

General Description:

The LWN2H550AD2 uses trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications. The package form is DFN2*2-6L, which accords with the ROHS standard and Halogen Free standard.

Features:

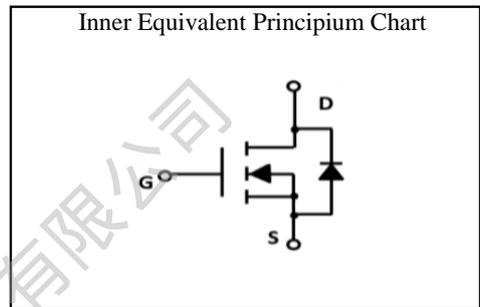
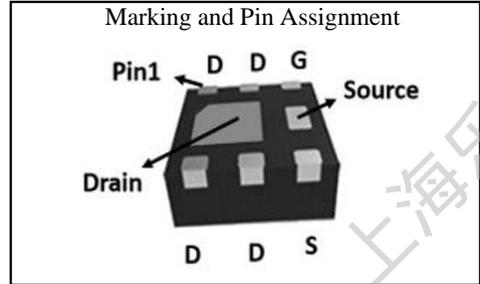
- Fast Switching
- Low Gate Charge and $R_{DS(ON)}$
- Low Reverse transfer capacitances

Applications:

- DC-DC Converter
- Portable Equipment
- Power Management



V_{DSS}	200	V
I_D	2.0	A
P_D	3.0	W
$R_{DS(ON)}$ TYPE	450	m Ω


Package Marking and Ordering Information:

Marking	Part Number	Package	Packing	Qty.
N2H550A	LWN2H550AD2	DFN2*2-6L	Reel	3000 Pcs

Absolute Maximum Ratings:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Voltage	200	V
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	A
I_{DM}^{al}	Pulsed Drain Current	8.0	A
V_{GS}	Gate-to-Source Voltage	± 20	V
P_D	Power Dissipation	3.0	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	150, -55 to 150	$^\circ\text{C}$
T_L	Maximum Temperature for Soldering	260	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Value	Units
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	41.7	$^\circ\text{C}/\text{W}$

Electrical Characteristic ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise specified):

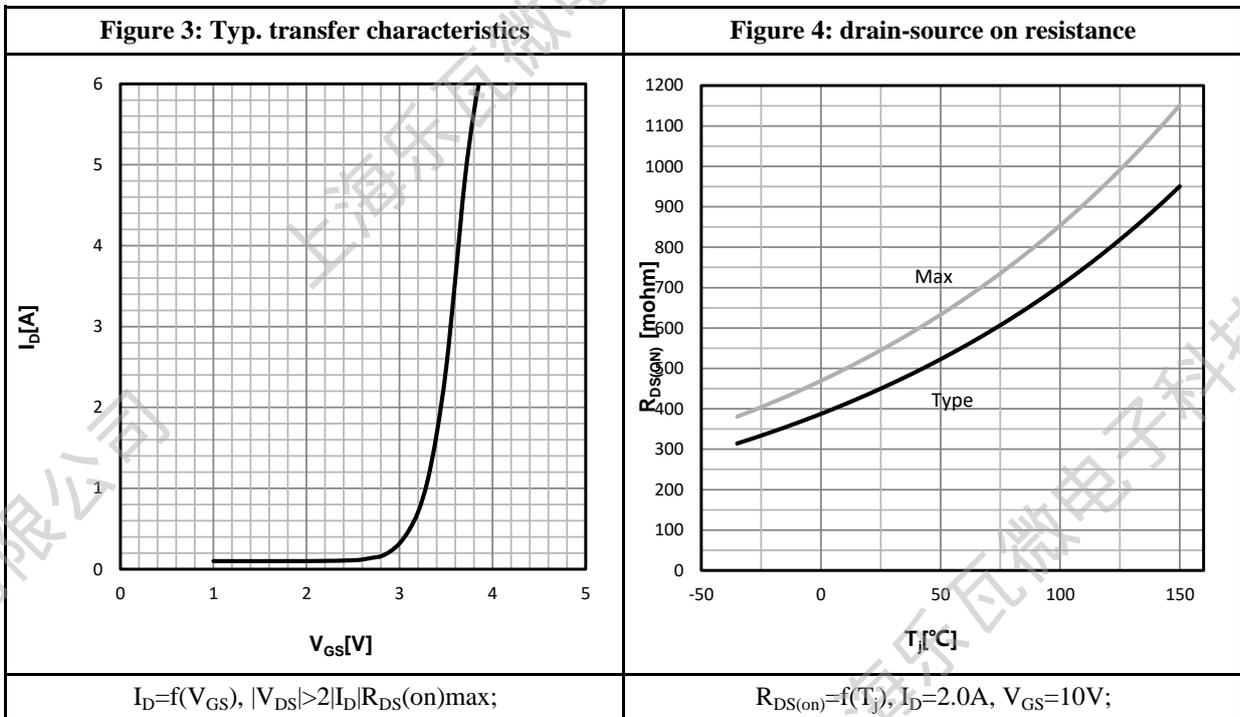
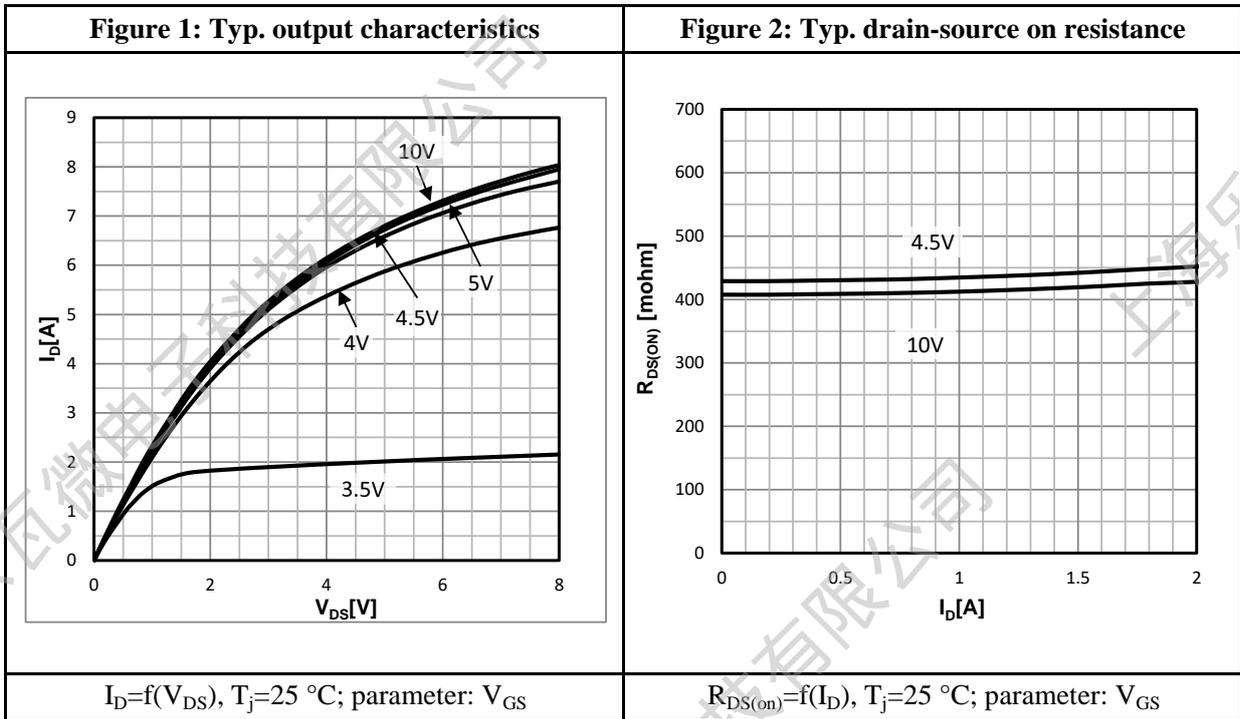
Static Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	200	--	--	V
I_{DSS}	Drain to Source Leakage Current	$V_{DS}=200V, V_{GS}=0V$	--	--	1.0	μA
$I_{GSS(F)}$	Gate to Source Forward Leakage	$V_{GS}=+20V, V_{DS}=0V$	--	--	100	nA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	$V_{GS}=-20V, V_{DS}=0V$	--	--	-100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	2.0	3.0	V
$R_{DS(ON)}$	Drain-to-Source On-Resistance	$V_{GS}=10V, I_D=2.0A$	--	450	550	m Ω

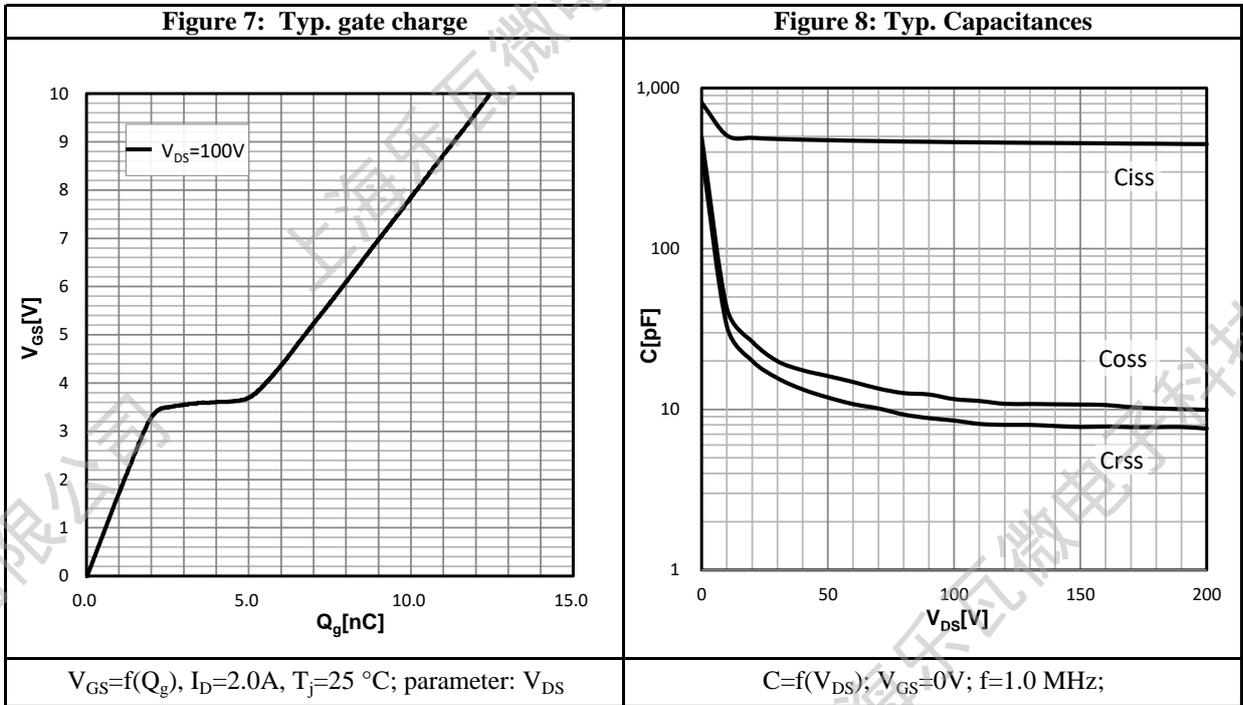
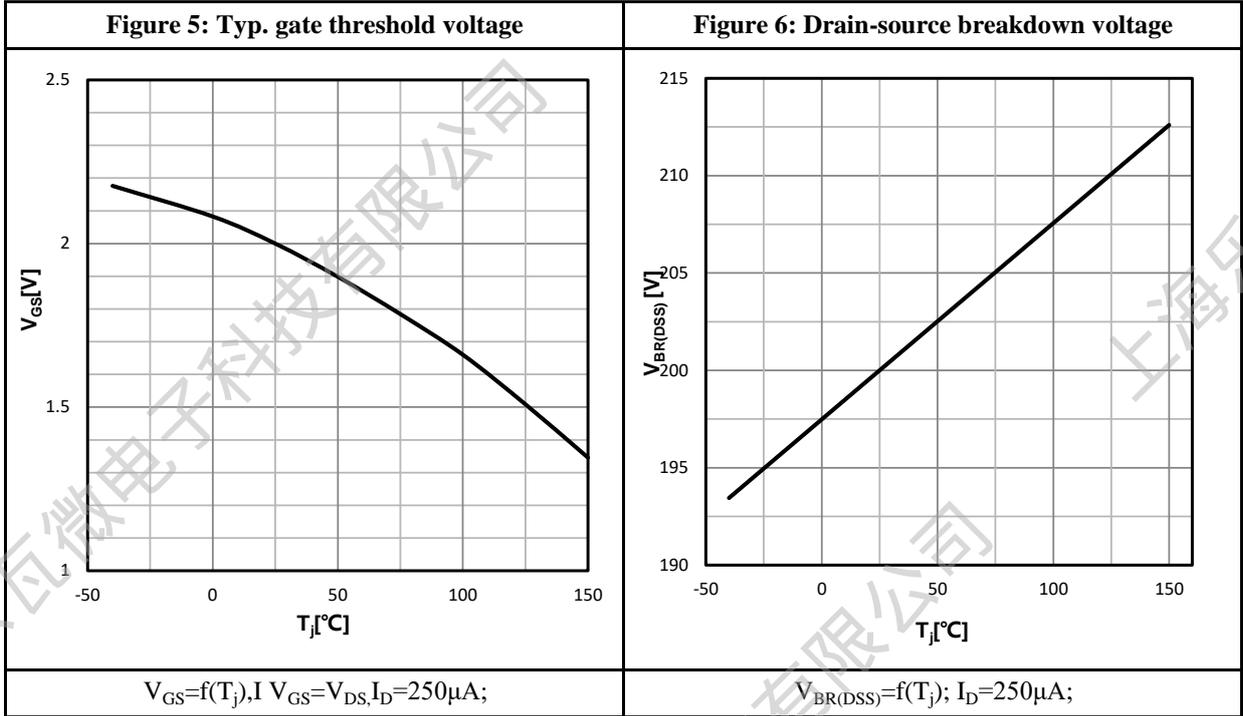
Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	$V_{GS} = 0V$	--	461	--	pF
C_{oss}	Output Capacitance	$V_{DS} = 100V$	--	11.6	--	
C_{rss}	Reverse Transfer Capacitance	$f = 1.0MHz$	--	8.5	--	
R_G	Gate resistance	$V_{GS}=0V, V_{DS}$ Short	--	1.35	--	Ω

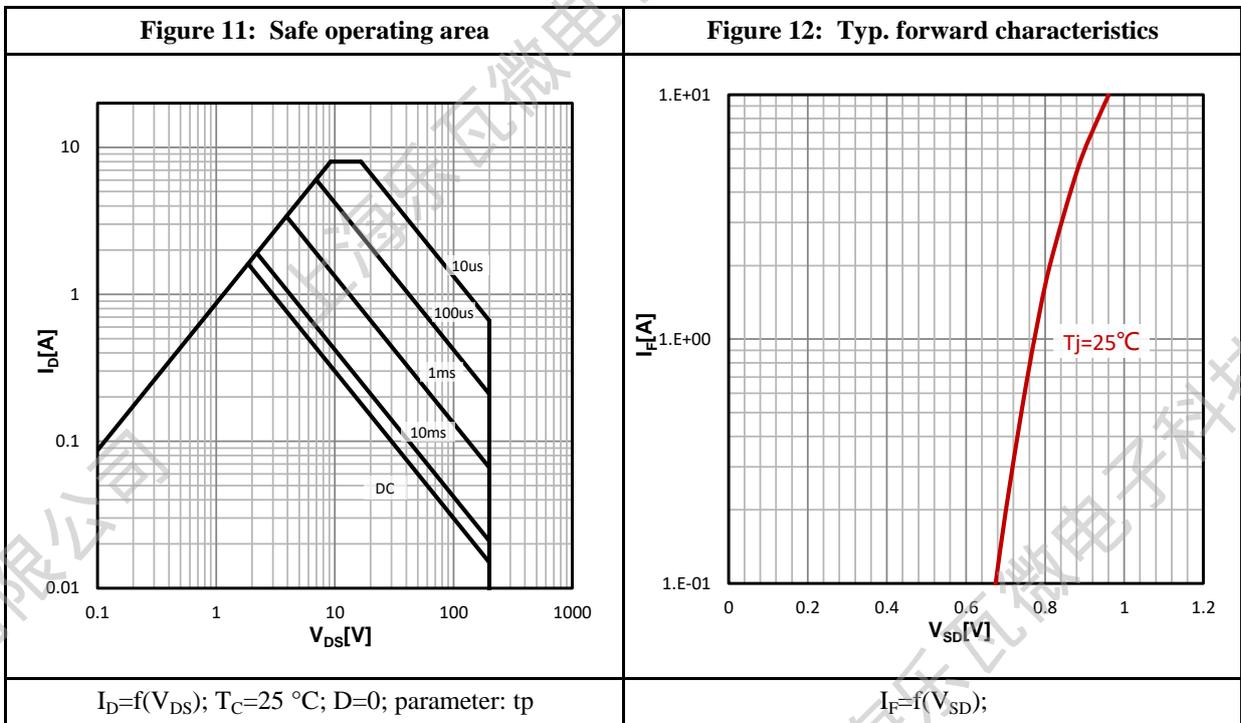
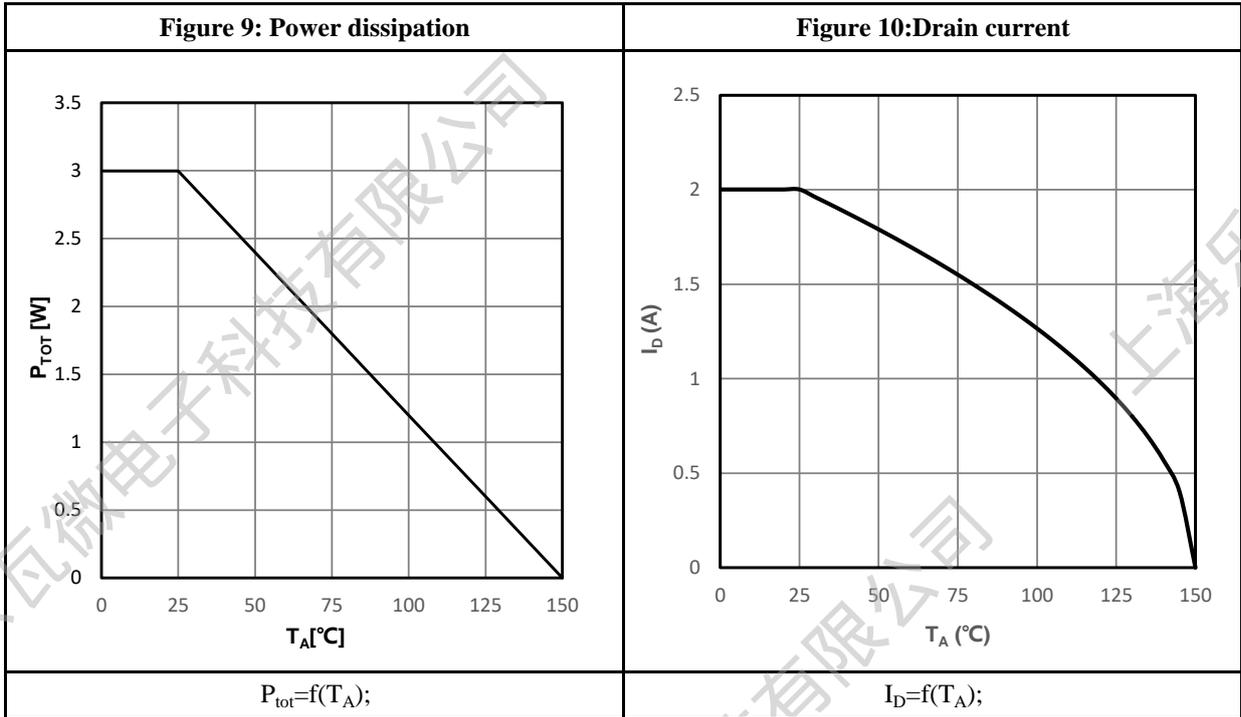
Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	$I_D = 2.0A$	--	6	--	ns
t_r	Rise Time	$V_{DS} = 100V$	--	7	--	
$t_{d(OFF)}$	Turn-Off Delay Time	$V_{GS} = 10V$	--	17	--	
t_f	Fall Time	$R_G = 4.0\Omega$	--	8	--	
Q_g	Total Gate Charge	$V_{GS} = 10V$	--	12.5	--	nC
Q_{gs}	Gate Source Charge	$V_{DS} = 100V$	--	1.75	--	
Q_{gd}	Gate Drain Charge	$I_D = 2.0A$	--	2.9	--	

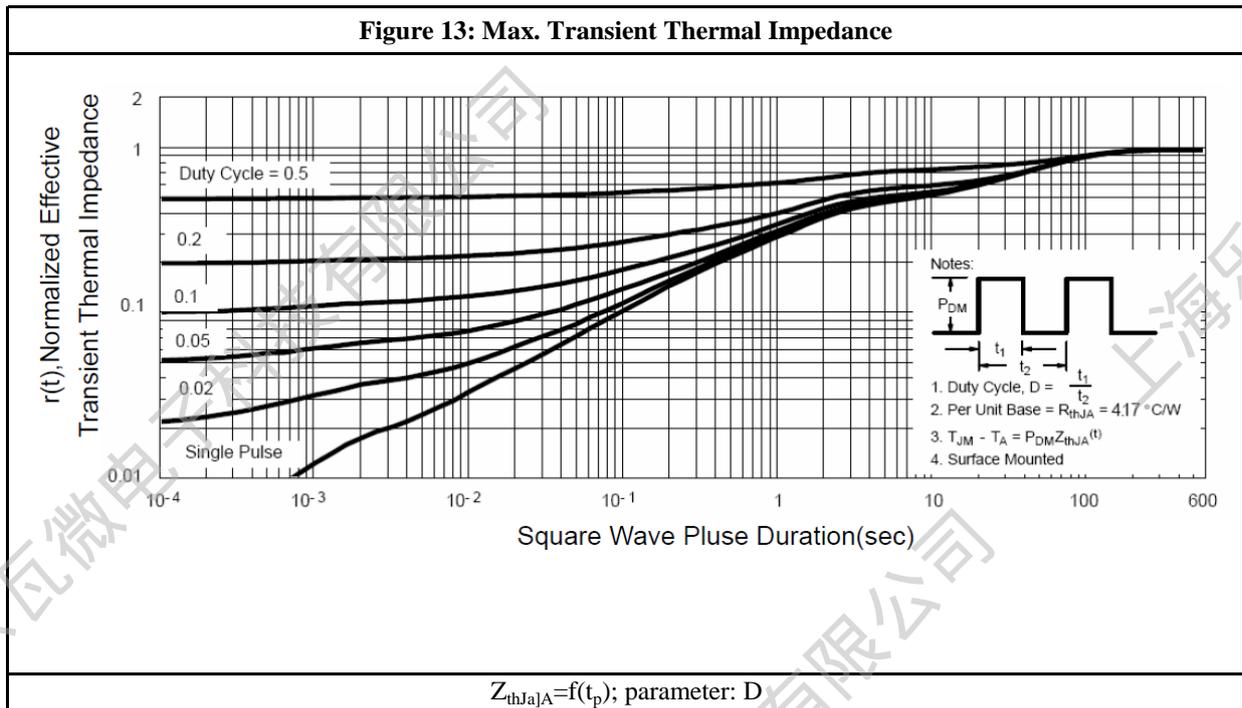
Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
I_S	Diode Forward Current	$T_C = 25\text{ }^\circ\text{C}$	--	--	2.0	A
V_{SD}	Diode Forward Voltage	$I_S=2.0A, V_{GS}=0V$	--	--	1.2	V
t_{rr}	Reverse Recovery time	$I_S=2.0A, V_{DD}=100V$	--	75	--	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu s$	--	198	--	nC

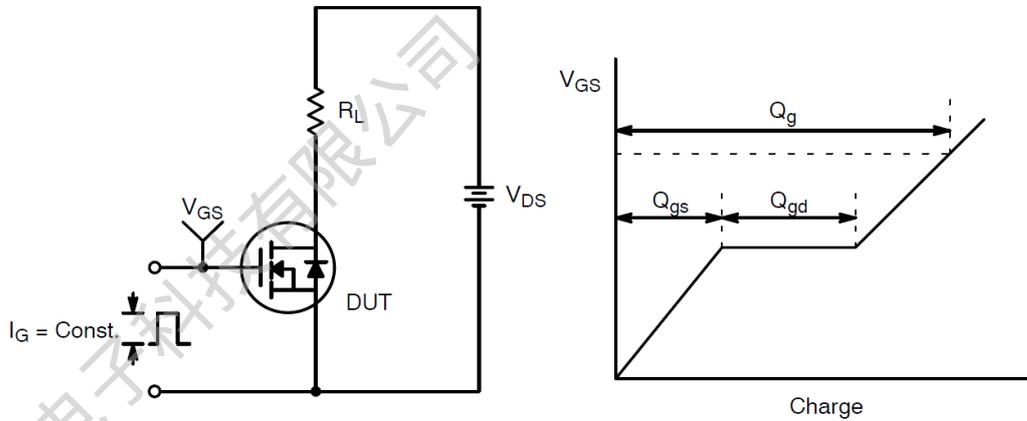
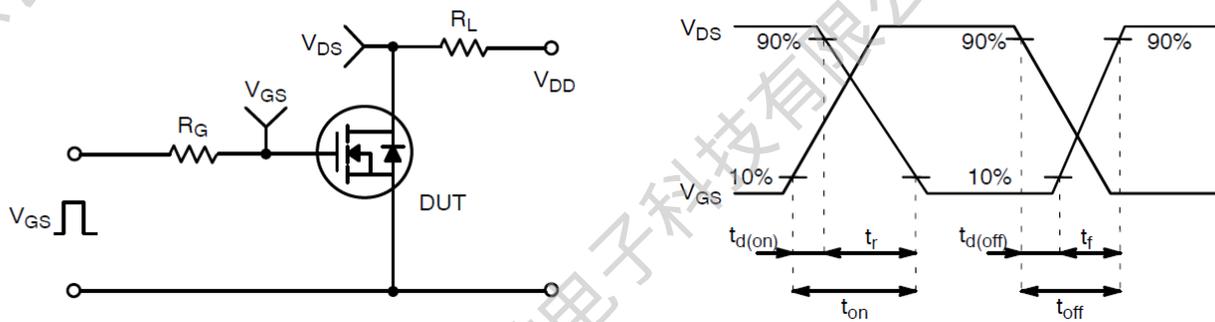
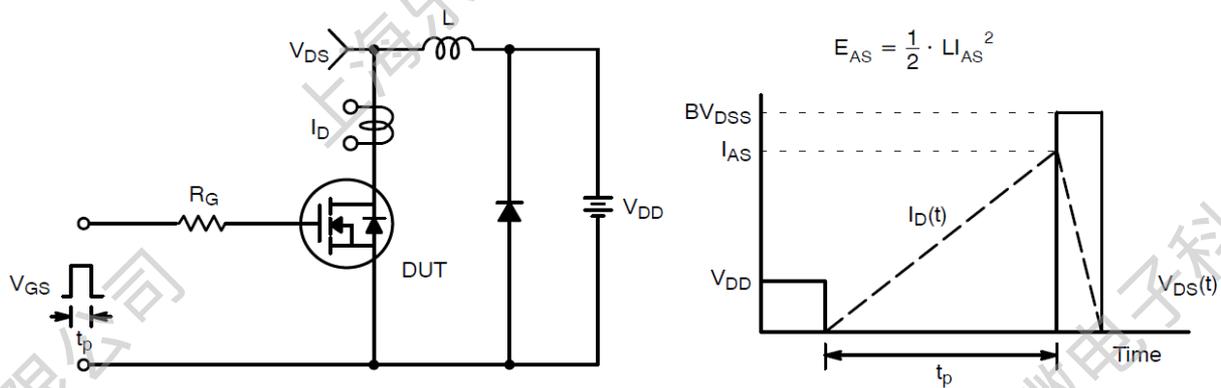
a1: Repetitive rating; pulse width limited by maximum junction temperature

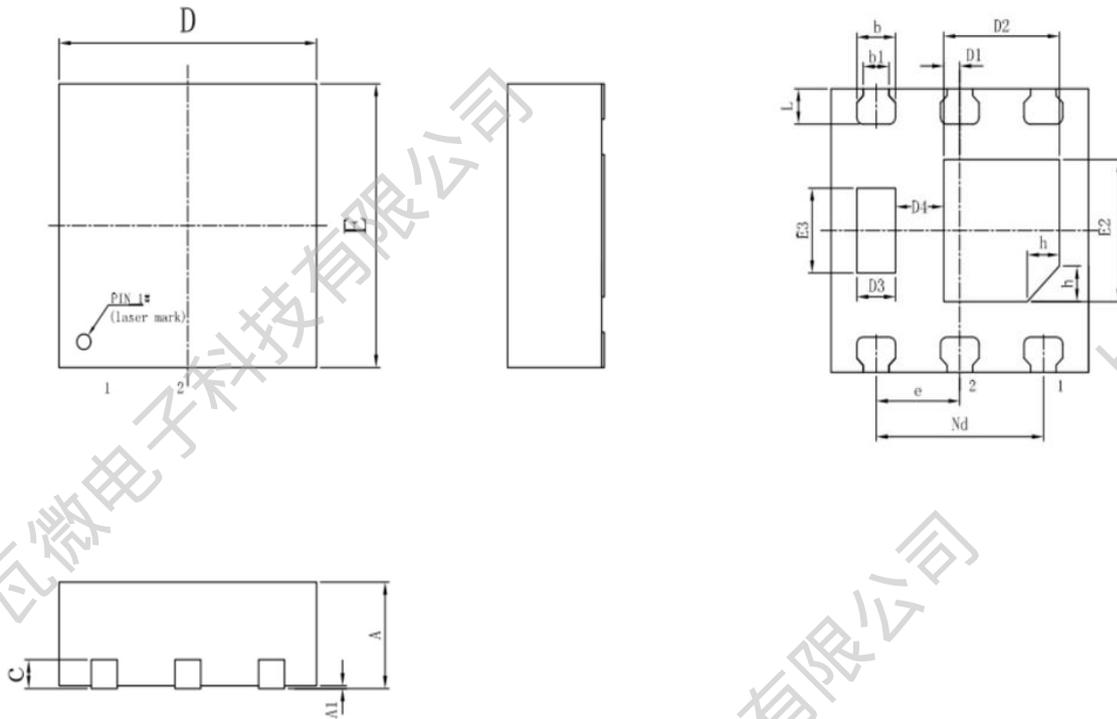
Characteristics Curve:








Test Circuit & Waveform:

Figure 14: Gate Charge Test Circuit & Waveform

Figure 15: Resistive Switching Test Circuit & Waveforms

Figure 16: Unclamped Inductive Switching Test Circuit & Waveforms

Package Outline:


COMMON DIMENSION (MM)			
PKG	DFN2*2-6L		
Symbol	MIN	NOM	MAX
A	0.700	0.750	0.800
A1	0.000	0.020	0.050
b	0.250	0.300	0.350
b1	0.150	0.200	0.250
c	0.102	0.152	0.202
D	1.950	2.000	2.050
D1	0.080	0.125	0.170
D2	0.850	0.900	0.950
D3	0.250	0.300	0.350
D4	0.330	0.375	0.430
e	0.65 BSC		
Nd	1.30 BSC		
E	1.950	2.000	2.050
E2	0.950	1.000	1.050
E3	0.550	0.600	0.650
L	0.200	0.250	0.300
h	0.200	0.250	0.300

Revision History:

Revison	Date	Descriptions
Rev 1.0	Feb.2024	Initial Version

Disclaimer:

The information in this document is believed to be accurate and reliable. However, no responsibility is assumed by LW-Micro for its use. All operating parameters must be designed, validated and tested to ensure they meet the requirements of your application. LW-Micro reserves the right to make any specification and/or circuitry changes without prior notification. Before starting a brand-new project, please contact LW-Micro Sales to get the most recent relevant information.

Mailing Address: Room 301, Building 2, No.1690 CaiLun Road, China (Shanghai) Pilot Free Trade Zone
Shanghai Lewa Micro-electronics Technology Co., Ltd