

General Description:

The LW7002BDA 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 DFN1006-3L, which accords with the ROHS standard and Halogen Free standard.

Features:

- Fast Switching
- Low Gate Charge and $R_{DS(ON)}$
- Low Reverse transfer capacitances
- ESD Rating: HBM $\geq 3000V$

Applications:

- DC-DC Converter
- Portable Equipment
- Power Management

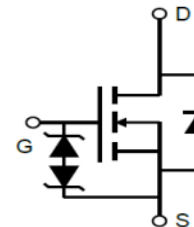


V_{DSS}	60	V
I_D	0.30	A
P_D	0.35	W
$R_{DS(ON)}$ TYPE	2.0	Ω

Marking and Pin Assignment



Inner Equivalent Principium Chart



Package Marking and Ordering Information:

Marking	Part Number	Package	Packing	Qty.
D** ^(a1)	LW7002BDA	DFN1006-3L	Reel	10000 Pcs

Absolute Maximum Ratings:

Symbol	Parameter		Value	Units
V_{DSS}	Drain-to-Source Voltage		60	V
I_D	Continuous Drain Current	$T_A=25^\circ C$	0.30	A
	Continuous Drain Current	$T_A=100^\circ C$	0.19	A
I_{DM}^{a2}	Pulsed Drain Current		1.20	A
V_{GS}	Gate-to-Source Voltage		± 20	V
P_D	Power Dissipation		0.35	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
$R_{\theta JA}^{a3}$	Thermal Resistance, Junction-to-Ambient	350	$^\circ C/W$

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	$V_{GS}=0V, I_D=250\mu A$	60	--	--	V
I_{DSS}	Drain to Source Leakage Current	$V_{DS}=60V, V_{GS}=0V$	--	--	1.0	μA
$I_{GSS(F)}$	Gate to Source Forward Leakage	$V_{GS}=+20V, V_{DS}=0V$	--	--	2.5	μA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	$V_{GS}=-20V, V_{DS}=0V$	--	--	-2.5	μA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
$R_{DS(ON)1}$	Drain-to-Source On-Resistance	$V_{GS}=10V, I_D=0.3A$	--	2.0	2.5	Ω
$R_{DS(ON)1}$	Drain-to-Source On-Resistance	$V_{GS}=4.5V, I_D=0.2A$	--	2.3	3.0	Ω

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	$V_{GS}=0V$ $V_{DS}=30V$ $f=1.0MHz$	--	13.6	--	pF
C_{oss}	Output Capacitance		--	6.4	--	
C_{rss}	Reverse Transfer Capacitance		--	2.0	--	
R_G	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	--	42	--	Ω

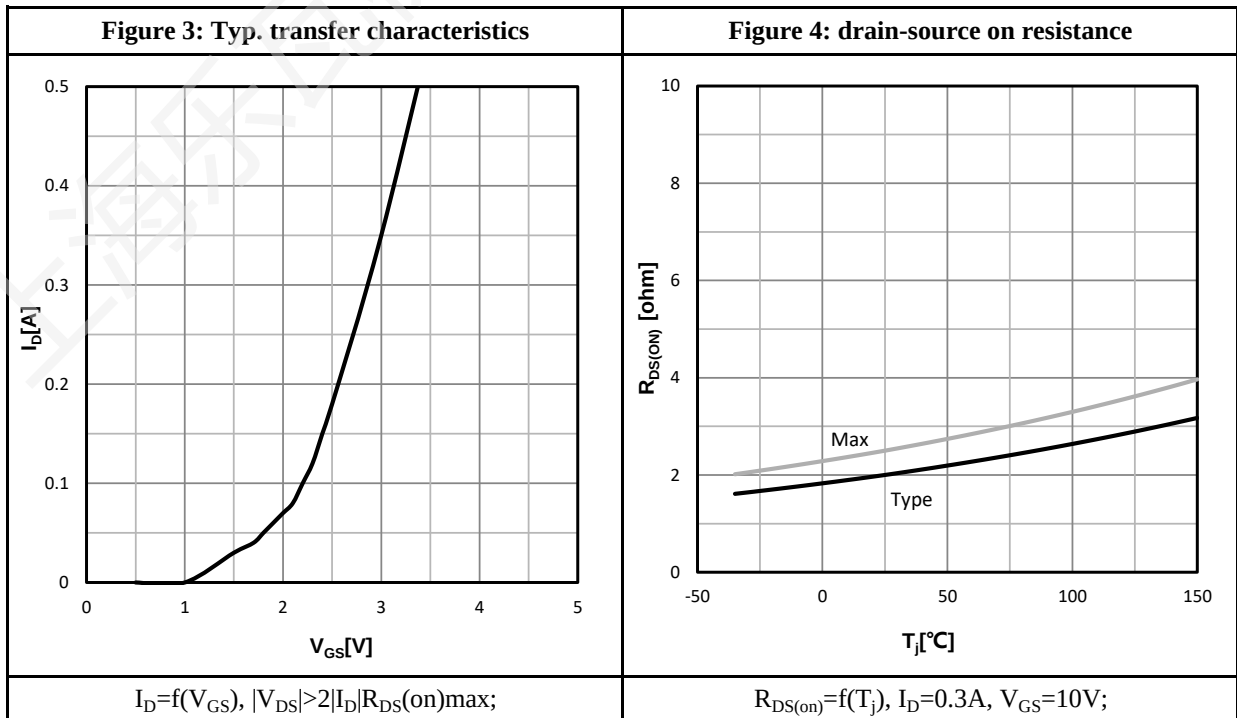
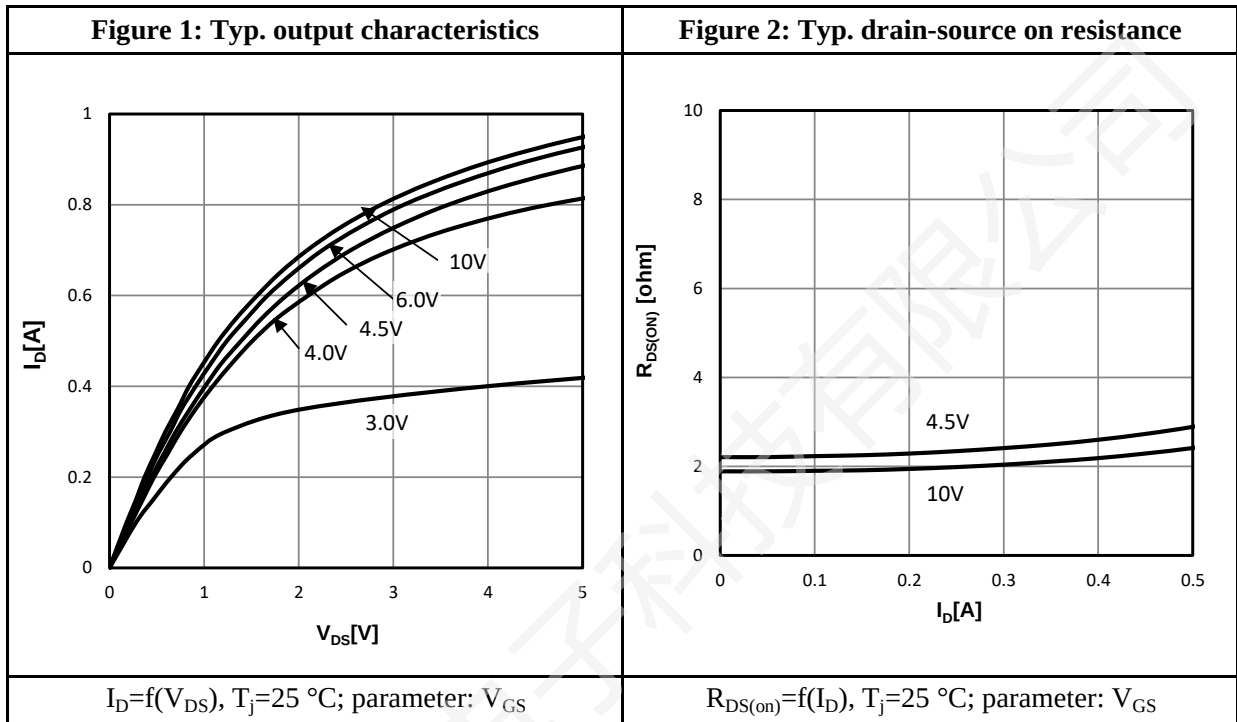
Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	$I_D=0.3A$ $V_{DS}=30V$ $V_{GS}=10V$ $R_G=10\Omega$	--	11	--	ns
t_r	Rise Time		--	52	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	18	--	
t_f	Fall Time		--	9	--	
Q_g	Total Gate Charge	$V_{GS}=10V$ $V_{DS}=30V$ $I_D=0.3A$	--	1.74	--	nC
Q_{gs}	Gate to Source Charge		--	0.44	--	
Q_{gd}	Gate to Drain Charge		--	0.17	--	

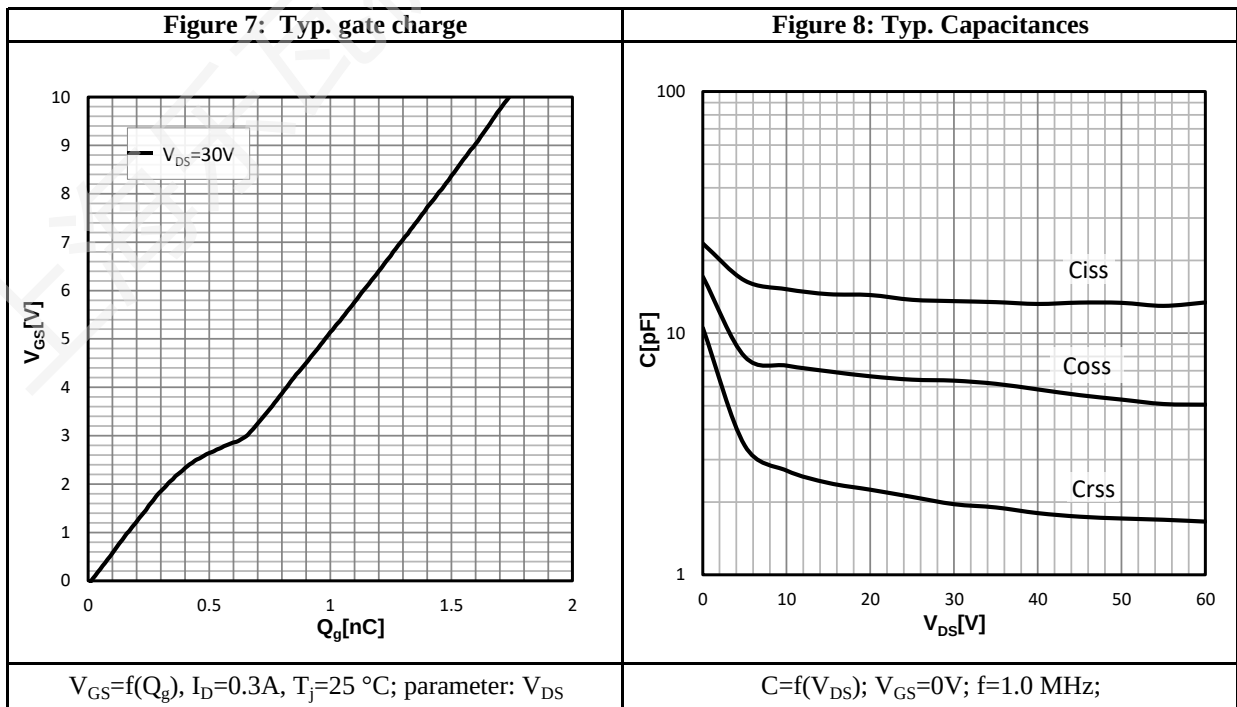
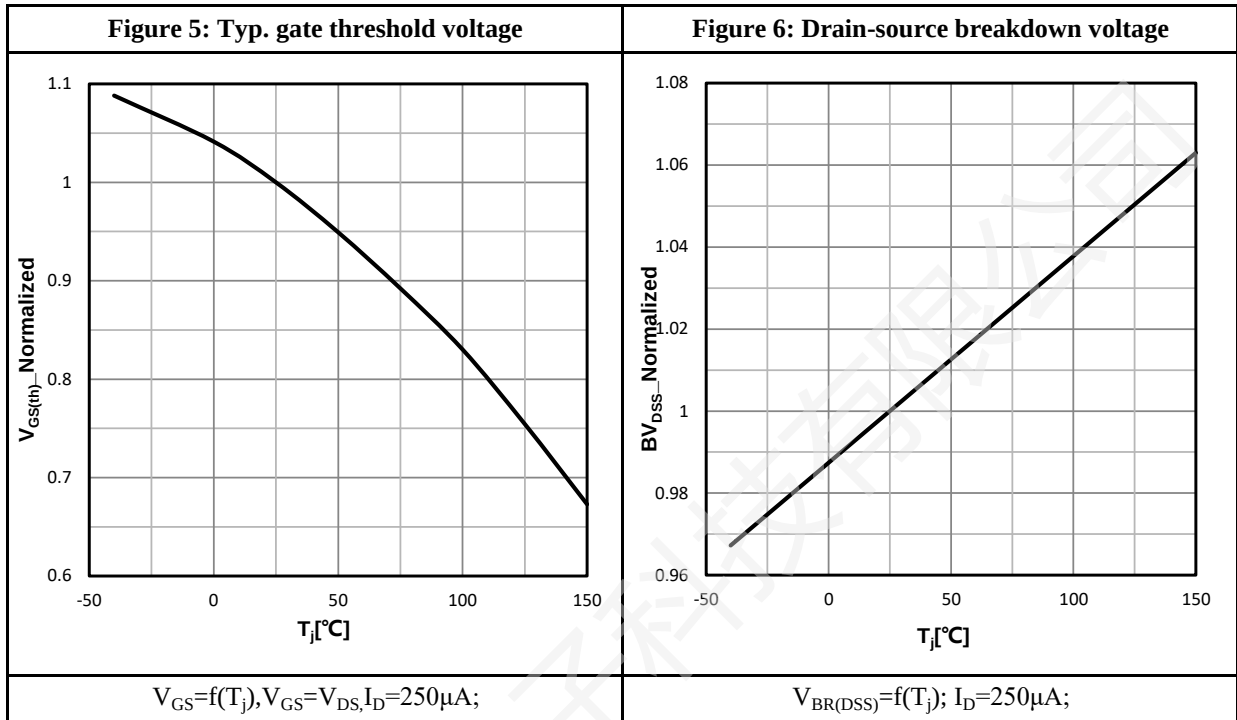
Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Value			Units
			Min.	Typ.	Max.	
I_S	Diode Forward Current	$T_A=25\text{ }^{\circ}\text{C}$	--	--	0.30	A
V_{SD}	Diode Forward Voltage	$I_S=0.3A, V_{GS}=0V$	--	--	1.2	V

a1: ** is defined as date code

a2: Repetitive rating; pulse width limited by maximum junction temperature

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:




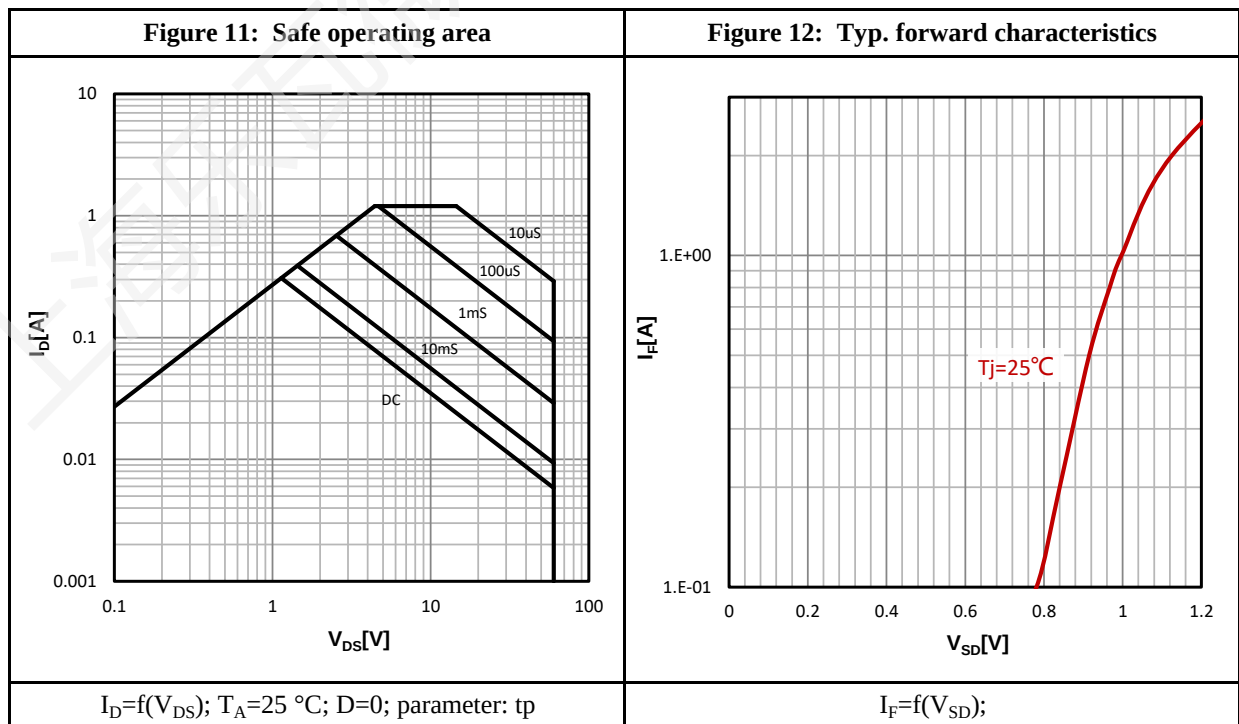
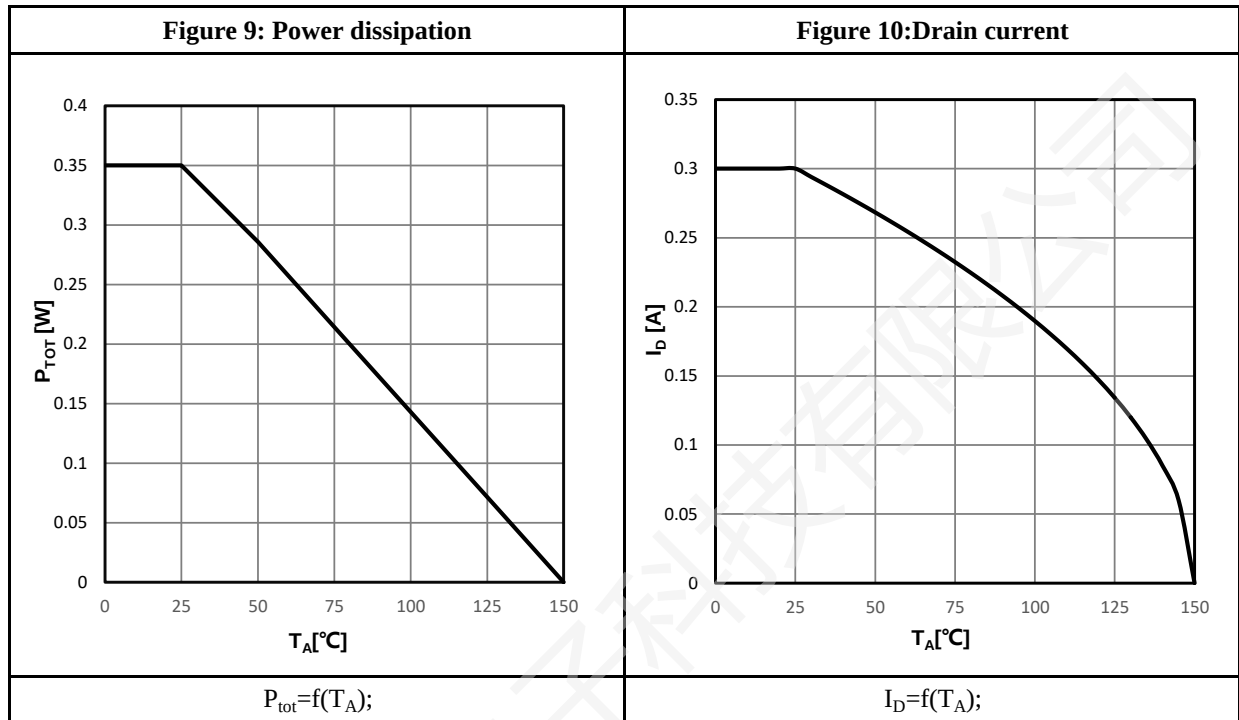
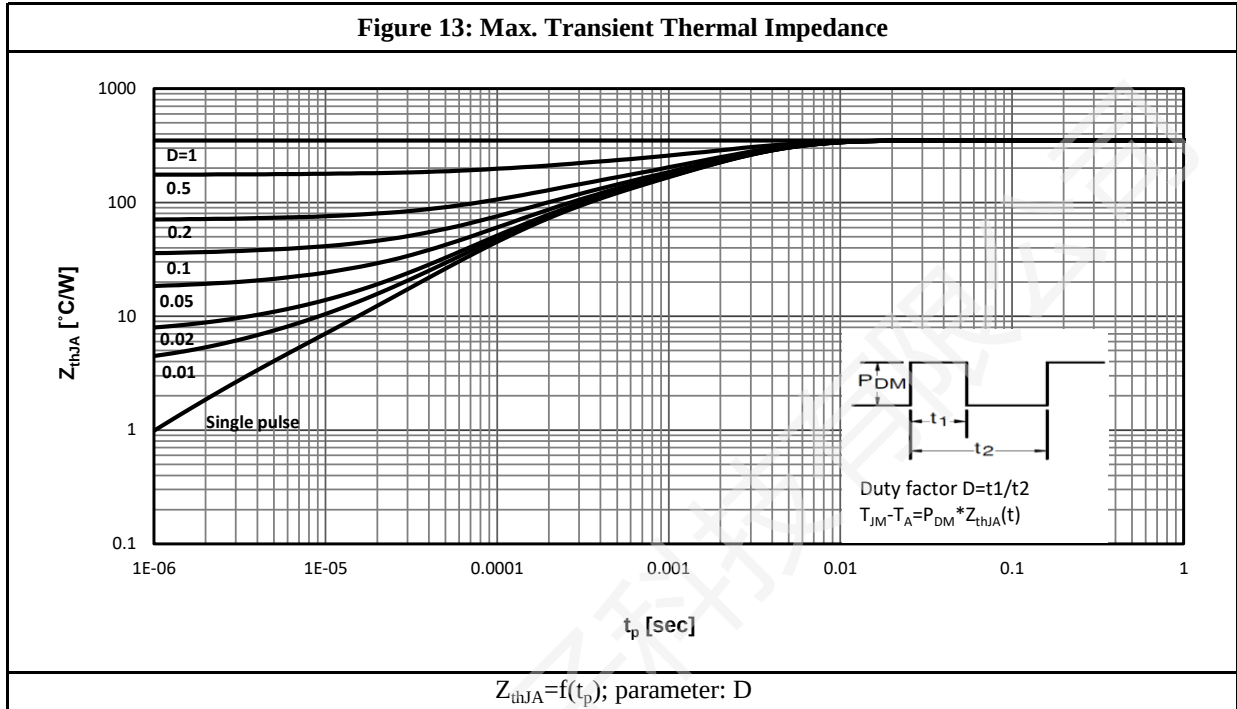
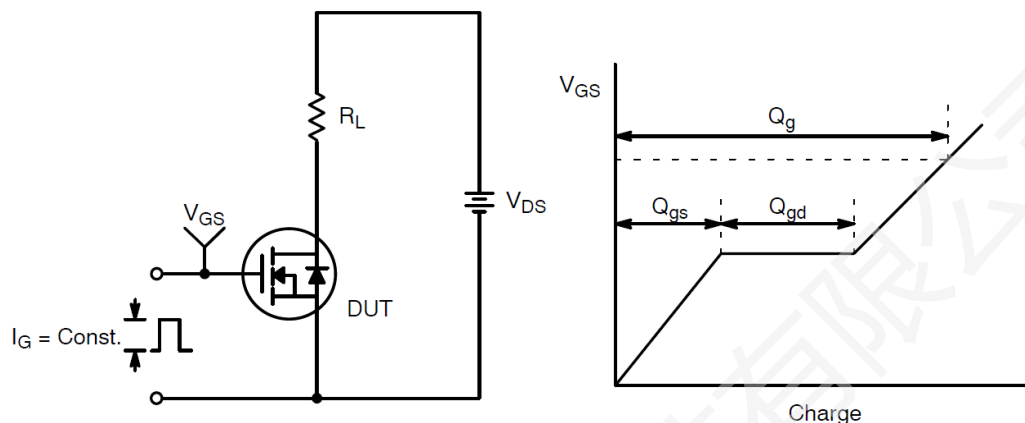
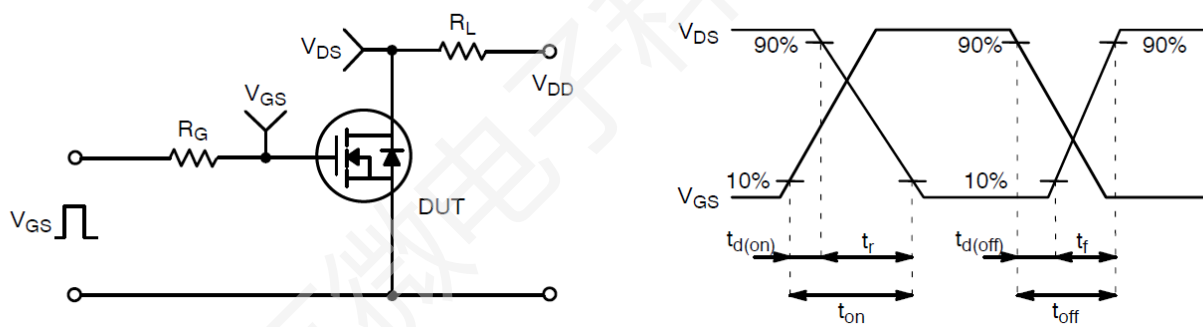
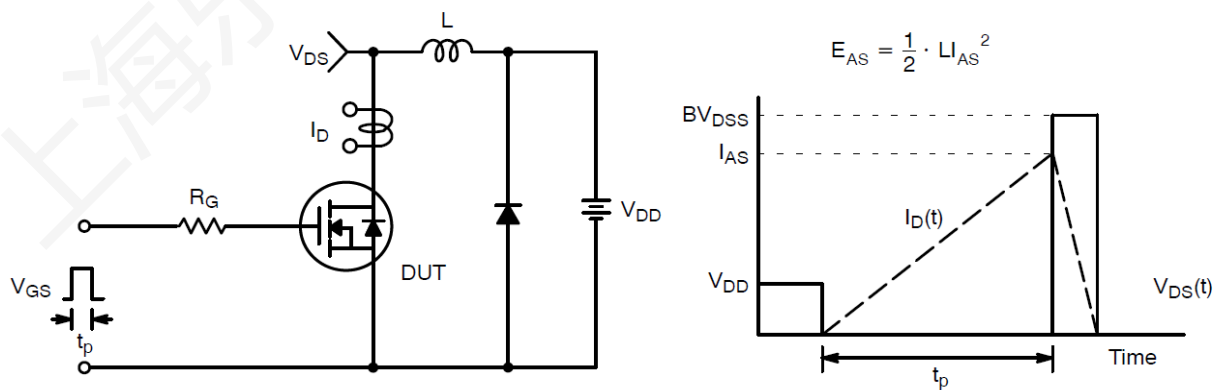
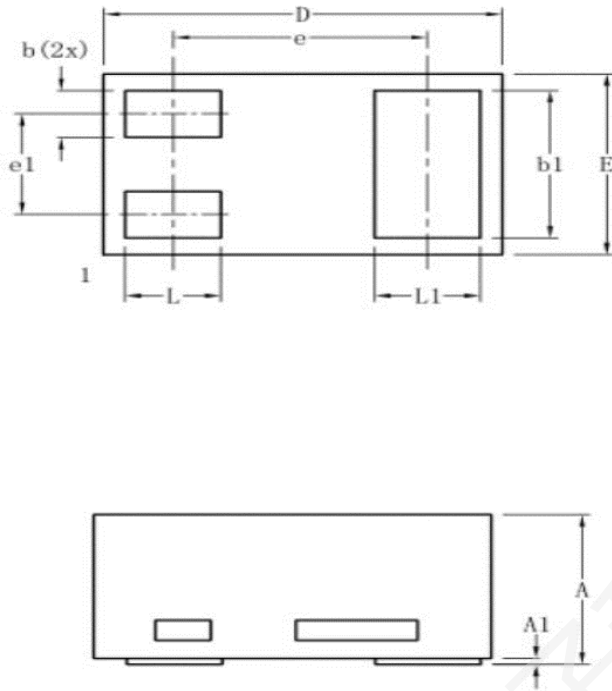


Figure 13: Max. Transient Thermal Impedance


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:


COMMON DIMENSION (MM)			
Symbol	MIN	NOM	MAX
A	0.450	0.500	0.550
A1	0.000	0.020	0.060
b	0.100	0.150	0.200
b1	0.440	0.500	0.560
D	0.950	1.000	1.050
e1	0.300	0.350	0.400
e	0.600	0.650	0.700
E	0.550	0.600	0.650
L/L1	0.200	0.250	0.300

Revision History:

Revison	Date	Descriptions
Rev 1.0	Mar.2026	Initial Version

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