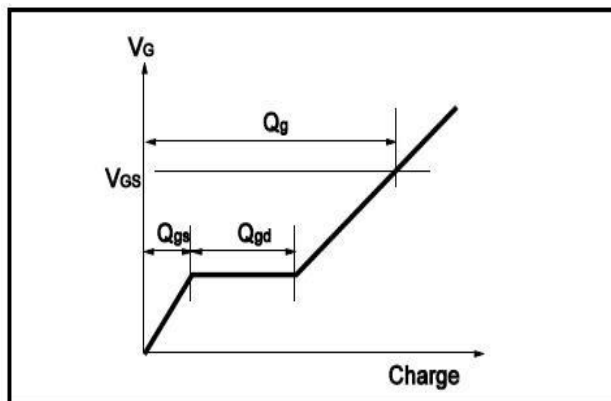


Fig.9 Switching Time Measurement Circuit

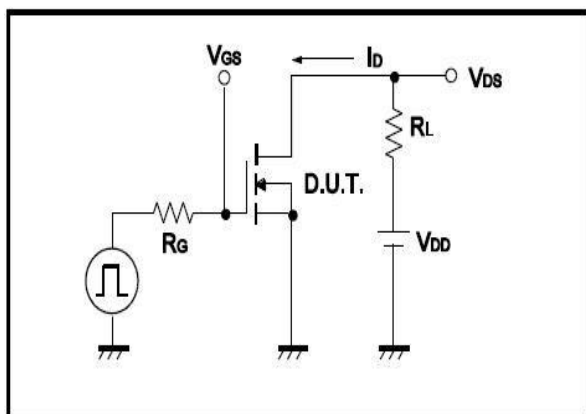


Fig.10 Gate Charge Waveform

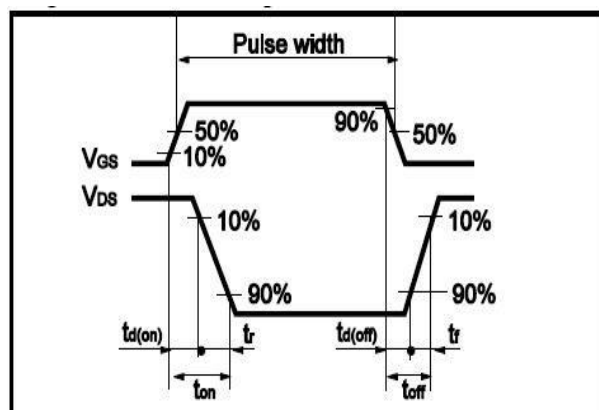


Fig.11 Avalanche Measurement Circuit

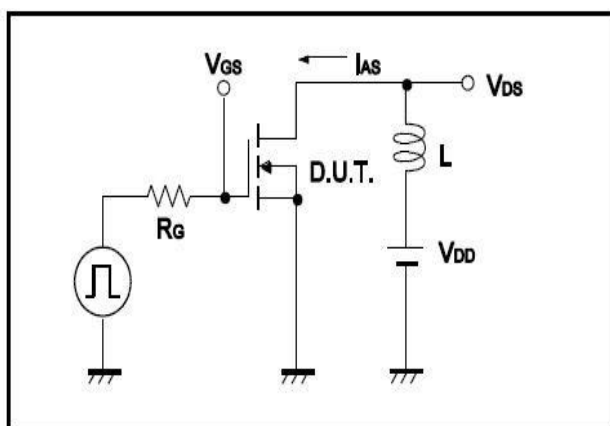
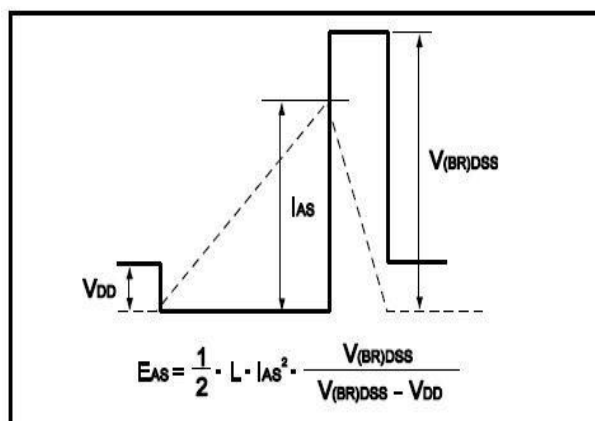


Fig.12 Avalanche Waveform



• Dimensions (DFN3*3)

Unit: mm

SYMBOL	min	max	SYMBOL	min	max
A	0.68	0.88	e	0.65BSC	
b	0.27	0.47	L1	1.55	1.95
c	0.15	0.35	L2	0.5	0.9
D	3.05	3.25	I	3.10	3.50
D1	2.25	2.65			
E	3.05	3.25			
E1	3.15	3.55			

