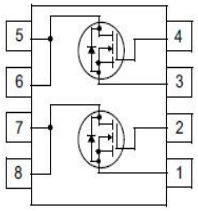
100V Dual N-Channel MOSFET

•General Description

The SGT MOSFET LH024ND100 has the low $R_{DS(on)}$, low gate charge,fast switching and excellent avalanche characteristics.This device is suitable for fast charge and lighting.

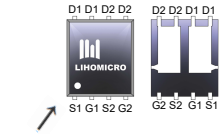


V_{DS} =100V

$R_{DS(ON)}$ =20mΩ

I_D =35A

■ RoHS COMPLIANT



DFN5*6

•Features

■Fast switching

■Low $R_{DS(on)}$ & FOM

•Application

■LED/LCD/PDP TV and monitor Lighting

■Power Supplies

•Ordering Information:

Part Number	LH024ND100
Package	DFN5*6
Basic Ordering Unit (pcs)	5000
Normal Package Material Ordering Code	LH024ND100N-DFN5*6-TAP
Halogen Free Ordering Code	LH024ND100N-DFN5*6-TAP-HF

•Absolute Maximum Ratings（TC =25℃）

PARAMETER	SYMBOL	Value	UNIT
Drain-Source Breakdown Voltage	BV_{DSS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ,T_C = 25°C	I_D	35	A
Pulsed drain current (TC = 25°C, tp limited by Tjmax)[1]	I_D pulse	105	A
Single Pulse Avalanche Energy[2]	E_{AS}	72	mJ
Power Dissipation(TC=25℃)	P_D	52	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	100	--	--	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=250uA	1.0	--	2.5	V
Drain-source On Resistance[3]	$R_{DS(ON)}$	V_{GS} =10V, I_D=10A	--	20	24	mΩ
		V_{GS} =4.5V, I_D=6A	--	25	32	
Drain-Source Leakage Current	I_{DSS}	V_{DS}=100V,V_{GS}=0V,T_J=25℃	--	--	1	uA
		V_{DS}=80V,V_{GS}=0V,T_J=85℃	--	--	10	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20,V_{DS}=0V	--	--	±100	nA
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 50V f = 1.0MHz	--	780	--	pF
Output Capacitance	Coss		--	132	--	
Reverse transfer Capacitance	Crss		--	10	--	
Turn -Off Delay Time	Td(off)	V_{GS}=10V, I_D =15.0A R_G=2.0Ω	--	18	--	ns
Turn-on delay time	Td(on)		--	11.5	--	
Rise time	Tr		--	2.8	--	
Fall time	Tf		--	3.2	--	
Total Gate Charge	Qg	I_D =10A, V_{DS} = 50V V_{GS} = 10V	--	22	---	nC
Gate-to-Source Charge	Qgs		--	7.8	--	
Gate-to-Drain Charge	Qgd		--	3.5	---	
Continuous Diode Forward Current	I_S	--	--	--	35.0	A
Pulsed Diode Forward Current	I_{SM}	--	--	--	105.0	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=10.0A V_{GS} =0V	--	--	1.3	V
Reverse Recovery Time	trr	If=Is di_F/dt=100A/μs	--	51	--	ns
Reverse Recovery Charge	Qrr		--	110	--	uC
Peak Reverse Recovery Current	I_{RRM}		--	2.5	--	A

●Thermal Characteristics

PARAMETER	SYMBOL	MAX	UNIT
Thermal Resistance Junction-case	Rth_{JC}	2.4	℃/W
Thermal Resistance Junction-ambient	Rth_{JA}	62	℃/W

Notes:

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

2. I_{AS} = 17A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C

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

●Typical Characteristics

Figure 1.Typical output characteristics

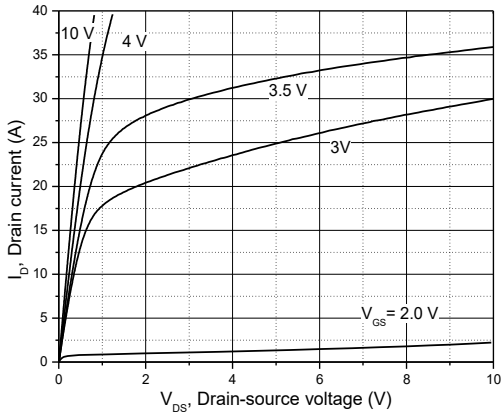


Figure 2. Typical transfer characteristics

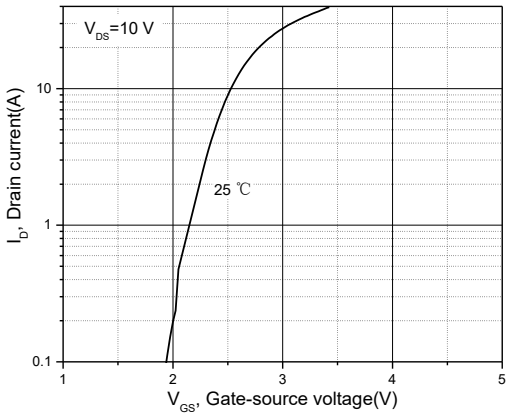


Figure 3. Typical capacitances

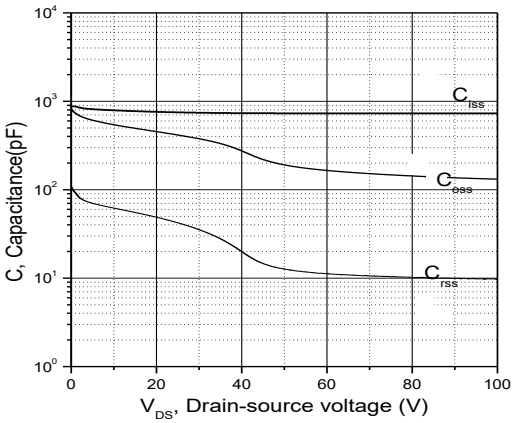


Figure 4. Typical gate charge

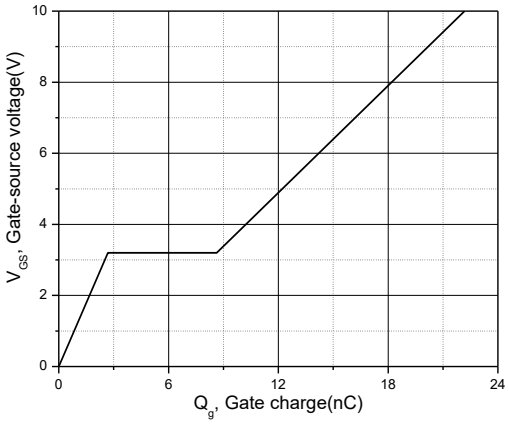


Figure 5. Drain-source breakdown voltage

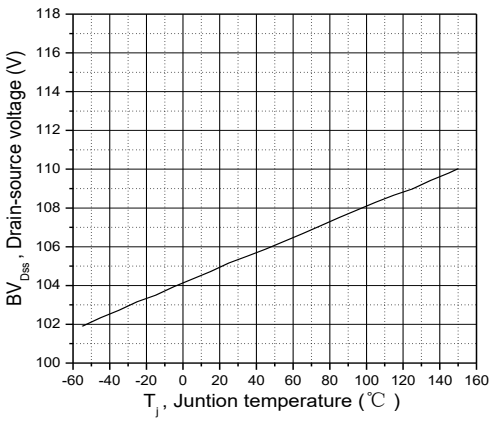
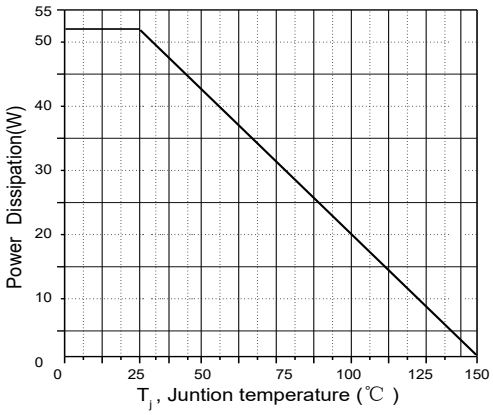


Figure 6. Power Dissipation(W)



●Typical Characteristics(cont.)

Figure 7. Forward characteristic of body diode

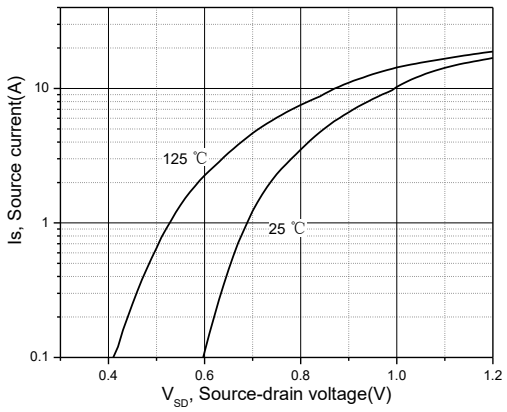


Figure 8. Drain-source on-state resistance

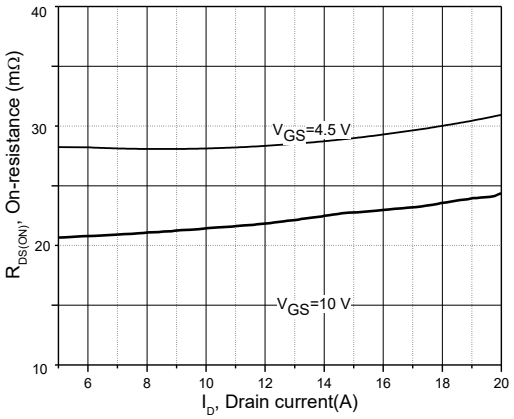
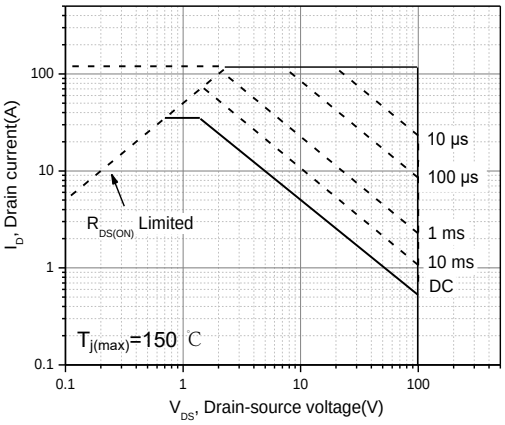


Figure 9. Safe operation area T_C=25 ℃



●Test Ciucuit and Waveforms

Figure 1. Gate charge test circuit & waveform

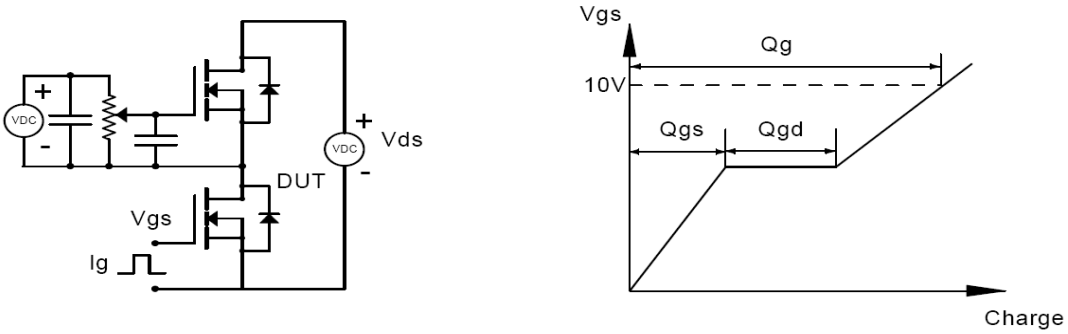


Figure 2. Switching time test circuit & waveforms

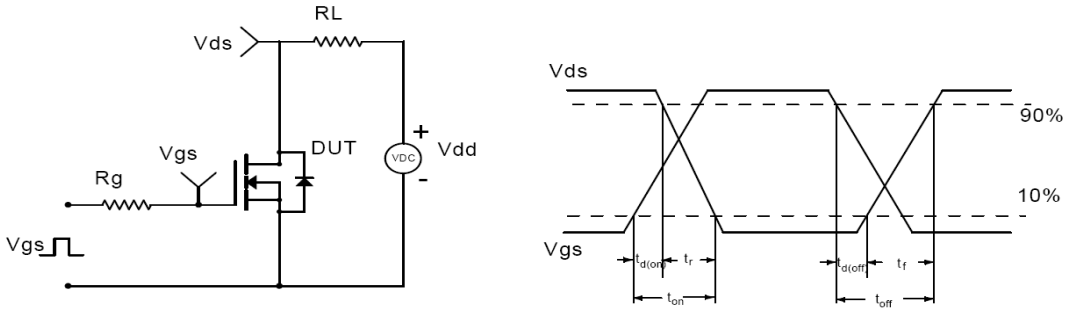


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

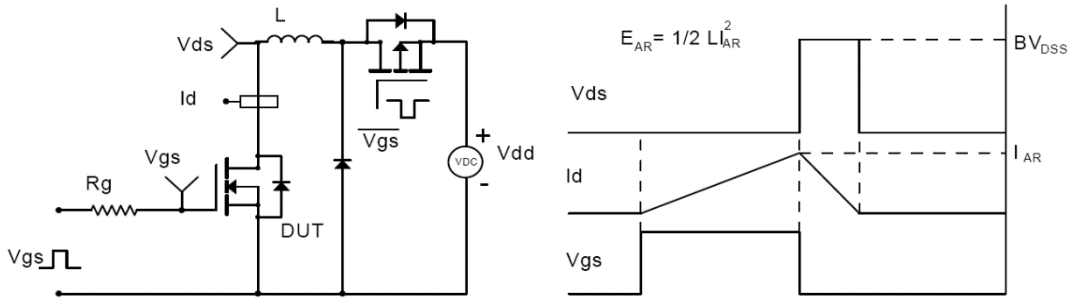
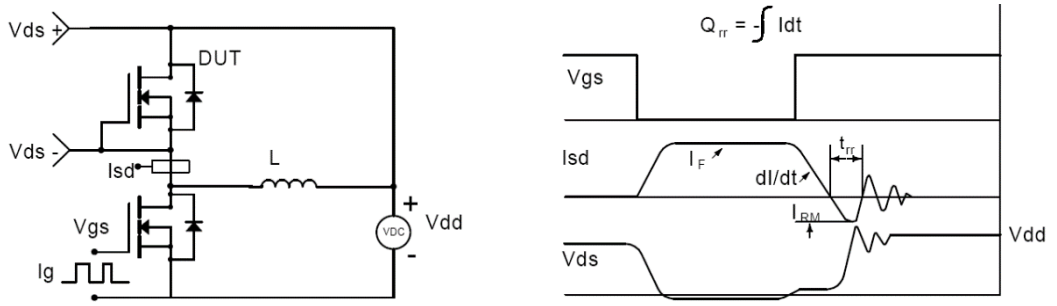


Figure 4. Diode reverse recovery test circuit & waveforms



• Dimensions（DFN5*6)

Unit：mm

SYMBOL	min	max	SYMBOL	min	max
A	1.00	1.20	E1	5.90	6.40
b	0.30	0.50	e	1.27BSC	
c	0.20	0.30	L	0.05	0.30
D	4.80	5.20	L1	0.40	0.80
D1	3.90	4.30	L2	1.20	2.00
D2	1.50	1.90	H	3.30	3.80
D3	0.40	0.80	I	-	0.18
E	5.50	5.90