

General Description:

The LWT1H02HB 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 TO-263-7L, 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 HB/D.C.	LWT1H02HB	TO-263-7L	Reel	800 Pcs

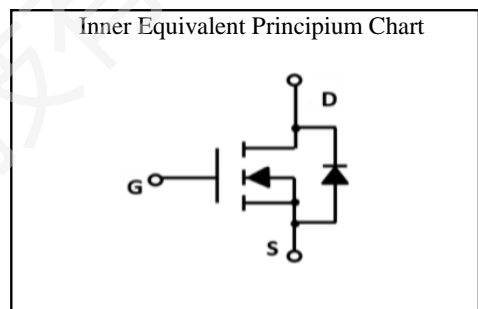
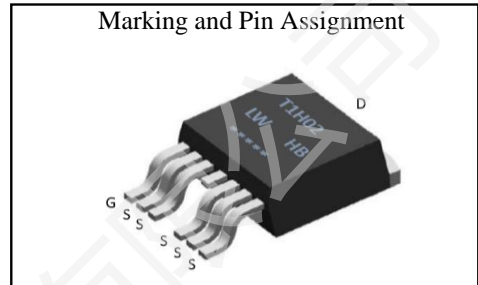
Absolute Maximum Ratings:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Voltage	100	V
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	255
	Continuous Drain Current	$T_C=100^\circ\text{C}$	161
I_{DM}^{a1}	Pulsed Drain Current	1020	A
E_{AS}^{a2}	Single pulse avalanche energy	1188	mJ
V_{GS}	Gate-to-Source Voltage	± 20	V
P_D	Power Dissipation	250	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
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.5	$^\circ\text{C}/\text{W}$
$R_{\theta JA}^{a3}$	Thermal Resistance, Junction-to-Ambient	40	$^\circ\text{C}/\text{W}$

V_{DSS}	100	V
I_D	255	A
P_D	250	W
$R_{DS(ON) \text{ TYPE}}$	1.6	$\text{m}\Omega$



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	2.3	$m\Omega$

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

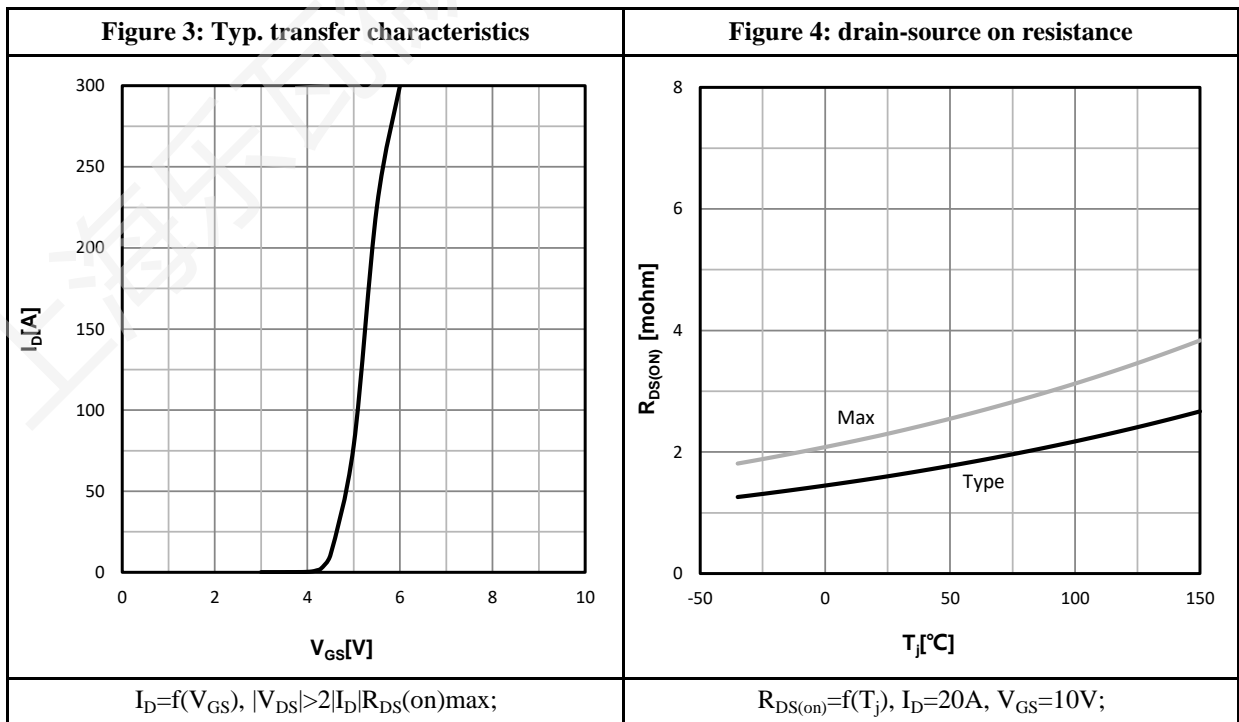
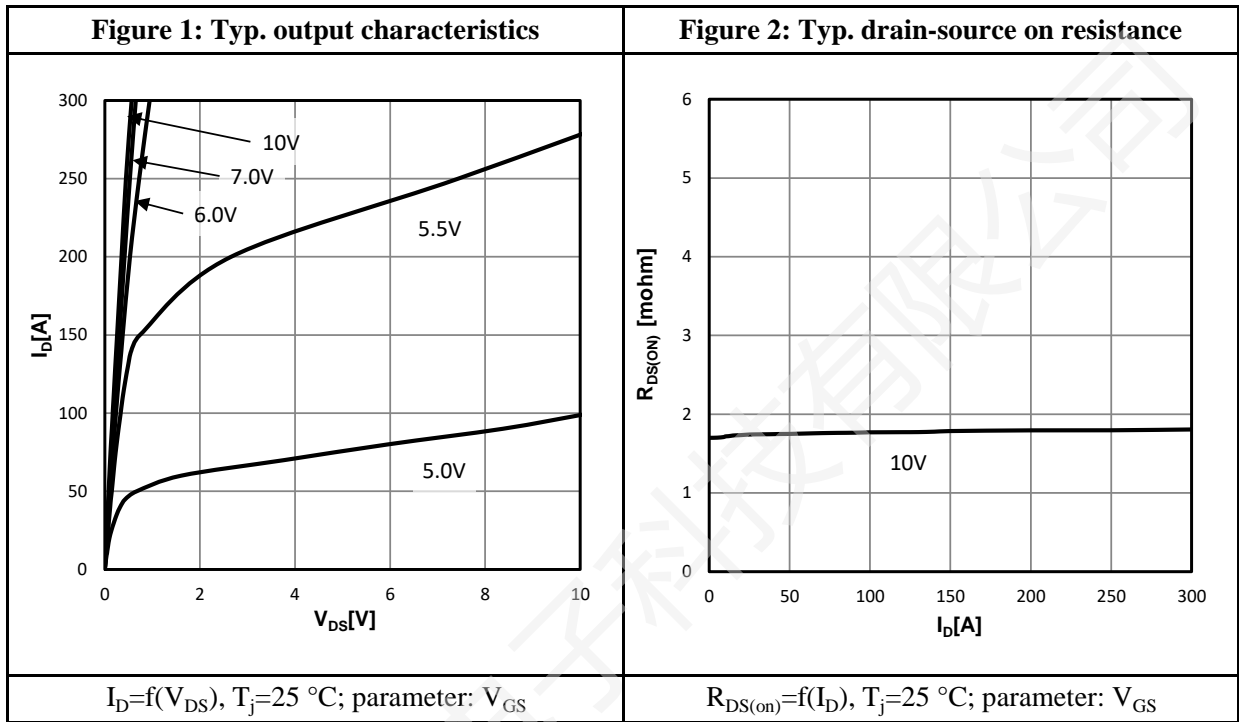
Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	$I_D=20A$	--	20	--	ns
t_r	Rise Time	$V_{DS}=50V$	--	12	--	
$t_{d(OFF)}$	Turn-Off Delay Time	$V_{GS}=10V$	--	42	--	
t_f	Fall Time	$R_G=1.6\Omega$	--	13	--	
Q_g	Total Gate Charge	$V_{GS}=10V$	--	112	--	nC
Q_{gs}	Gate Source Charge	$V_{DS}=50V$	--	35	--	
Q_{gd}	Gate Drain Charge	$I_D=20A$	--	22	--	

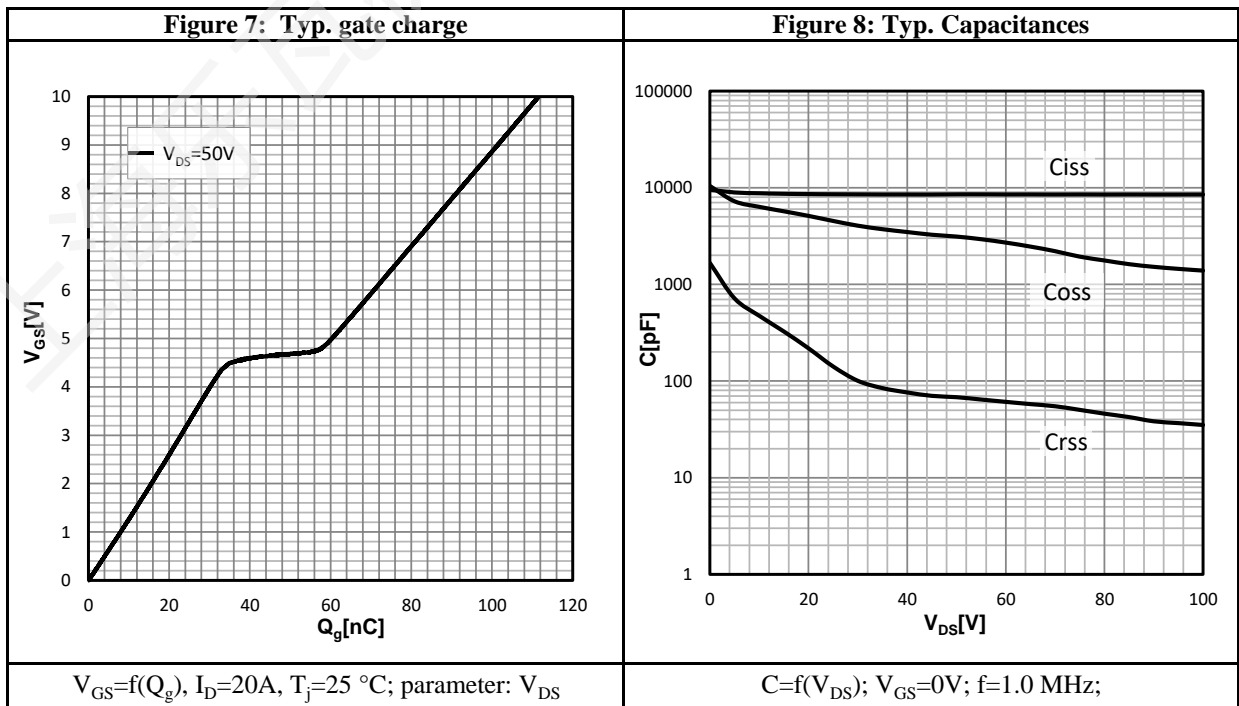
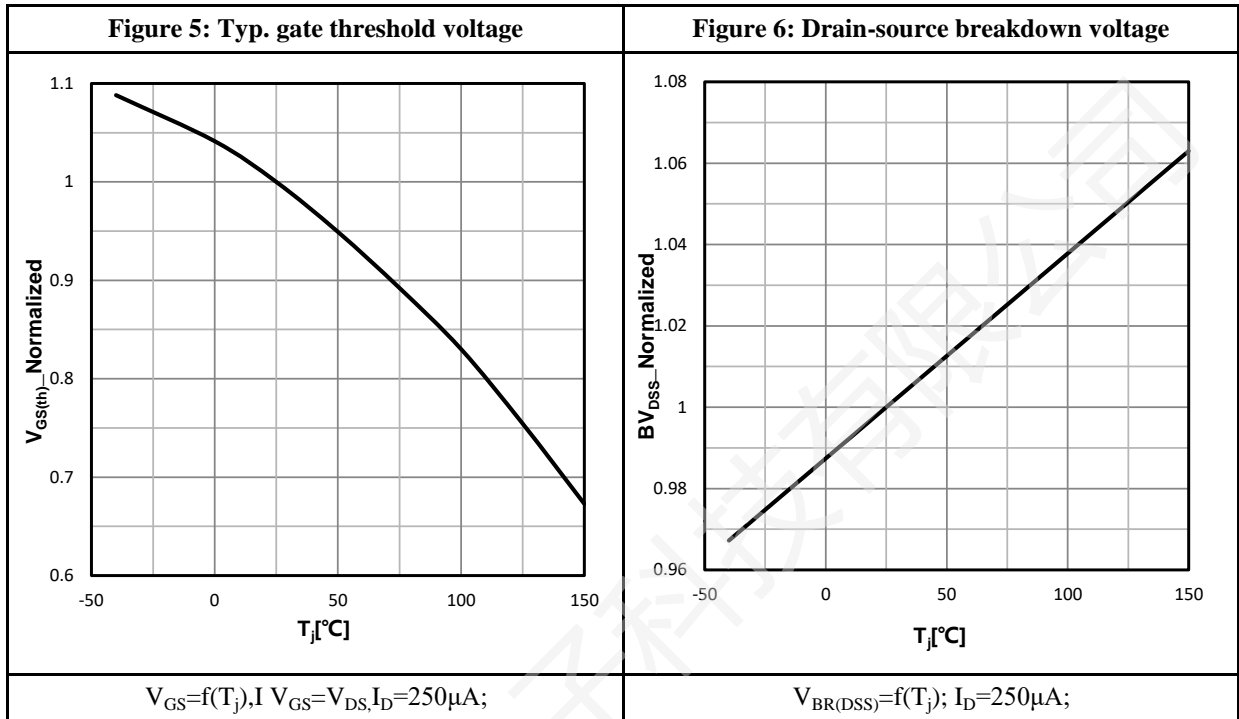
Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
I_S	Diode Forward Current	$T_C=25\text{ }^\circ\text{C}$	--	--	255	A
V_{SD}	Diode Forward Voltage	$I_S=20A, V_{GS}=0V$	--	--	1.2	V
t_{rr}	Reverse Recovery Time	$I_S=20A, V_{DD}=50V$	--	128	--	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=100A/\mu s$	--	293	--	nC

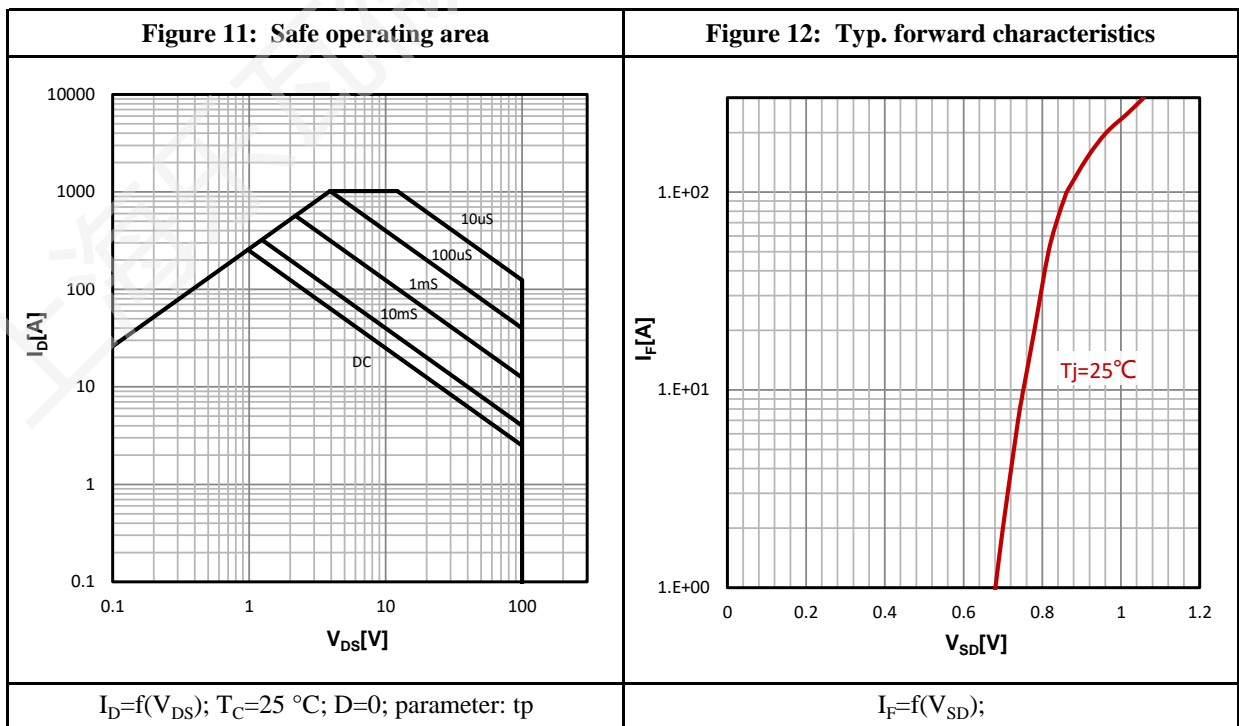
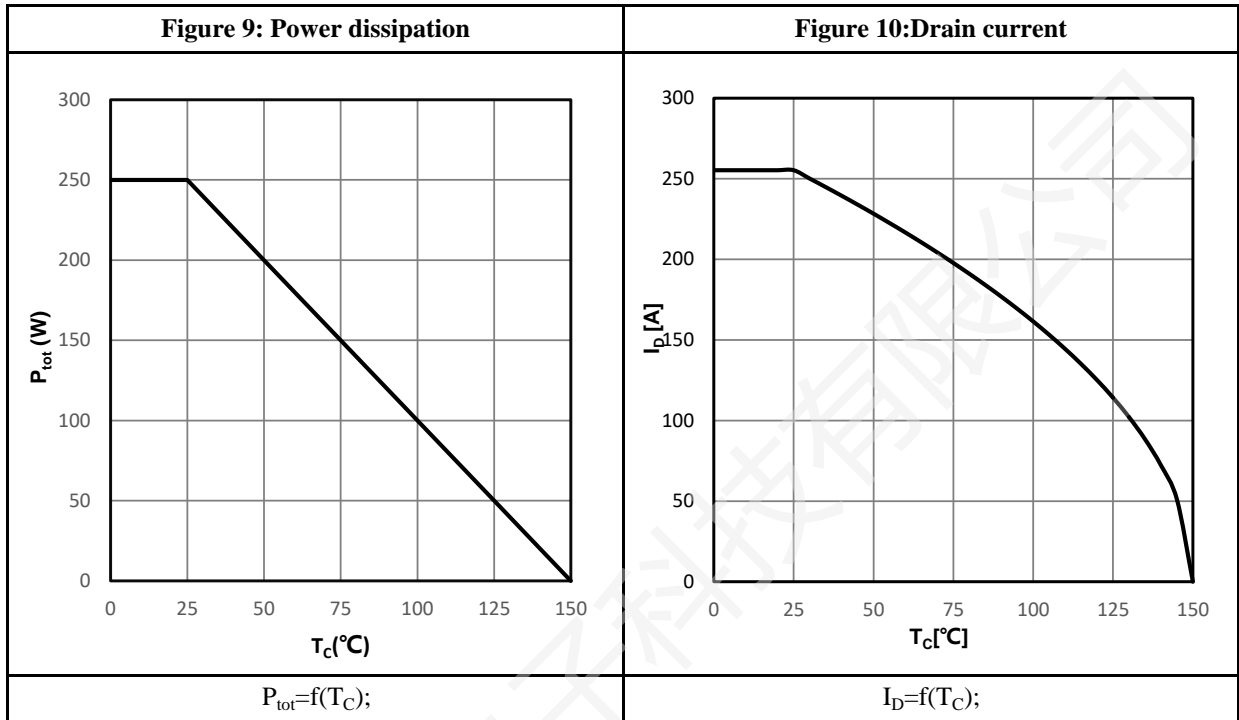
a1: Repetitive rating; pulse width limited by maximum junction temperature

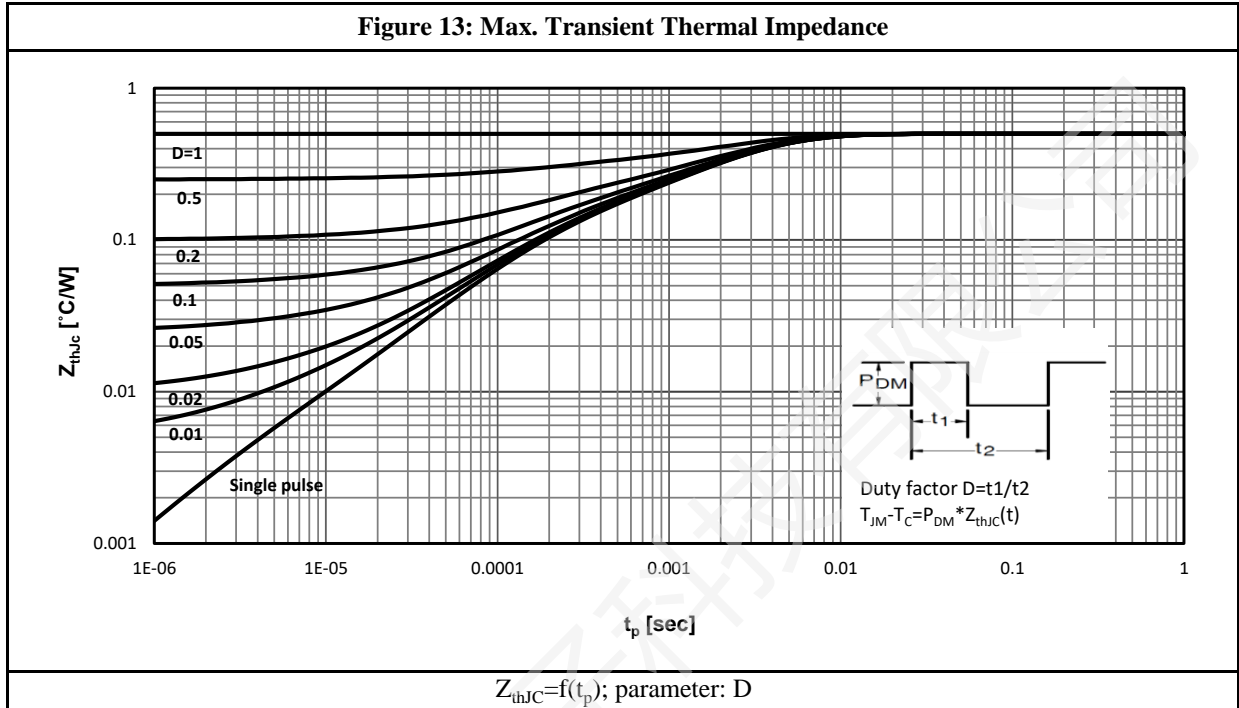
a2: $V_{DD}=50V, L=0.2mH, R_G=25\Omega$, Starting $T_j=25\text{ }^\circ\text{C}$

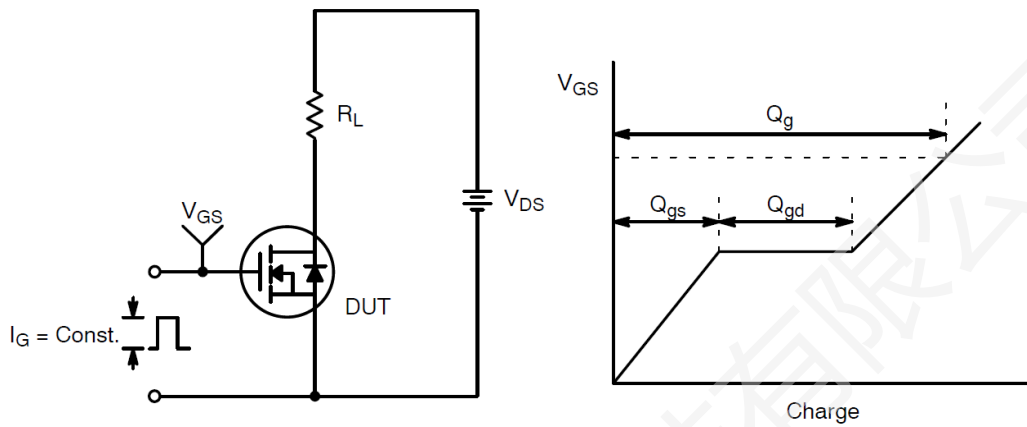
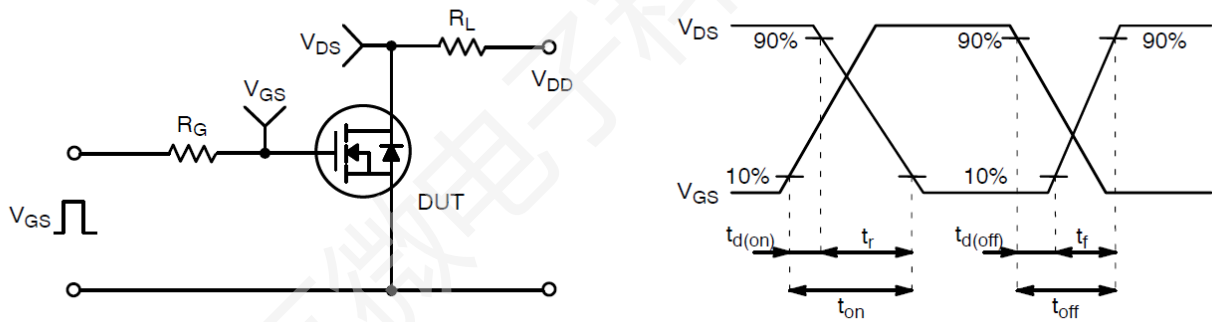
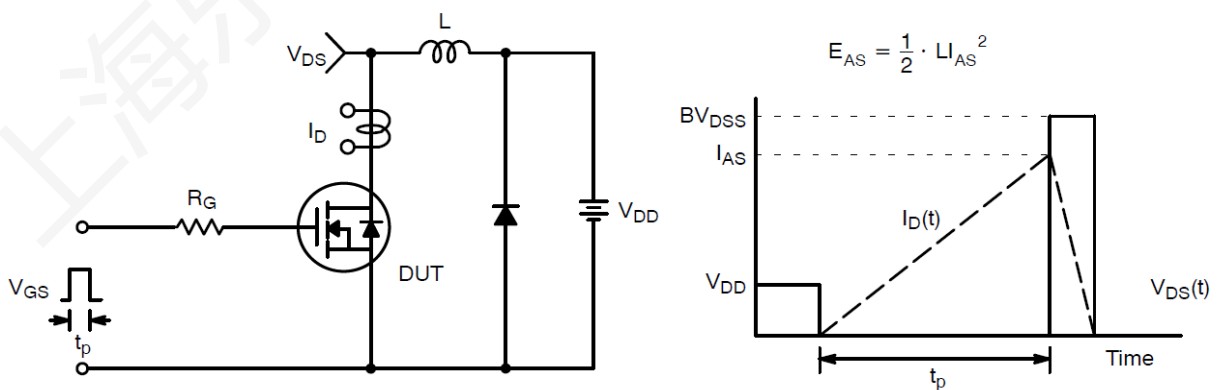
a3: Device on 40 mm x 40 mm x 1.5 mm epoxy PCB FR4 with 6 cm² (one layer, 70 μm thick) copper area for drain connection.

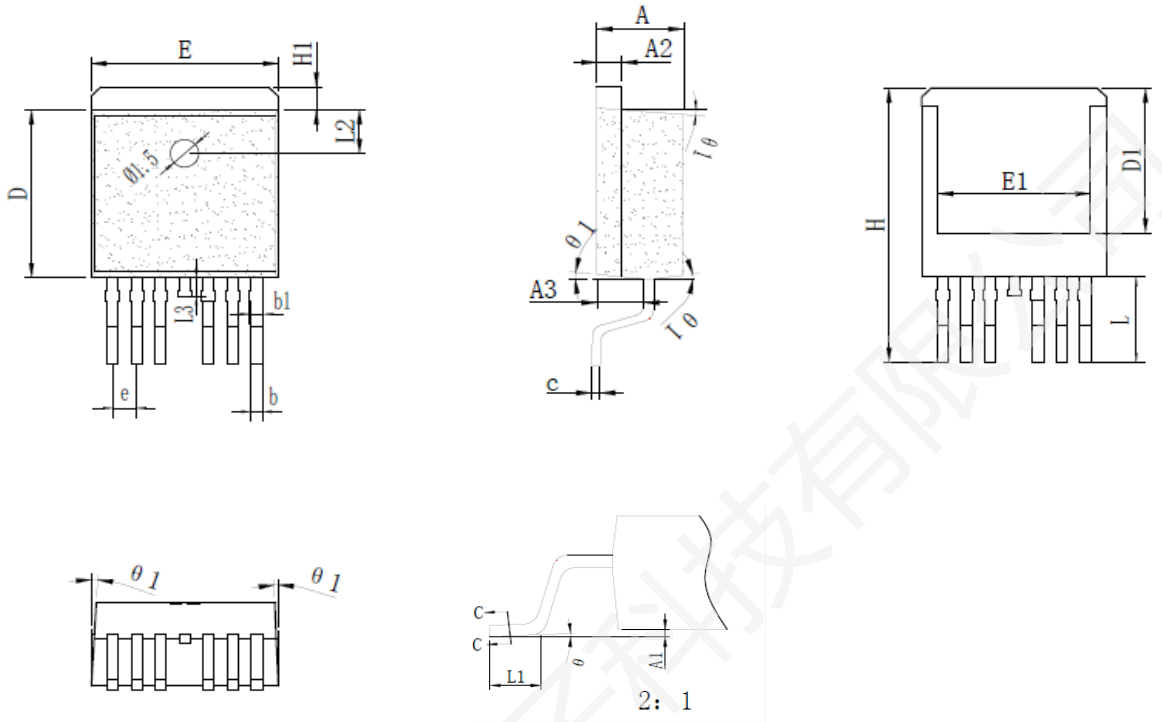
Characteristics Curve:








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 (mm)		
	MIN	NOM	MAX
A	4.30	4.40	4.50
A1	0.00	0.10	0.20
A2	1.22	1.27	1.32
A3	2.30	2.40	2.50
b	0.50	0.60	0.70
b1	0.59	0.61	0.63
c	0.45	0.50	0.55
D	9.10	9.20	9.30
D1	7.80	8.00	8.20
E	9.80	10.00	10.20
E1	8.40	8.60	8.80
e	1.25	1.27	1.29
H	14.85	15.00	15.15
H1	0.90	1.00	1.10
L	4.50	4.70	4.90
L1	2.40	2.70	3.00
L2	2.20	2.30	2.40
L3	0.85	1.00	1.15
θ	0°	2.5°	8°
θ1	5°	7°	9°

Revision History:

Rev 1.0	Sep.2025	Initial Version
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