

General Description:

The LWT1H02HX uses advanced SGT 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 TOLL, 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

100% DVDS Tested

100% Avalanche Tested



Package Marking and Ordering Information:

Marking	Part Number	Package	Packing	Qty.
T1H02/LW HX/D.C.	LWT1H02HX	TOLL	Reel	2000 Pcs

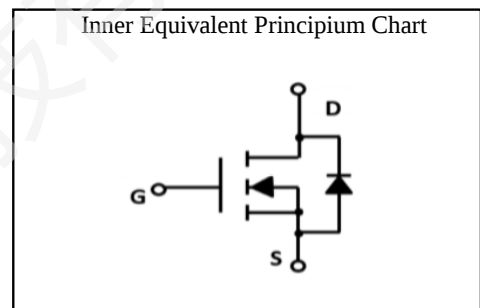
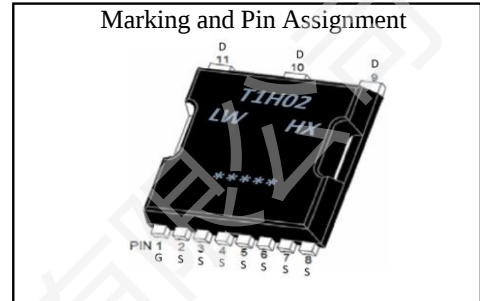
Absolute Maximum Ratings:

Symbol	Parameter		Value	Units
V_{DSS}	Drain-to-Source Voltage		100	V
I_D	Continuous Drain Current	$T_C=25^{\circ}C$	316	A
	Continuous Drain Current	$T_C=100^{\circ}C$	200	A
I_{DM}^{a1}	Pulsed Drain Current		1263	A
E_{AS}^{a2}	Single pulse avalanche energy		1188	mJ
V_{GS}	Gate-to-Source Voltage		± 20	V
P_D	Power Dissipation		357	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range		150, -55 to 150	$^{\circ}C$
T_L	Maximum Temperature for Soldering		260	$^{\circ}C$

Thermal Characteristics:

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.35	$^{\circ}C/W$
$R_{\theta JA}^{a3}$	Thermal Resistance, Junction-to-Ambient	43	$^{\circ}C/W$

V_{DSS}	100	V
I_D	316	A
P_D	357	W
$R_{DS(ON) \text{ TYPE}}$	1.6	m Ω



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

Static Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	100	--	--	V
I_{DSS}	Drain to Source Leakage Current	$V_{DS}=100V, V_{GS}=0V$	--	--	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	$V_{DS}=V_{GS}, I_D=250\mu A$	2.8	3.3	3.8	V
$R_{DS(ON)}$	Drain-to-Source On-Resistance	$V_{GS}=10V, I_D=20A$	--	1.6	2.0	m Ω

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	$V_{GS}=0V$	--	8540	--	pF
C_{oss}	Output Capacitance	$V_{DS}=50V$	--	3126	--	
C_{rss}	Reverse Transfer Capacitance	$f=1.0MHz$	--	68	--	
R_G	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	--	1.0	--	Ω

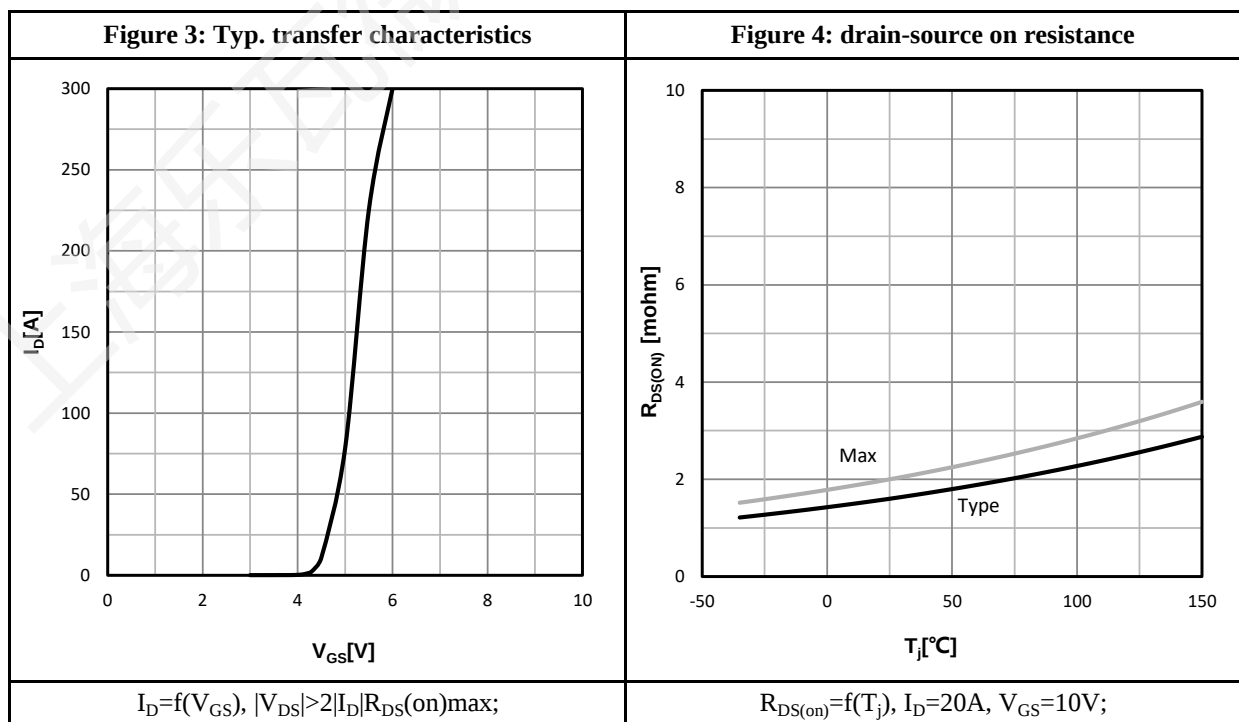
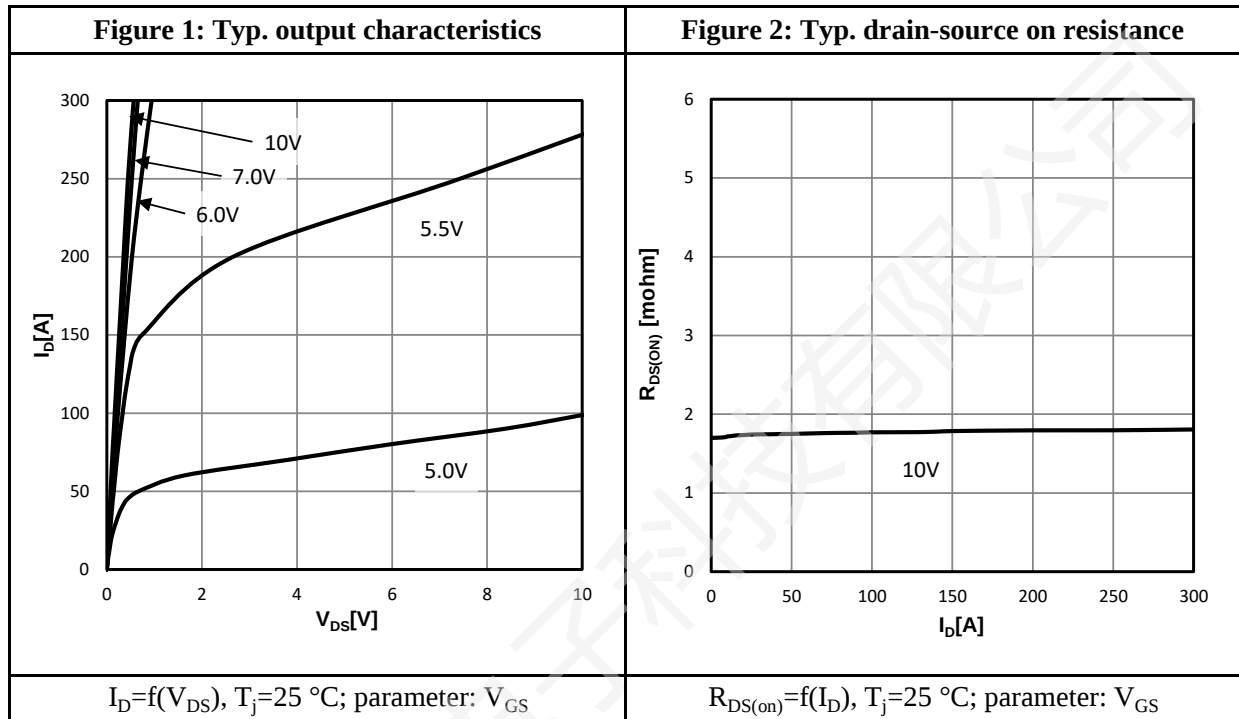
Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	$I_D=20A$	--	25	--	ns
t_r	Rise Time	$V_{DS}=50V$	--	33	--	
$t_{d(OFF)}$	Turn-Off Delay Time	$V_{GS}=10V$	--	95	--	
t_f	Fall Time	$R_G=5.0\Omega$	--	75	--	
Q_g	Total Gate Charge	$V_{GS}=10V$	--	112	--	nC
Q_{gs}	Gate to Source Charge	$V_{DS}=50V$	--	35	--	
Q_{gd}	Gate to Drain Charge	$I_D=20A$	--	22	--	

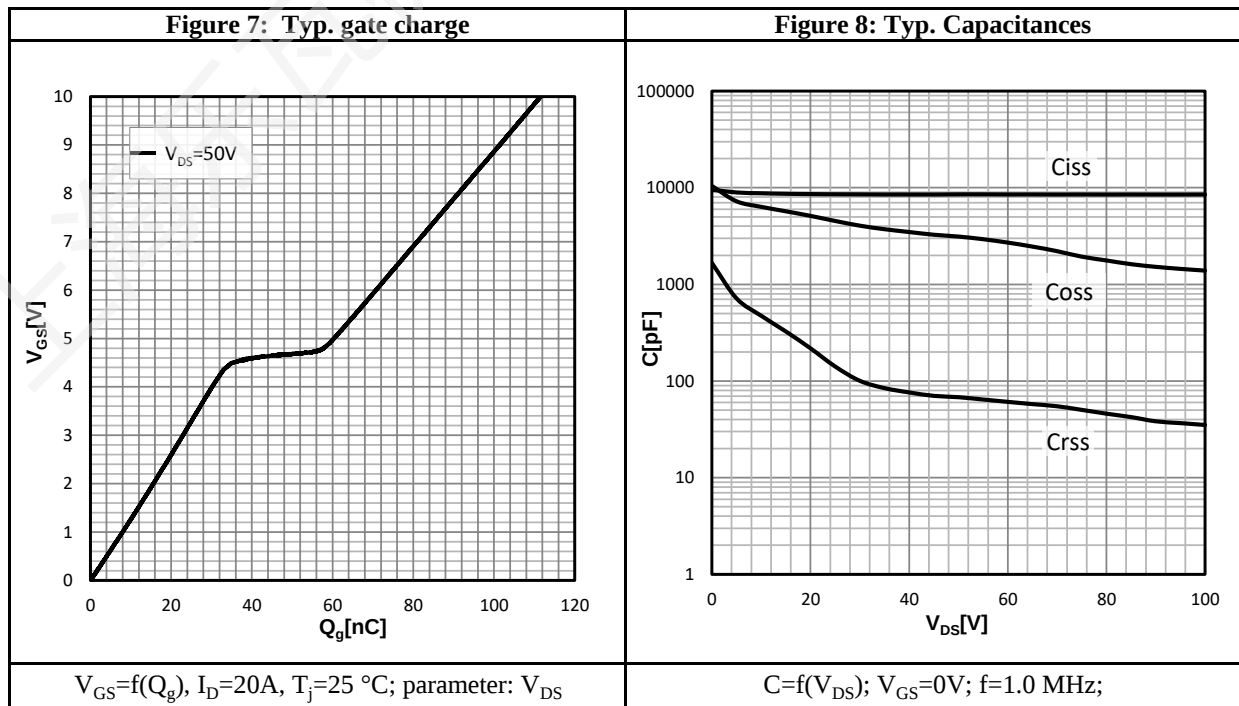
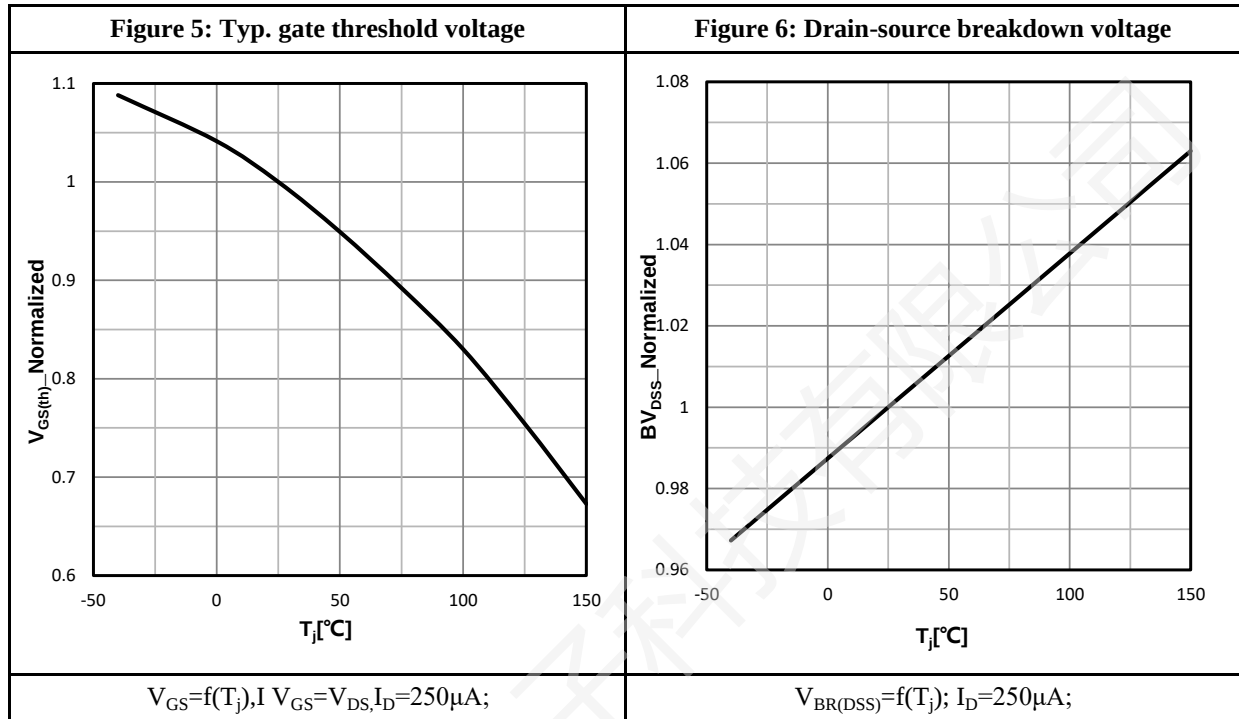
Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
I_S	Diode Forward Current	$T_C=25\text{ }^{\circ}\text{C}$	--	--	316	A
V_{SD}	Diode Forward Voltage	$I_S=20A, V_{GS}=0V$	--	--	1.2	V
t_{rr}	Reverse Recovery Time	$I_S=20A, V_{DD}=50V$	--	128	--	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu s$	--	293	--	nC

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

a2: $V_{DD}=50V, L=0.2mH, R_G=25\Omega$, Starting $T_J=25\text{ }^{\circ}\text{C}$

a3: Device on 40 mm x 40 mm x 1.5 mm epoxy PCB FR4 with 6 cm² (one layer, 70 μm thick) copper area for drain connection.

Characteristics Curve:




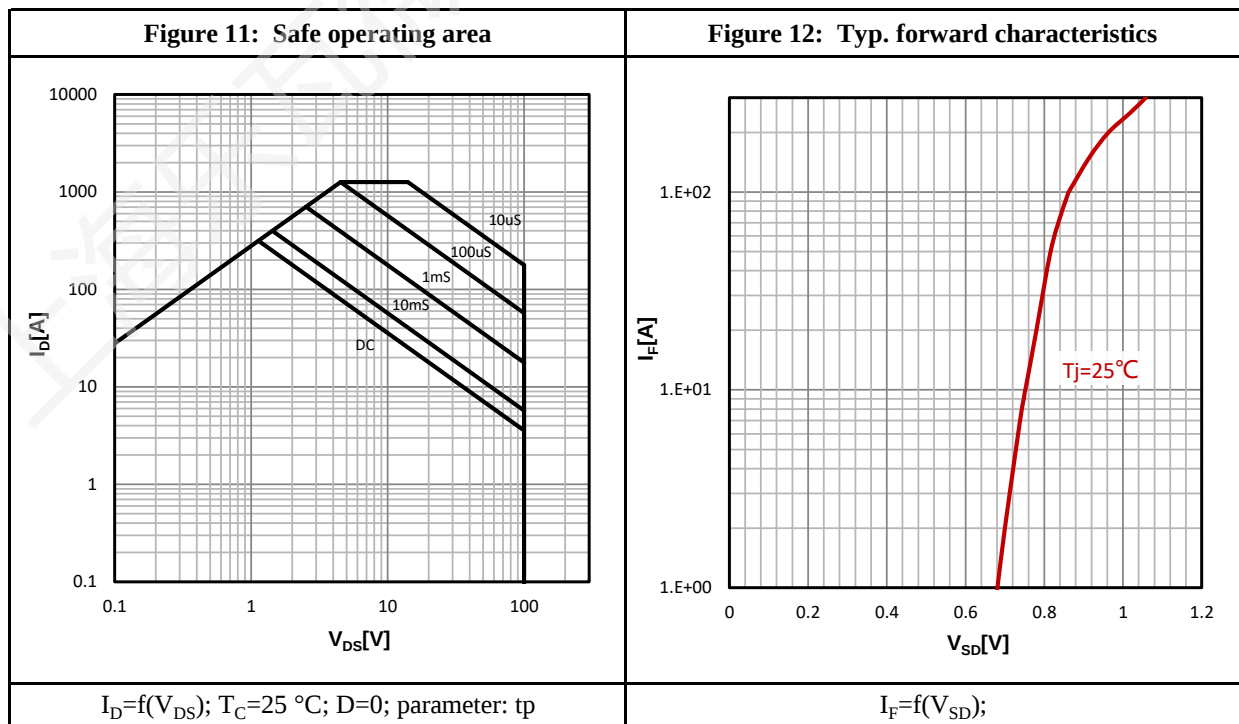
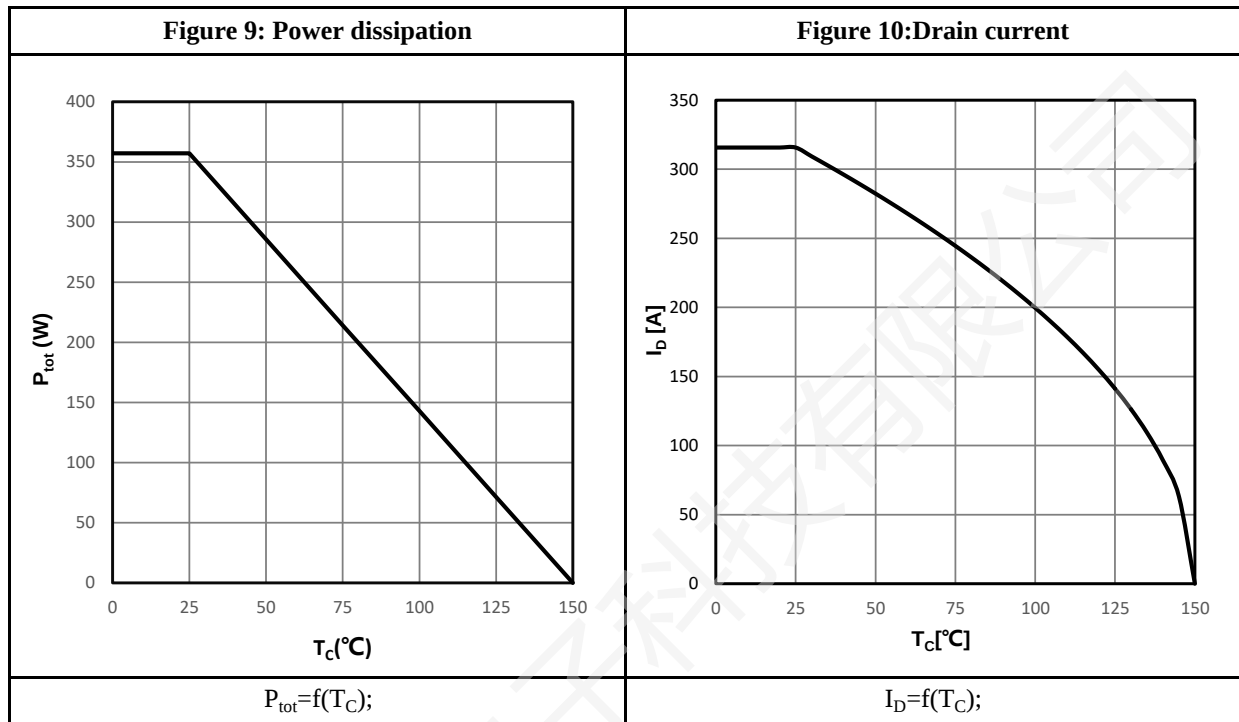
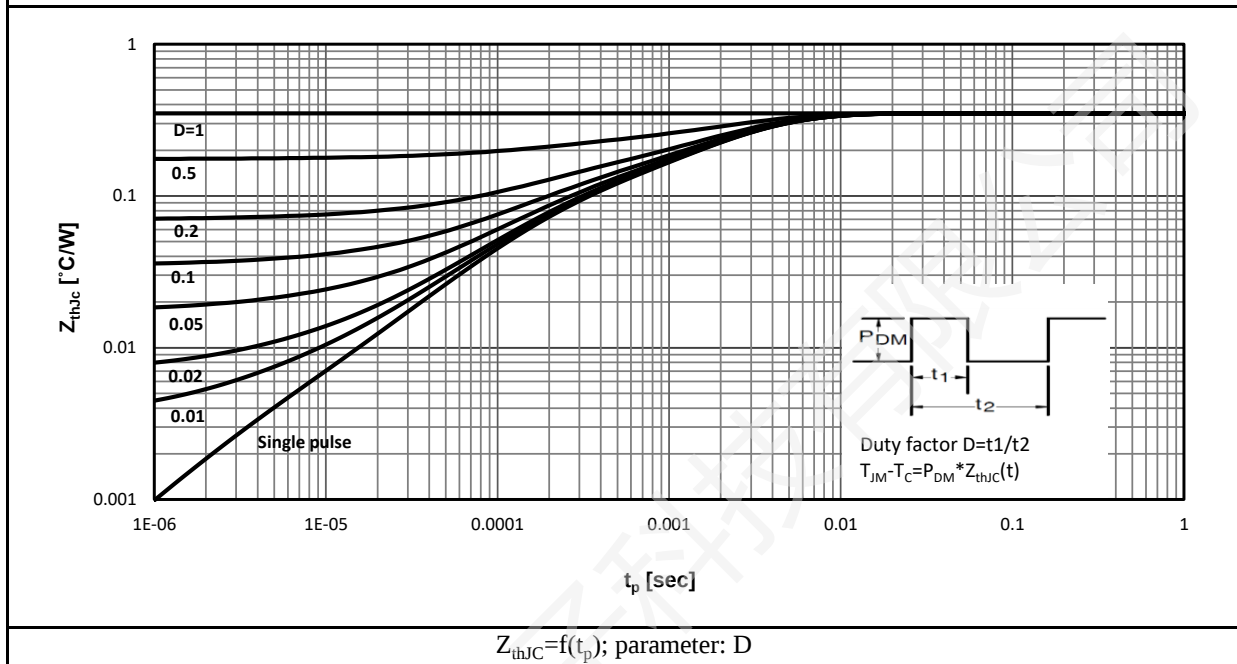
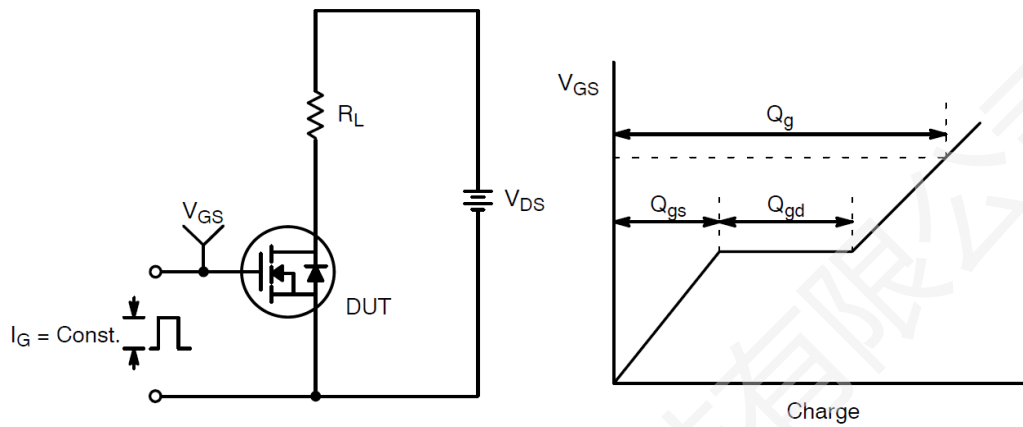
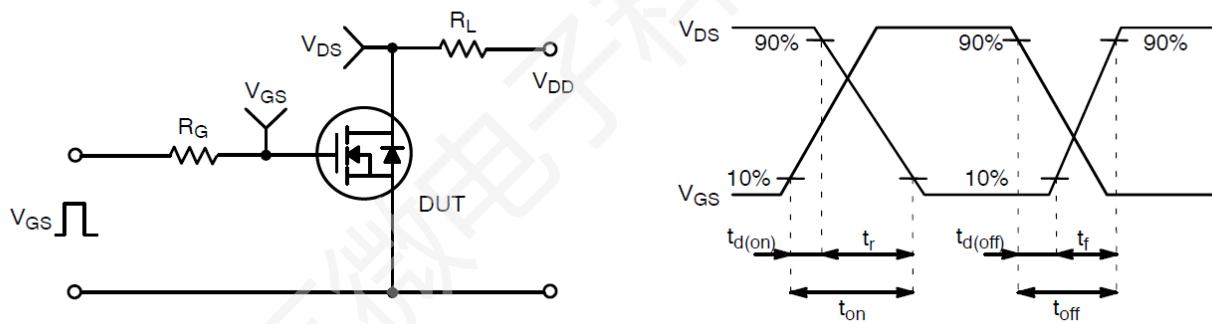
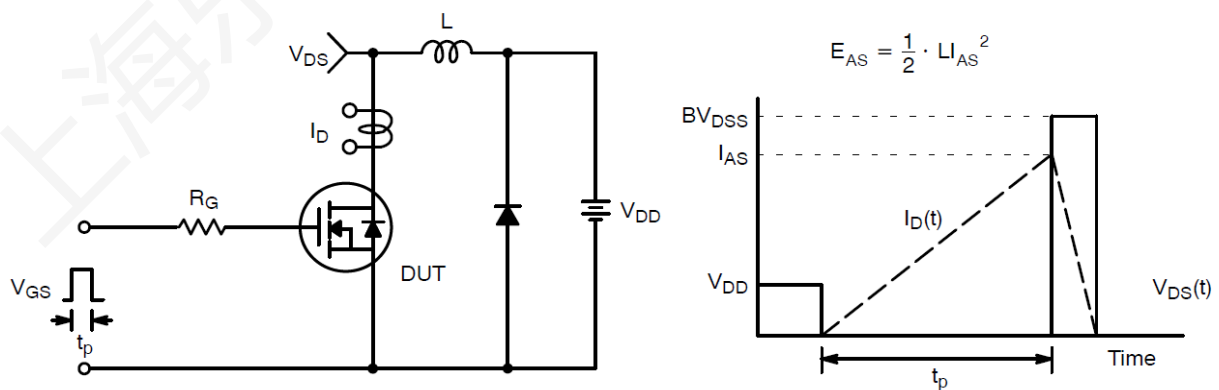
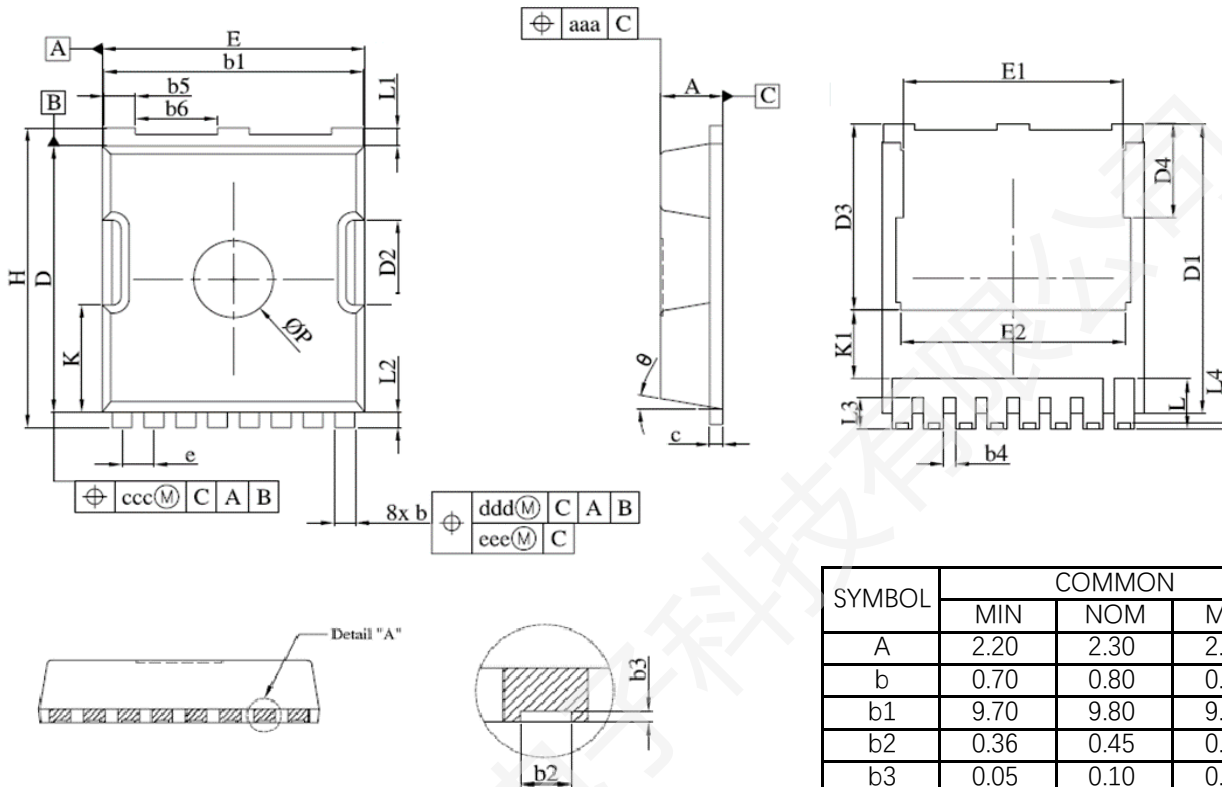


Figure 13: Max. Transient Thermal Impedance


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:


SYMBOL	COMMON		
	MIN	NOM	MAX
A	2.20	2.30	2.40
b	0.70	0.80	0.90
b1	9.70	9.80	9.90
b2	0.36	0.45	0.55
b3	0.05	0.10	0.35
b4	0.30	0.40	0.50
b5	1.10	1.20	1.30
b6	3.00	3.10	3.20
c	0.40	0.50	0.60
D	10.28	10.38	10.55
D1	10.98	11.08	11.18
D2	3.20	3.30	3.40
D3	7.00	7.15	7.30
D4	3.44	3.59	3.74
e	1.10	1.20	1.30
E	9.80	9.90	10.00
E1	8.20	8.30	8.40
E2	8.35	8.50	8.65
H	11.50	11.68	11.85
K	4.08	4.18	4.28
K1	2.45	-	-
L	1.60	1.90	2.10
L1	0.50	0.70	0.90
L2	0.50	0.60	0.70
L3	1.00	1.20	1.30
L4	0.13	0.23	0.33
P	2.85	3.00	3.15
θ	10°REF		
aaa	0.20		
ccc	0.20		
ddd	0.25		
eee	0.20		

Revision History:

Rev 1.1	Feb.2026	Formal Version
Rev 1.0	Jan.2022	Initial Version

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