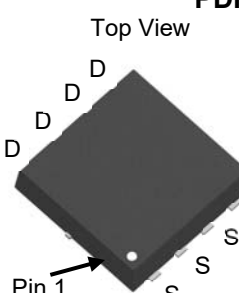
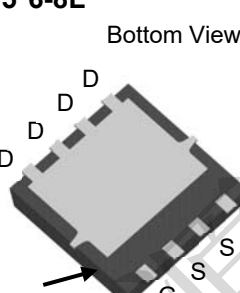
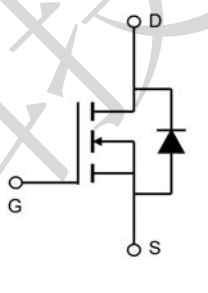


N-Channel Enhancement-Mode MOSFET (30V,110A)

PRODUCT SUMMARY

V_{DS}	I_D	$R_{DS(on)}$ (m Ω) Typ.
30V	120A	1.6@ $V_{GS} = 10V$, $I_D=20A$
		2.8@ $V_{GS} = 4.5V$, $I_D=20A$

Features	Applications
- Super high density cell design for extremely low $R_{DS(ON)}$ - Exceptional on-resistance and maximum DC current capability - Excellent $Q_g \times R_{DS(ON)}$ product (FOM) - Lead (Pb) -free and halogen-free	- Load switch - Power Tool Application - Uninterruptible Power System - Battery Management

PDFN5*6-8L		TOP Marking
 Top View	 Bottom View	
		 ET6310A XXXXXX
		XXXXXX:D/C

Absolute Maximum Ratings (T_A=25°C, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current (Continuous)@T _A =25°C	120	A
	Drain Current (Continuous)@T _A =75°C	80	A
I_{DM}	Drain Current (Pulsed) ^a	290	A
P_D	Total Power Dissipation @T _c =25°C	78	W
	Total Power Dissipation @T _c =75°C	29	W
EAS	Avalanche energy, single pulsed	145	mJ
I_S	Maximum Diode Forward Current	110	A
T _j , T _{stg}	Operating Junction and Storage Temperature Range	-55 to +150	°C
R _{QJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	17	°C/W

a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

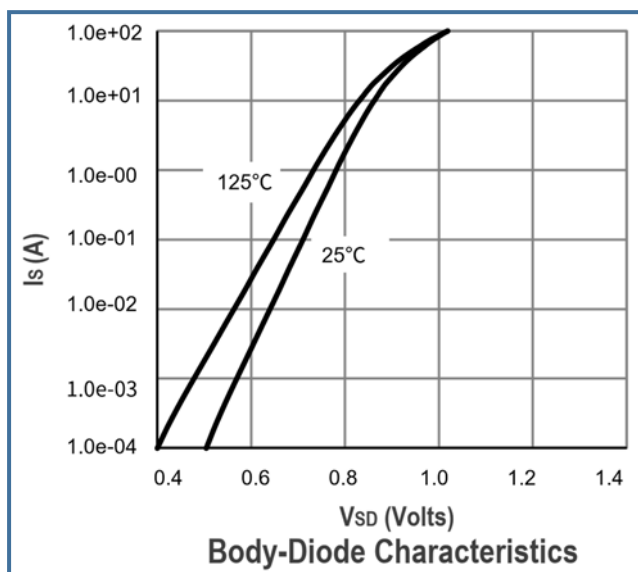
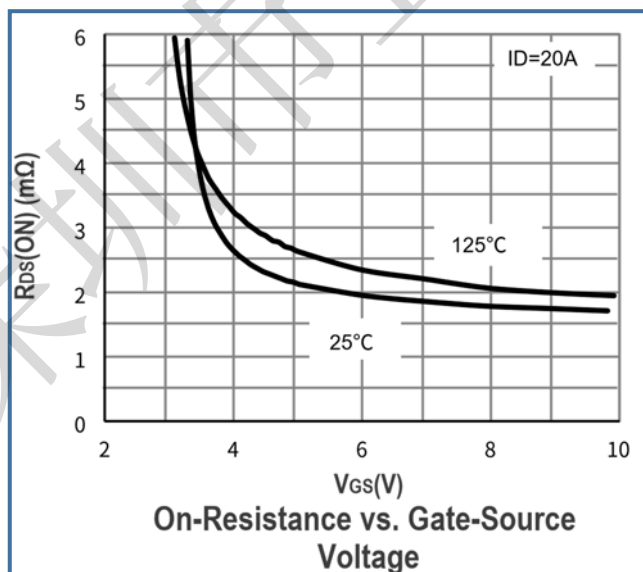
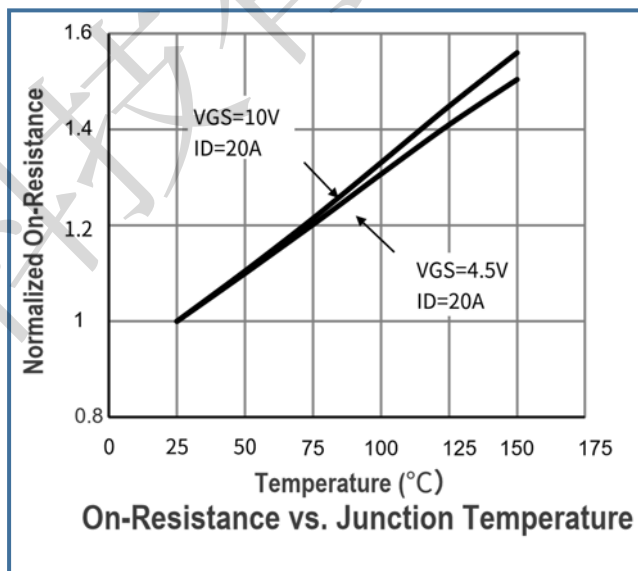
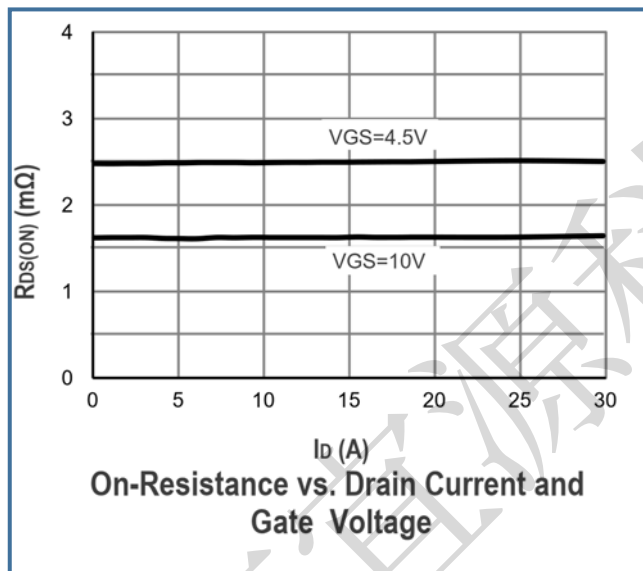
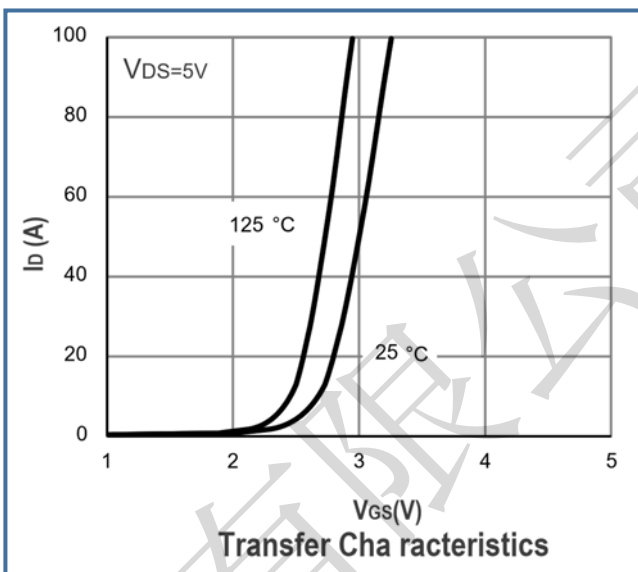
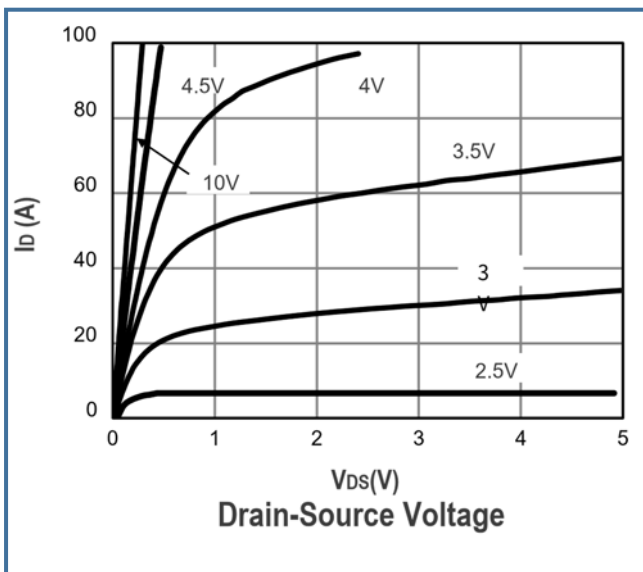
b: 1-in² 2oz Cu PCB board

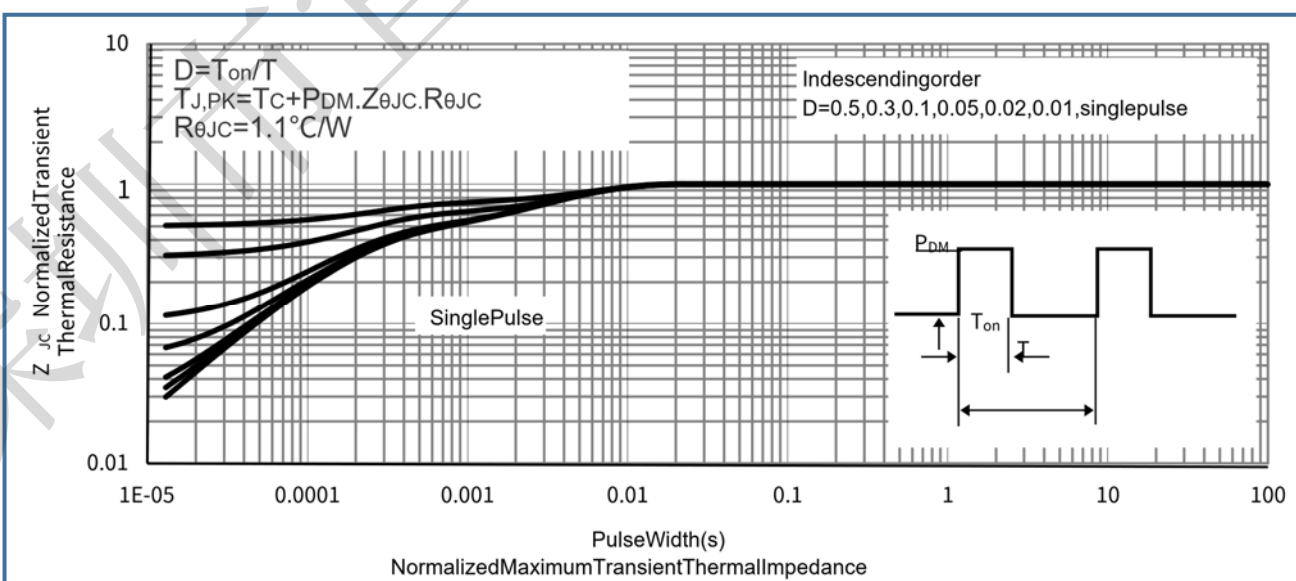
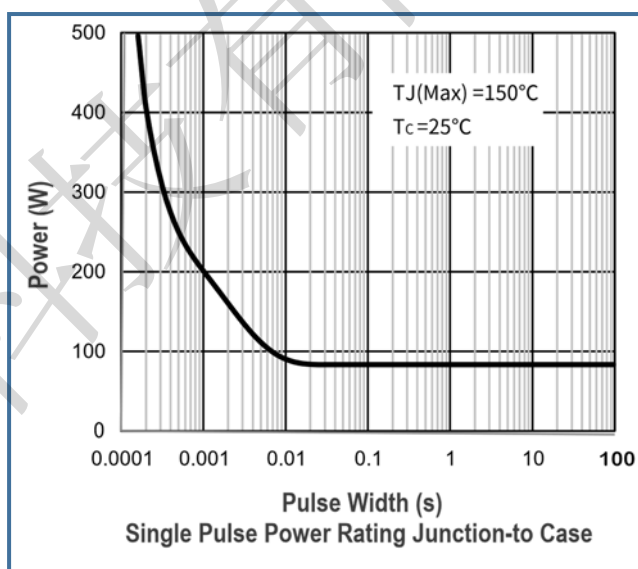
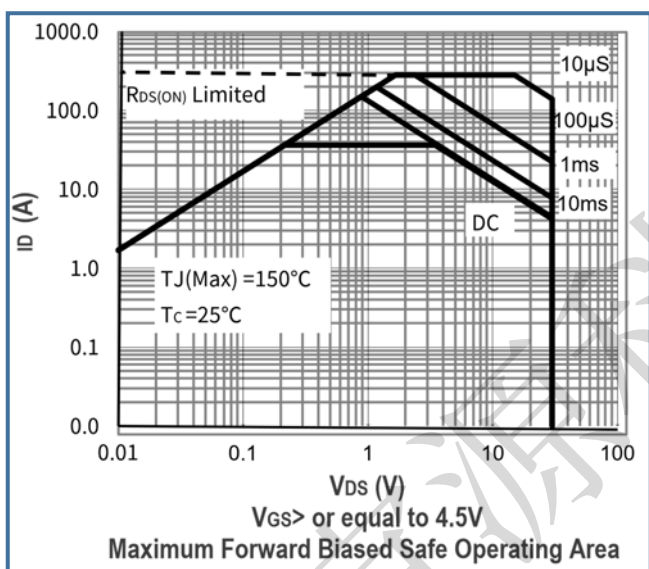
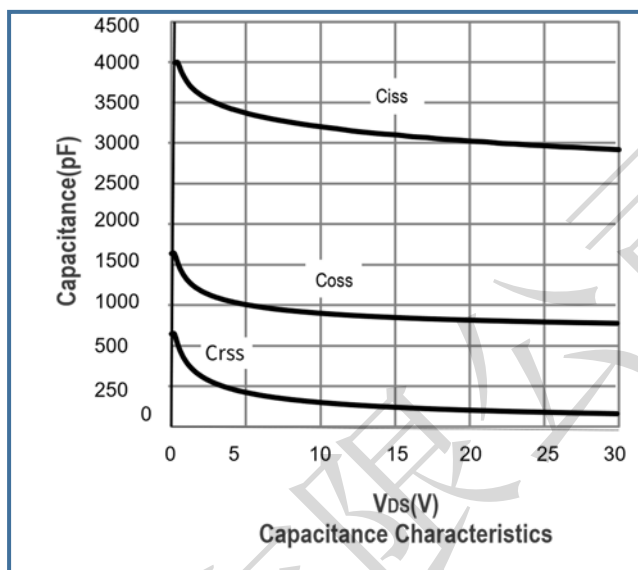
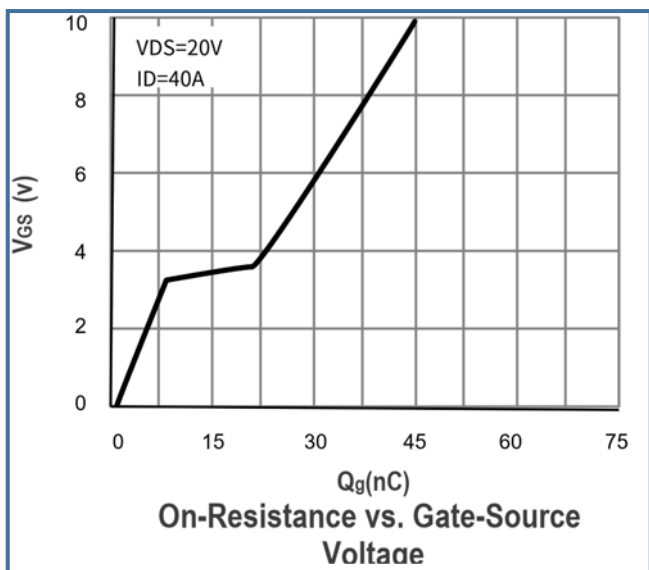
Electrical Characteristics (TA=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
• On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.3	1.7	2.2	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =20A	-	1.6	2.0	mΩ
		V _{GS} =4.5V, I _D =20A	-	2.8	3.5	
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =40A		125		S
• Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	-	3100	-	PF
C _{oss}	Output Capacitance		-	980	-	
C _{rss}	Reverse Transfer Capacitance		-	172	-	
• Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =15V, I _D =20A, V _{GS} =10V	-	45	-	nC
Q _{gs}	Gate-Source Charge		-	8.2	-	
Q _{gd}	Gate-Drain Charge		-	15	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =15V, R _L =15Ω, I _D =20A, V _{GEN} =10V, R _G =3Ω	-	7.3	-	nS
t _r	Turn-on Rise Time		-	5.0	-	
t _{d(off)}	Turn-off Delay Time		-	28	-	
t _f	Turn-off Fall Time		-	9	-	
• Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =20A	-	-	1.2	V
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	0.8	-	Ω

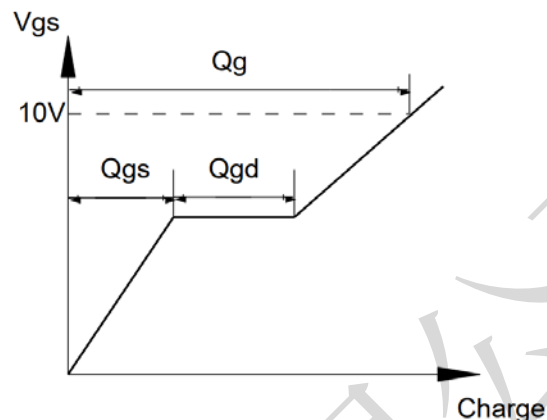
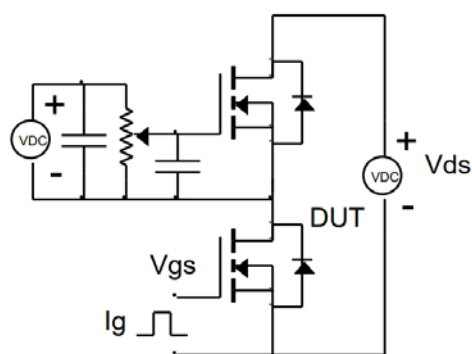
Note: Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

Typical Characteristics Curves (Ta=25°C, unless otherwise note)

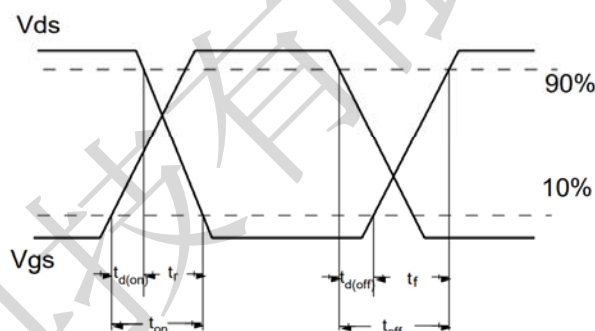
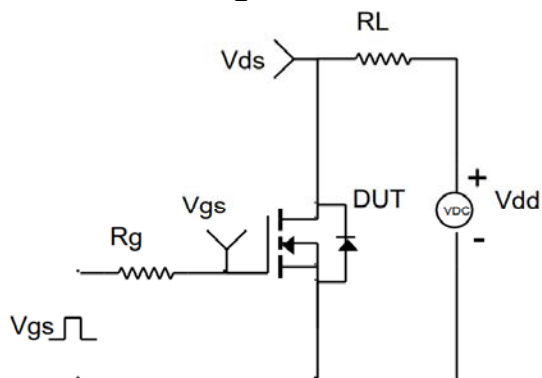




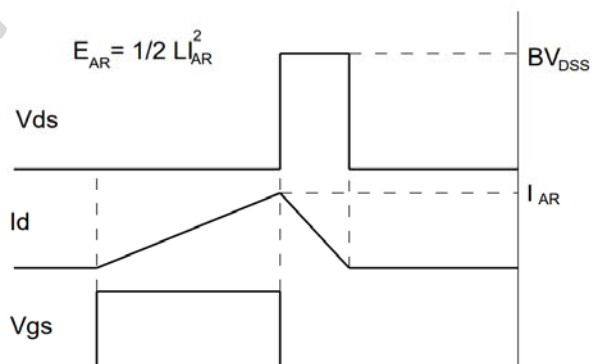
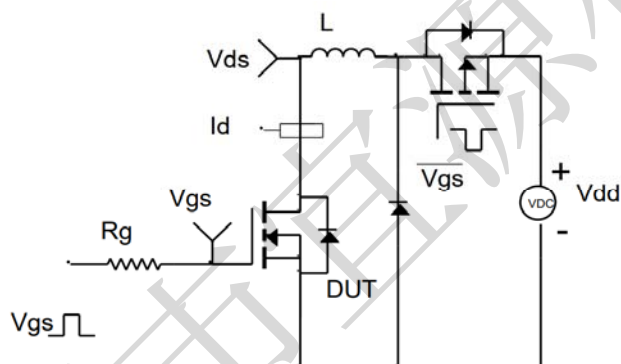
Gate Charge Test Circuit & Waveforms



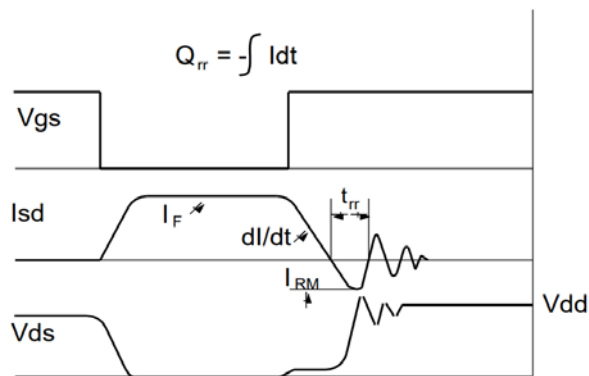
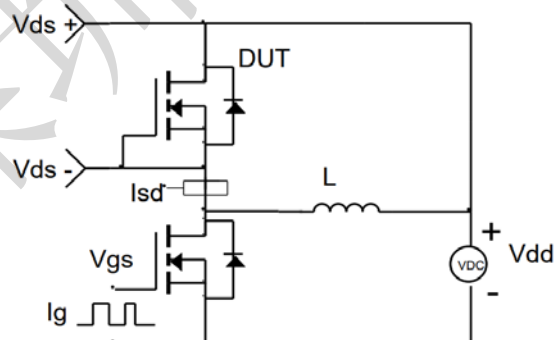
Resistive Switching Test Circuit & Waveforms



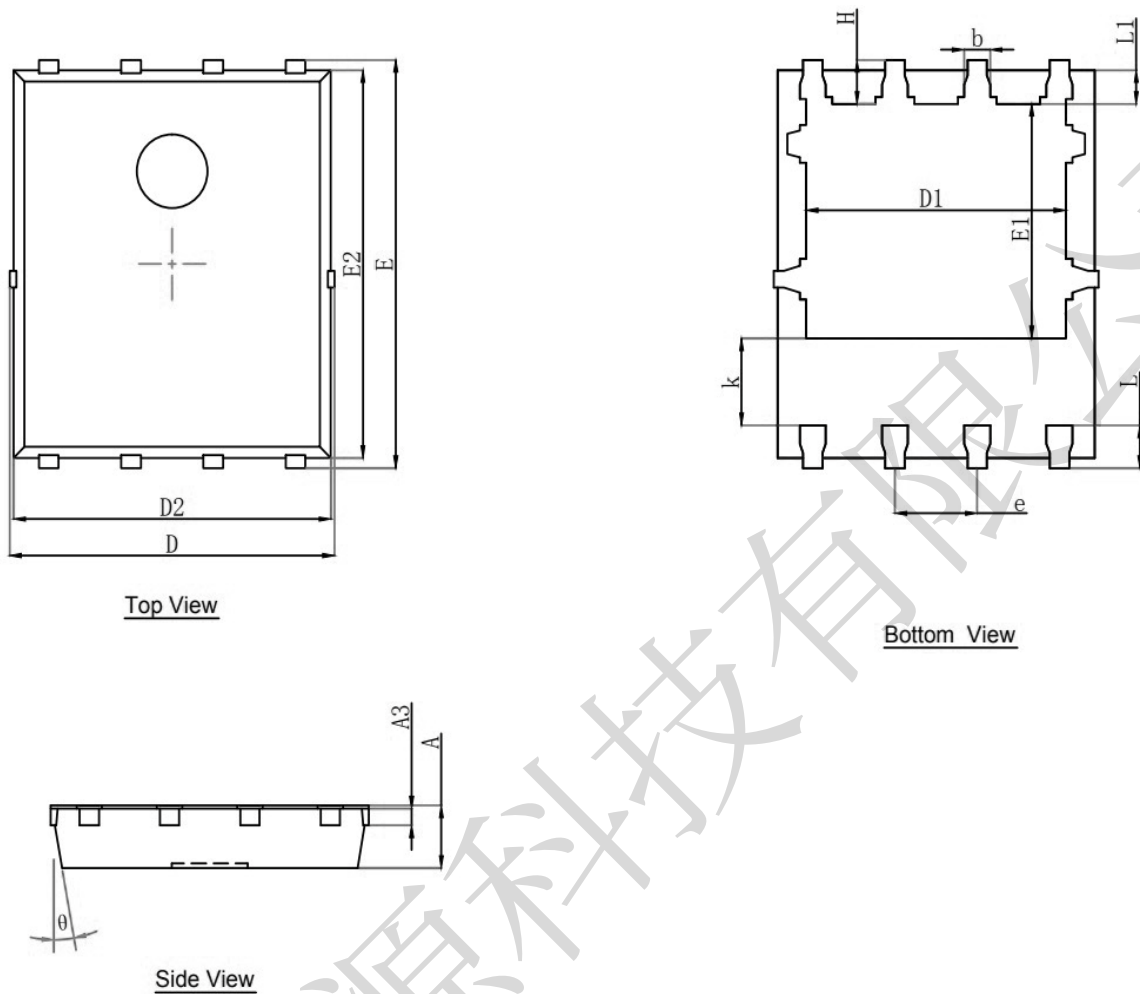
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



PDFN5*6-8L EP1 Package Outline Data



Symbol	Dimensions (unit : mm)		
	Min	TYP	Max
A	0.90		1.0
A3	0.254REF		
D	4.94	5.00	5.1
E	5.97	6.00	6.1
D1	3.91	4.00	4.1
E1	3.37	3.50	3.6
D2	4.82	4.90	5
E2	5.67	5.70	5.8
k	1.19	1.30	1.4
b	0.35	0.35	0.45
e	1.27TYP		
L	0.56	0.65	0.71
L1	0.52	0.55	0.58
H	0.57	0.60	0.73
θ	10°	11°	12°