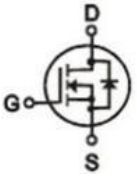
30V N-Channel MOSFET

● General Description

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



VDS =30V

$R_{DS(ON)}$=3.6mΩ

ID =80A

TO-252

■ RoHS COMPLIANT

● 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

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

●Ordering Information:

Part number	LH80N03S
Package	TO-252
Basic ordering unit (pcs)	2500
Normal Package Material Ordering Code	LH80N03ST5-TO252-TAP
Halogen Free Ordering Code	LH80N03ST5-TO252-TAP-HF

●Absolute Maximum Ratings (T_C =25℃)

Parameter	**Symbol**	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(TC=25℃)	I_D	80	A
Pulsed Drain Current ①	I_{DM}	210	A
Total Power Dissipation(TC=25℃)	P_D@TC=25℃	80	W
Total Power Dissipation(TA=25℃)	P_D@TA=25℃	2.4	W
Operating Junction Temperature	T_J	-55 to 150	℃
Storage Temperature	T_{STG}	-55 to 150	℃
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 =250uA	30	-	-	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} =V_{DS}, I_D =250uA	1.0	-	2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=30V, V_{GS} =0V	-	-	1.0	uA
Gate- Source Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS} =0V	-	-	±100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	-	3.6	4.6	mΩ
		V_{GS}=4.5V, I_D=10A	-	6.8	7.8	mΩ
Forward Transconductance	g_{FS}	V_{DS} =25V, I_D=10A	-	13	-	s

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	Ciss	f = 1MHz	-	1830	-	pF
Output capacitance	Coss		-	292	-	
Reverse transfer capacitance	Crss		-	79	-	

●Gate Charge characteristics(T_a = 25℃)

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Total gate charge	Qg	V_{DD} =25V	-	15	-	nC
Gate - Source charge	Qgs	I_D = 8A	-	5	-	
Gate - Drain charge	Qgd	V_{GS} = 10V	-	8	-	

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

●Typical Characteristics

Fig.1 On Resistance VS. Junction Temperature

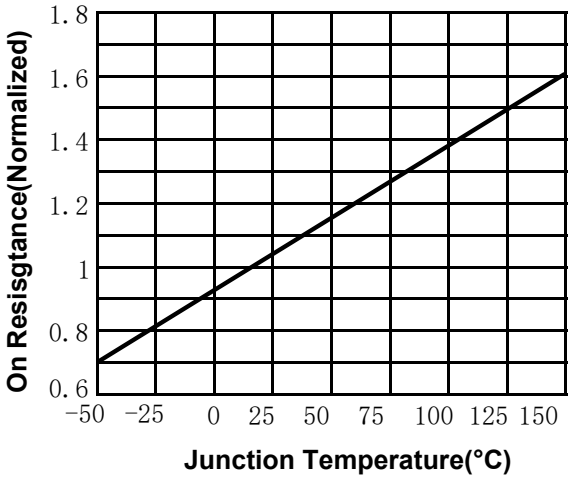


Fig.2 On Resistance VS. Gate to Source Voltage

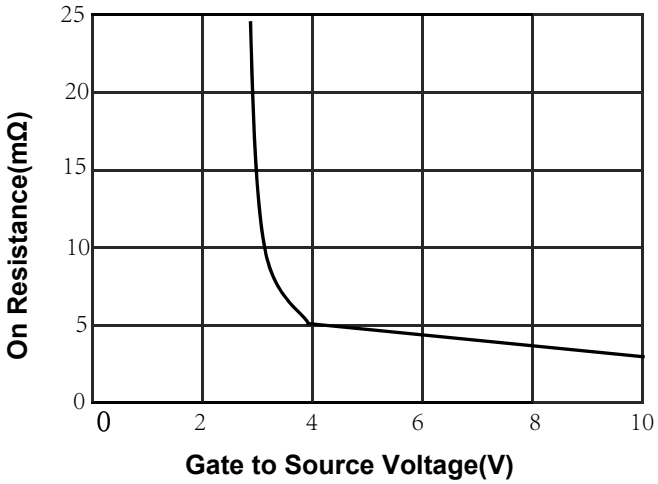


Fig.3 Threshold Voltage VS. Junction Temperature

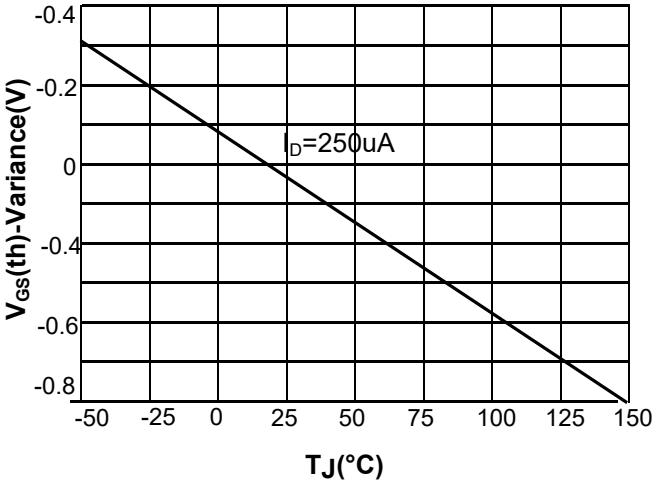


Fig.4 Resistance VS. Drain Current

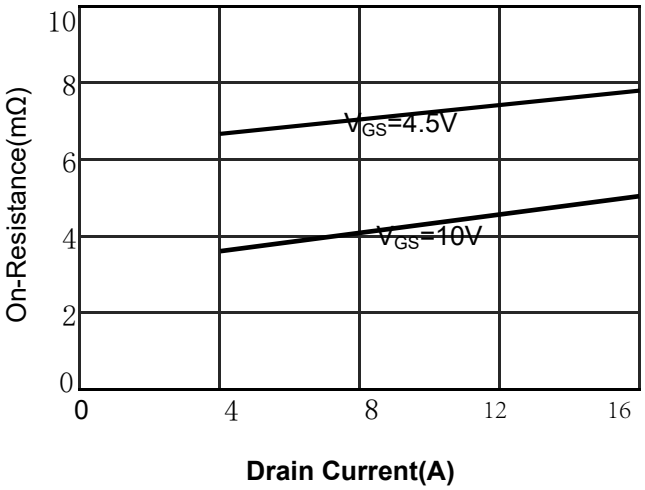


Fig.5 Capacitance

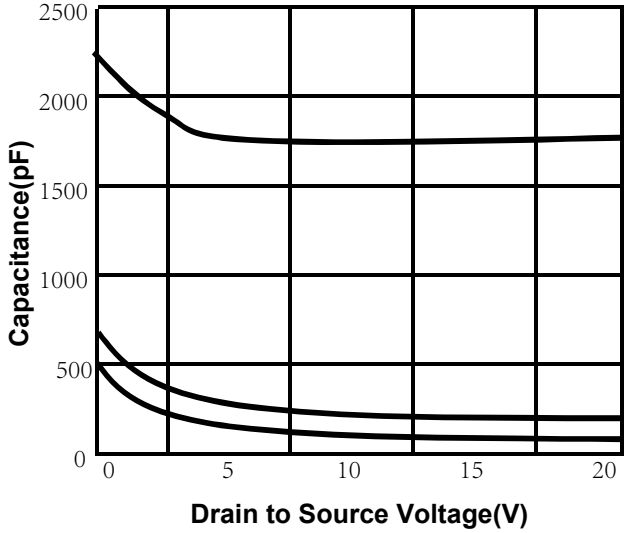
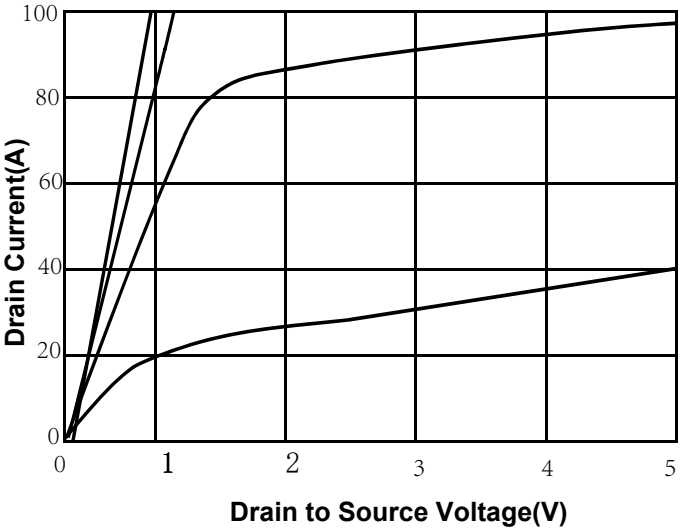


Fig.6 On-Regi0n Characteristics



●Test Circuits & Waveforms

Fig.7 Switching Time Measurement Circuit

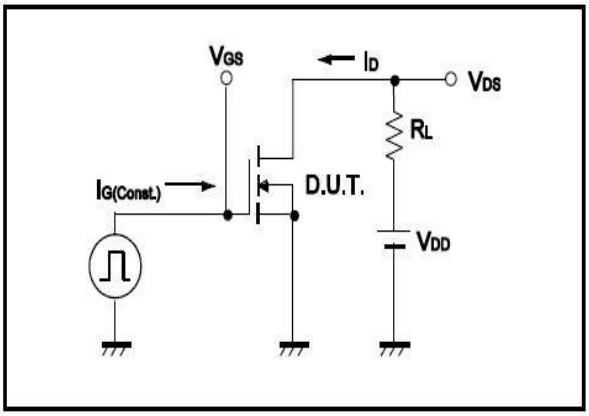


Fig.8 Gate Charge Waveform

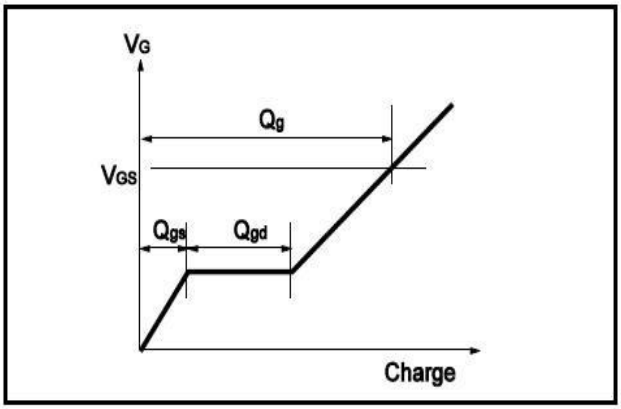


Fig.9 Switching Time Measurement Circuit

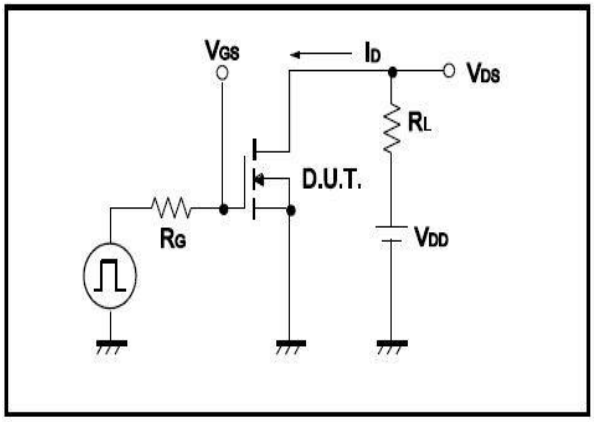


Fig.10 Gate Charge Waveform

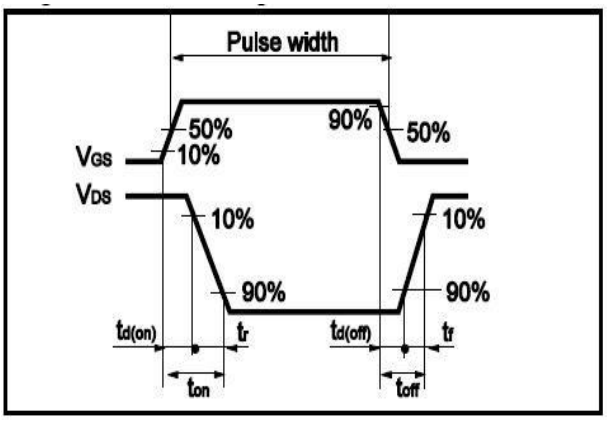


Fig.11 Avalanche Measurement Circuit

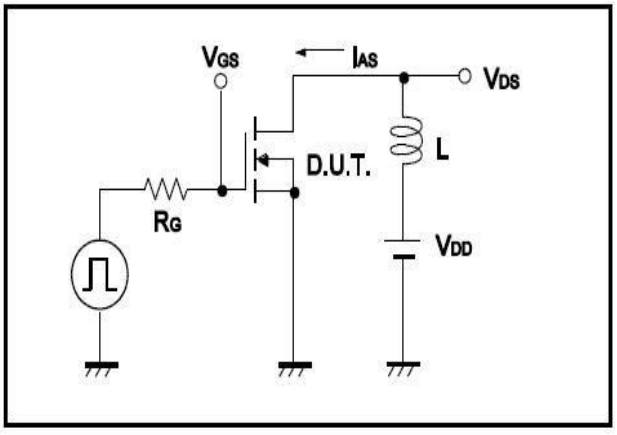
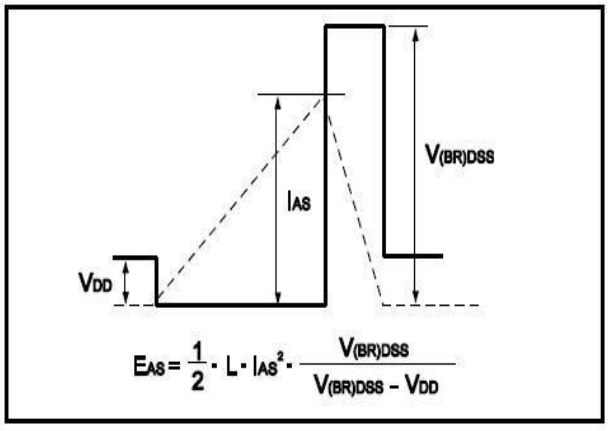


Fig.12 Avalanche Waveform



●Dimensions（TO-252）

Unit：mm

SYMBOL	min	max	SYMBOL	min	max
A	2.10	2.50	L2	0.60	1.20
b	0.50	0.90	L3	1.20	1.80
b1	0.70	1.20	B	0.80	1.30
b2	0.40	0.70	C	0.40	0.70
D	6.20	6.80	D1	5.10	5.60
E	5.80	6.40	e1	2.10	2.45
L	2.60	3.60	e2	4.40	4.80
L1	0.80	1.60