

Dual N-Channel Enhancement-Mode MOSFET (20V,15A)

PRODUCT SUMMARY

V_{DS}	I_D	$R_{DS(on)}$ (m Ω) Typ.
20V	15A	4.0@ $V_{GS} = 4.5V$, $I_D=10A$
		4.3@ $V_{GS} = 4.0V$, $I_D=5.0A$
		5.3@ $V_{GS} = 2.5V$, $I_D=2.5A$

Features	Applications
- Super high density cell design for extremely low $R_{DS(ON)}$ - Exceptional on-resistance and maximum DC current capability - ESD Rating:2000V HBM - Lead (Pb) -free and halogen-free	- Single-cell lithium battery protection board - Power Management in Notebook Computer Portable Equipment and Battery

	TOP Marking
	 ET8830 XXXXXX XXXXXX:D/C

Absolute Maximum Ratings ($T_A=25^{\circ}C$, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Drain Current (Continuous)@ $T_A=25^{\circ}C$	15	A
	Drain Current (Continuous)@ $T_A=75^{\circ}C$	12	A
I_{DM}	Drain Current (Pulsed) ^a	60	A
P_D	Total Power Dissipation @ $T_c=25^{\circ}C$	1.9	W
	Total Power Dissipation @ $T_c=75^{\circ}C$	1.2	W
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^{\circ}C$
R_{QJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	35	$^{\circ}C/W$

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

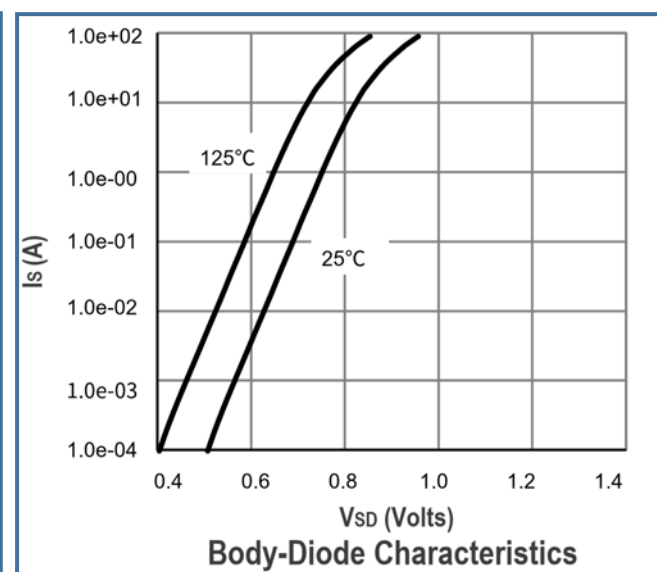
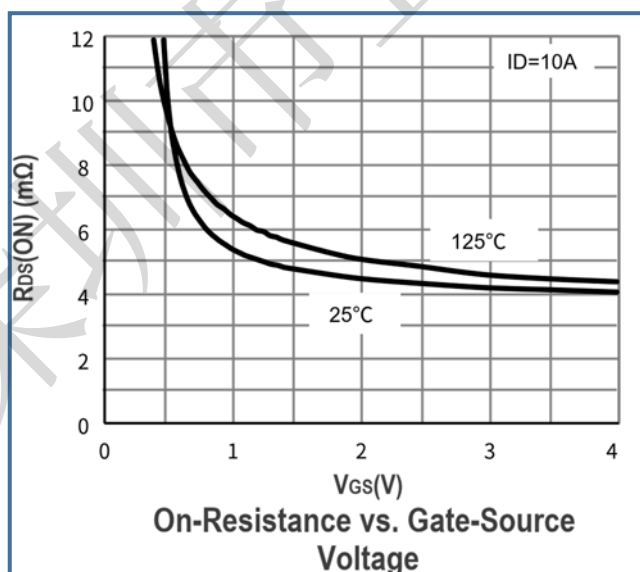
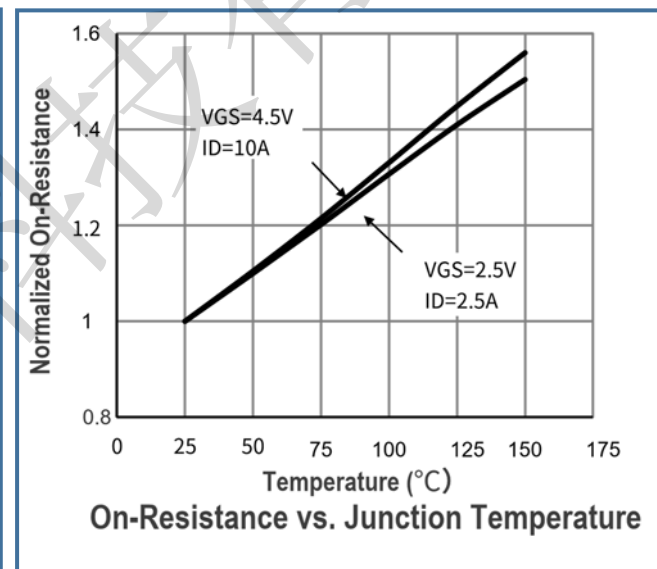
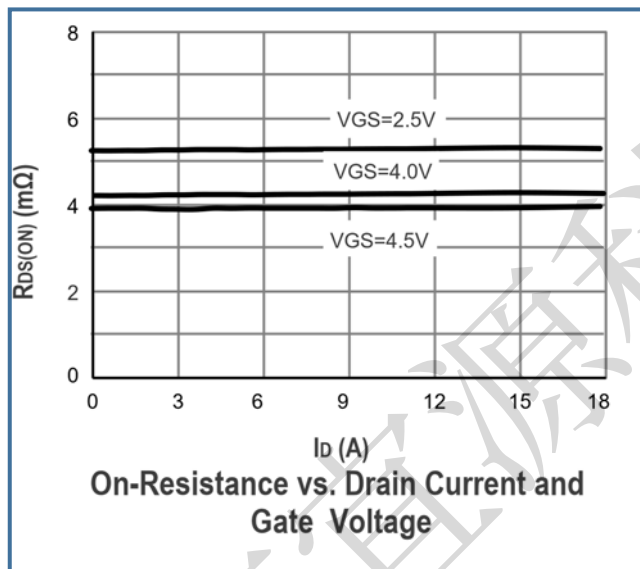
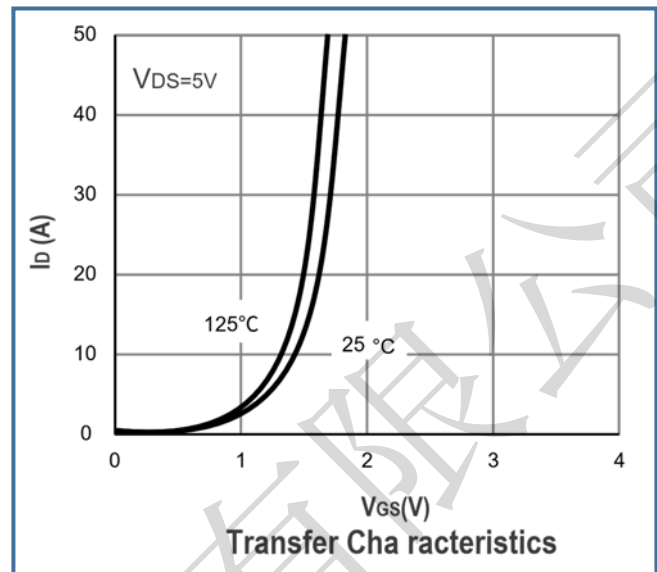
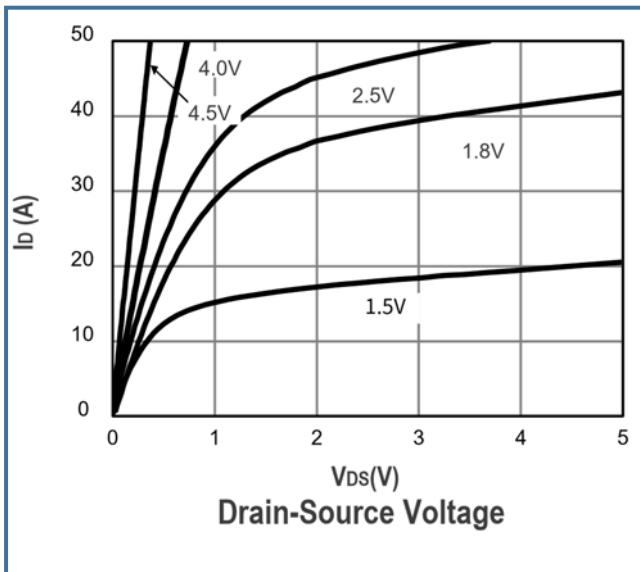
B: 1-in² 2oz Cu PCB board

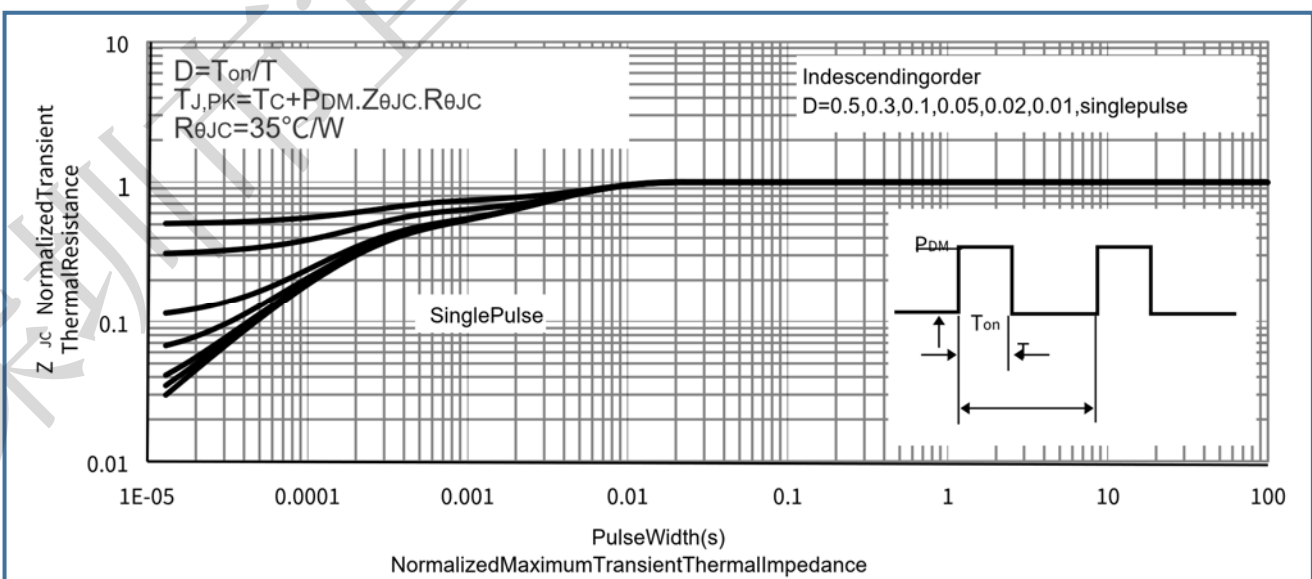
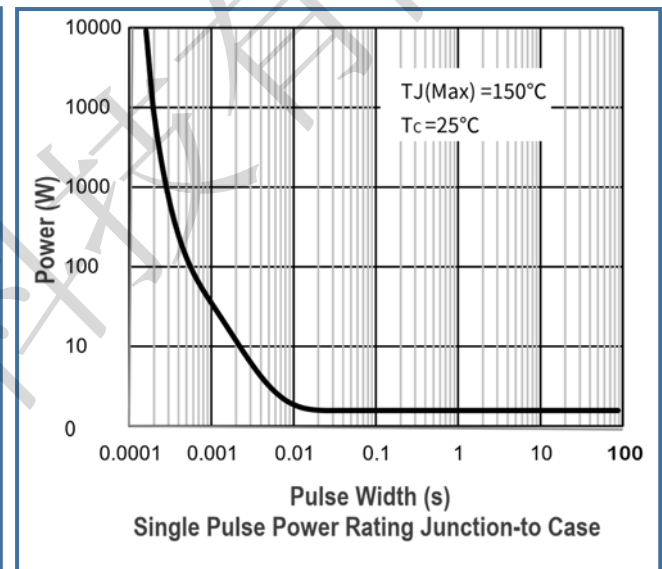
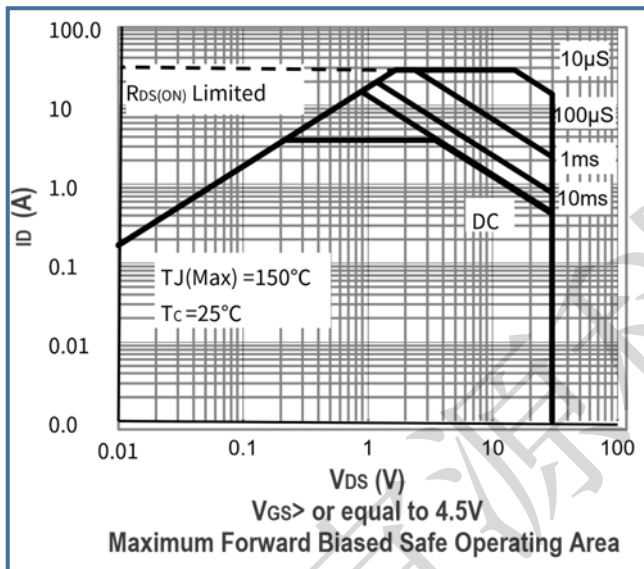
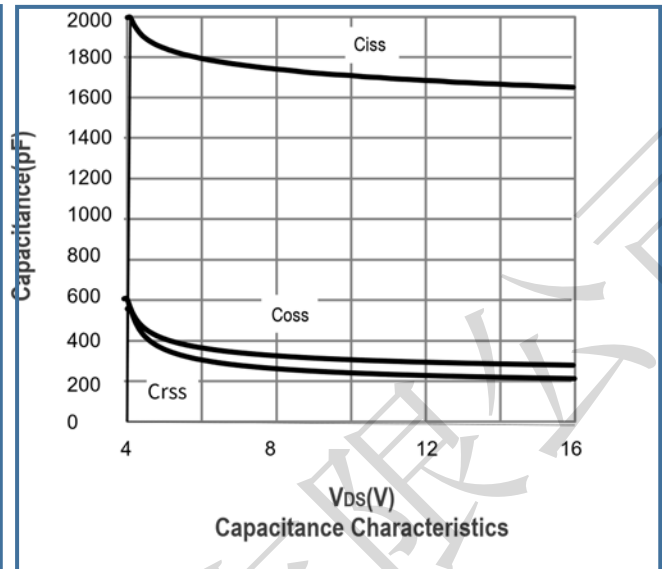
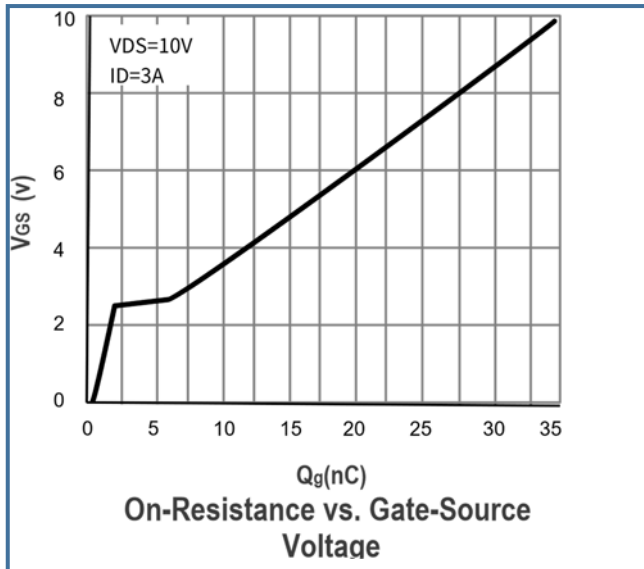
Electrical Characteristics (TA=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±10	μA
• On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.5	0.7	0.9	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =10A	3.5	4.0	5.5	mΩ
		V _{GS} =4.0V, I _D =5A	3.8	4.3	5.8	
		V _{GS} =2.5V, I _D =2.5A	4.8	5.3	6.5	
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =5A		35		S
• Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	1620	2100	PF
C _{oss}	Output Capacitance		-	289	-	
C _{rss}	Reverse Transfer Capacitance		-	256	-	
• Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =10V, I _D =3A, V _{GS} =10V	-	35	-	nC
Q _{gs}	Gate-Source Charge		-	2.2	-	
Q _{gd}	Gate-Drain Charge		-	3.4	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, R _L =10Ω, I _D =3A, V _{GEN} =10V, R _G =6Ω	-	4.5	-	nS
t _r	Turn-on Rise Time		-	8.9	-	
t _{d(off)}	Turn-off Delay Time		-	79	-	
t _f	Turn-off Fall Time		-	34	-	
• Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =10A	-	0.75	1.2	V
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	2.1	-	Ω

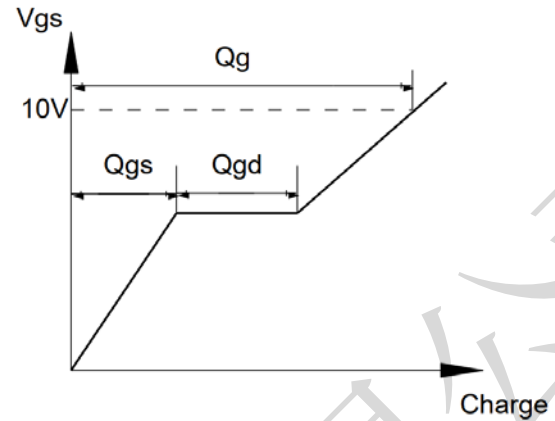
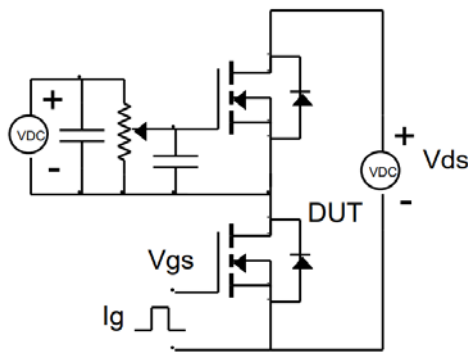
Note: Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

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

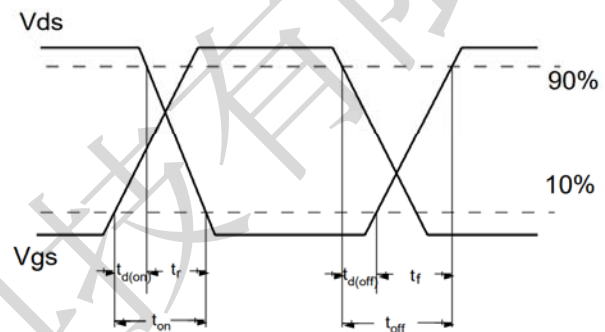
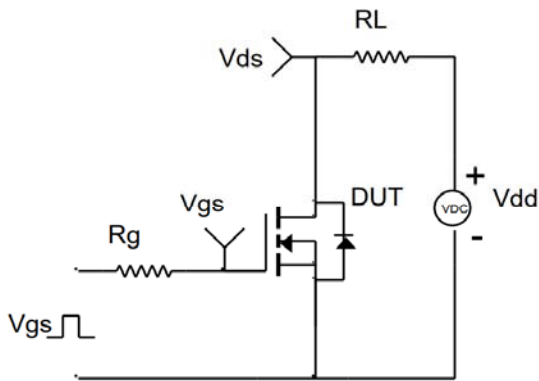




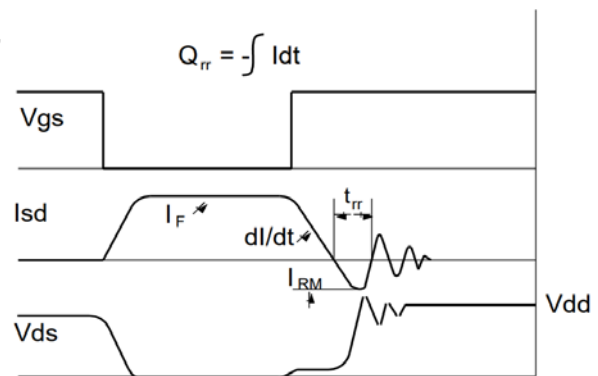
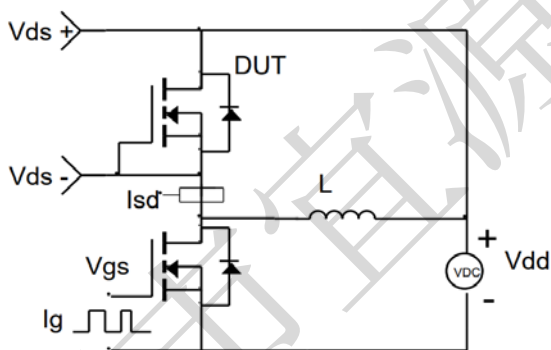
Gate Charge Test Circuit & Waveforms



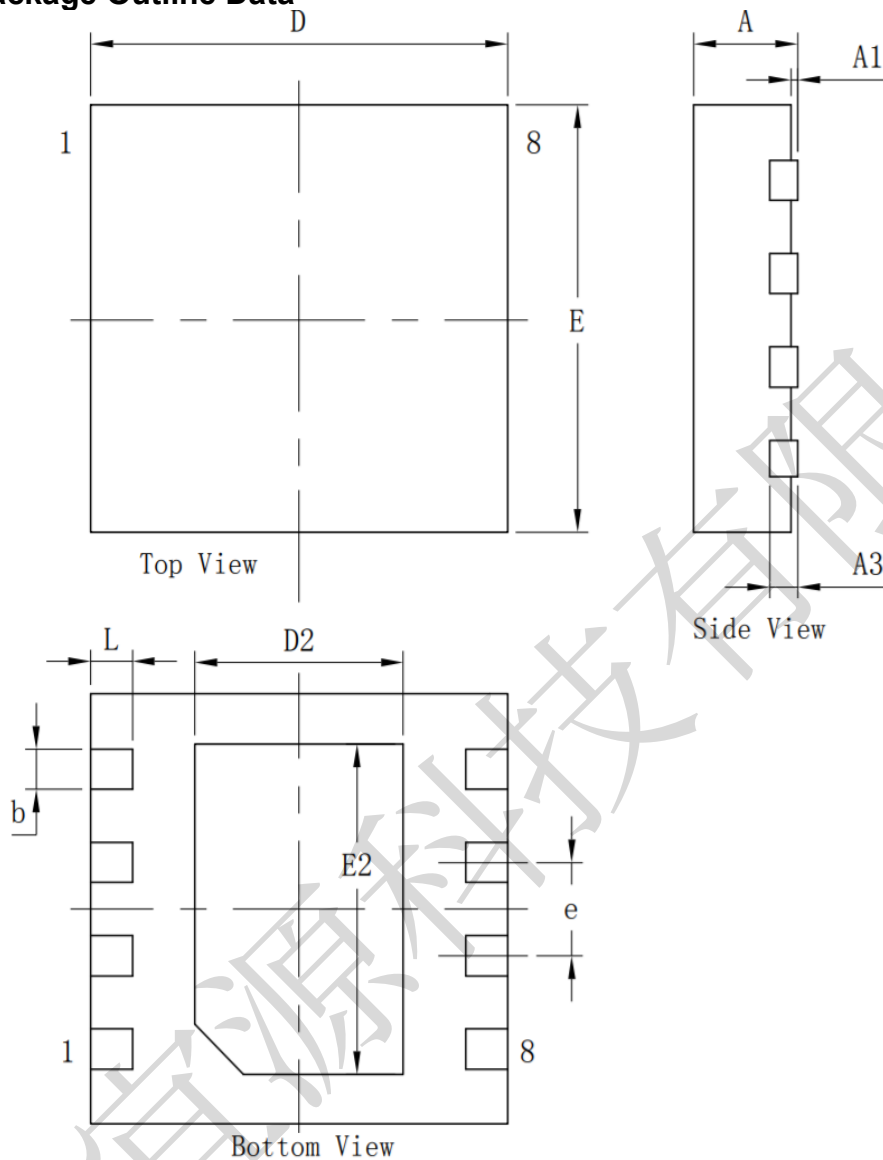
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



DFN3*3-8L Package Outline Data



Symbol	Dimensions (unit : mm)		
	Min	TYP	Max
A	0.70	0.75	0.8
A1			0.1
A3	0.203REF		
b	0.23	0.28	0.33
D	2.90	3.00	3.1
E	2.90	3.00	3.1
D2	1.40	1.50	1.6
E2	2.20	2.30	2.4
e	0.65		
L	0.25	0.30	0.35