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

PRODUCT SUMMARY

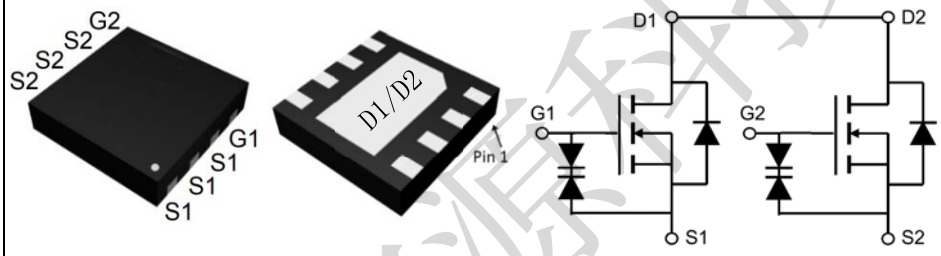
V_{DSS}	I_D	$R_{DS(on)}$ (mΩ) Typ.
20V	15A	5.3@ V_{GS} = 4.5V, ID=10A
		5.5@ V_{GS} =4.0V, ID=4A
		7.7@ V_{GS} = 2.5V, ID=2.5A

Features

- ✧ 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

Applications

- ✧ Single-cell lithium battery protection board
- ✧ Power Management in Notebook Computer Portable Equipment and Battery



TOP Marking

ET8828
XXXXXX

XXXXXX:D/C

Absolute Maximum Ratings (T_A=25°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)@TA=25°C	15	A
	Drain Current (Continuous)@TA=75°C	12	A
I_{DM}	Drain Current (Pulsed) [a]	60	A
P_D	Total Power Dissipation @T_c=25°C	1.9	W
	Total Power Dissipation @T_c=75°C	1.2	W
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	°C
R_{QJA}	Thermal Resistance Junction to Ambient (PCB mounted) [b]	35	°C/W

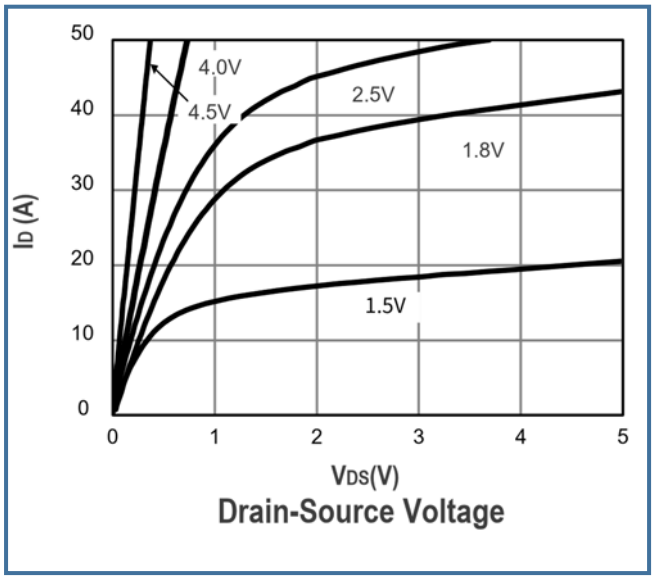
a: Repetitive Rating: Pulse width limited by the maximum junction temperature. B: 1-in^2 2oz Cu PCB board

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

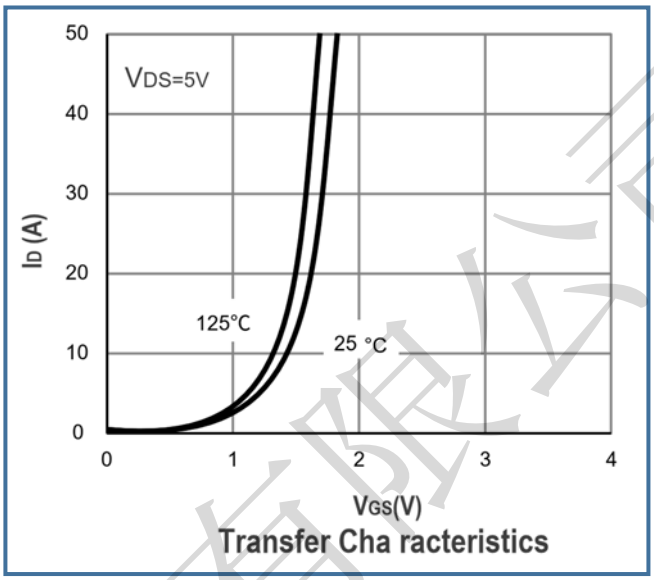
Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• **Off Characteristics**						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±12V, V_{DS}=0V	-	-	±10	μA
• **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	4.3	5.3	5.9	mΩ
		V_{GS}=4.0V, I_D=4A	4.5	5.5	6.0	
		V_{GS}=2.5V, I_D=2.5A	6.0	7.7	8.3	
gfs	Forward Transconductance	V_{DS}=10V,ID=5A		18.5		S
• **Dynamic Characteristics**						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	-	1580	2200	PF
C_{oss}	Output Capacitance		-	260	-	
C_{rss}	Reverse Transfer Capacitance		-	170	-	
• **Switching Characteristics**						
Q_g	Total Gate Charge	V_{DS}=10V, I_D=3A, V_{GS}=10V	-	17	-	nC
Q_{gs}	Gate-Source Charge		-	1.3	-	
Q_{gd}	Gate-Drain Charge		-	2.4	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=10V, R_L=10Ω, I_D=3A, V_{GEN}=10V, RG=6Ω	-	10.5	-	nS
t_r	Turn-on Rise Time		-	16	-	
$t_{d(off)}$	Turn-off Delay Time		-	85	-	
t_f	Turn-off Fall Time		-	36	-	
• **Drain-Source Diode Characteristics**						
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS}=0V, I_S=10A	-	0.75	1.2	V
Rg	Gate resistance	V_{GS}=0V, VDS=0V,F=1MHz	-	2.1	-	Ω

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

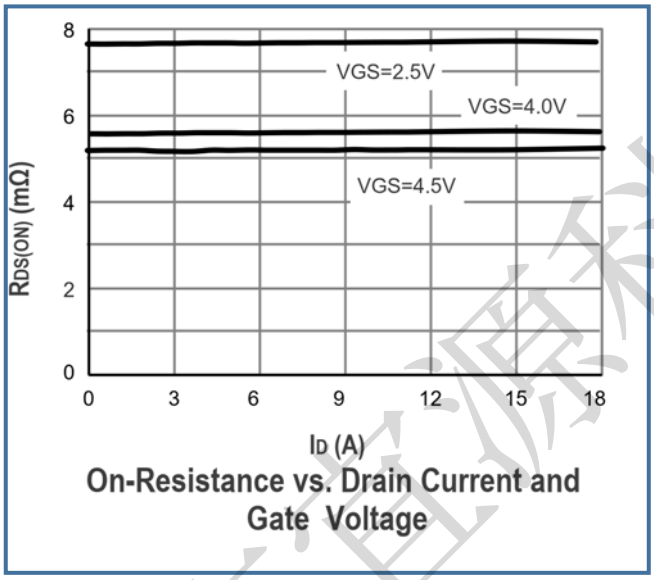
Typical Characteristics Curves (Ta=25°C, unless otherwise note)



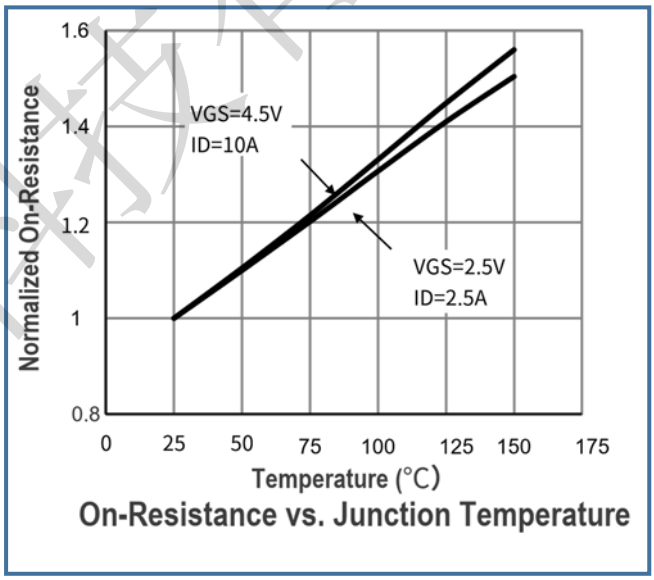
Drain-Source Voltage



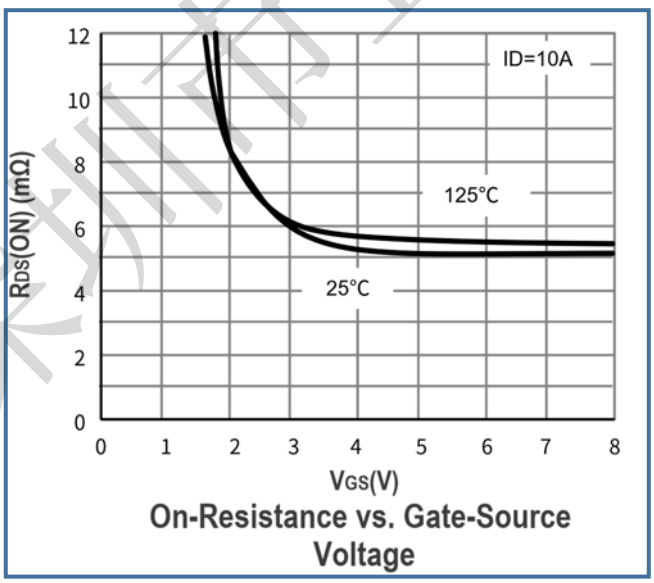
Transfer Cha racteristics



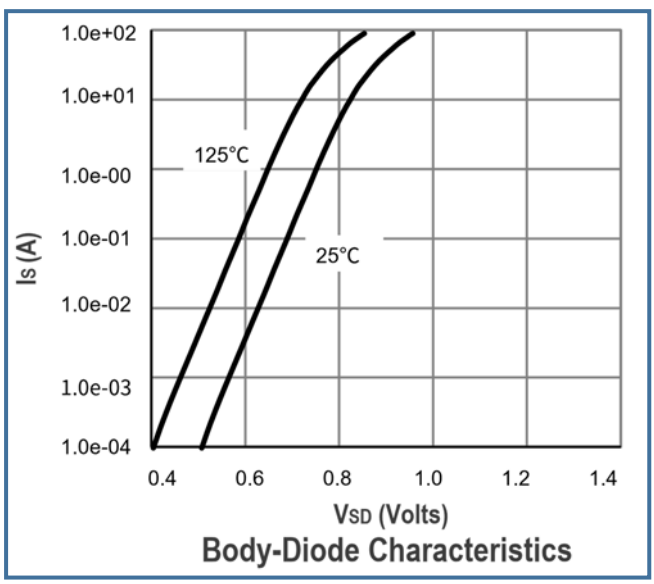
On-Resistance vs. Drain Current and Gate Voltage



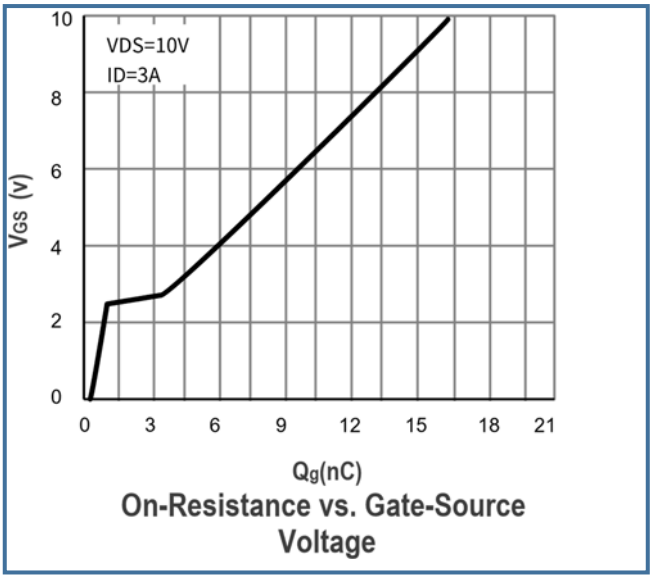
On-Resistance vs. Junction Temperature



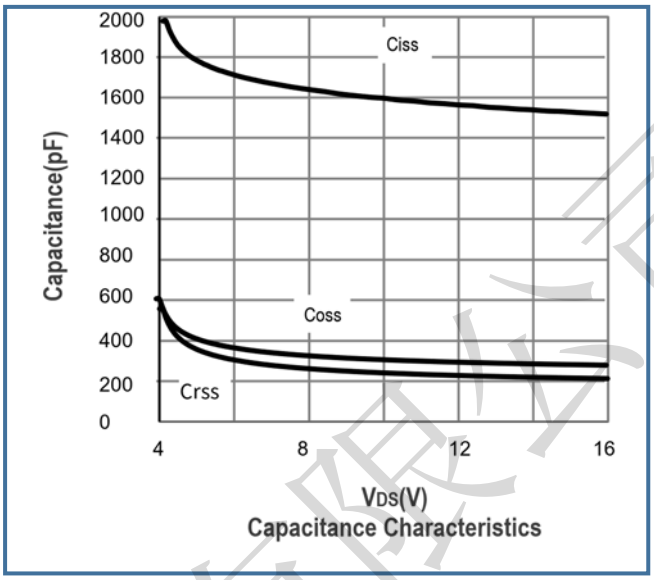
On-Resistance vs. Gate-Source Voltage



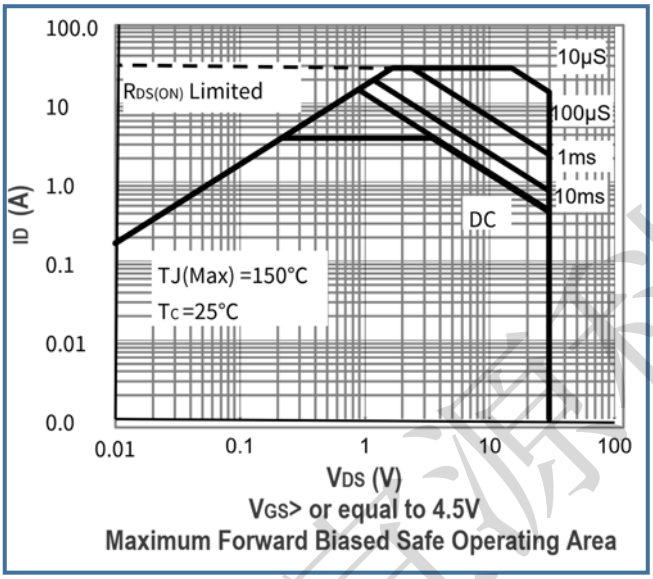
Body-Diode Characteristics



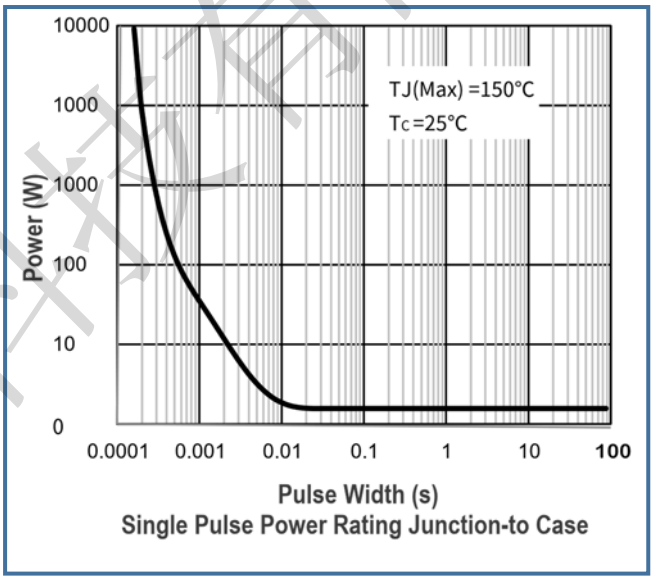
On-Resistance vs. Gate-Source Voltage



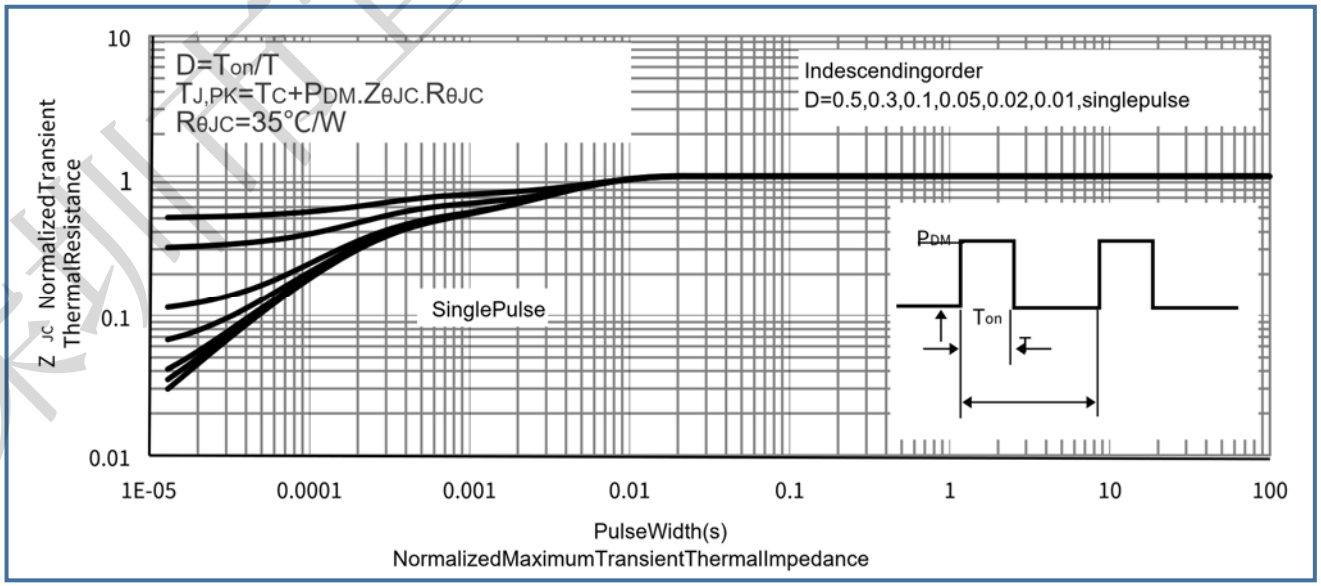
Capacitance Characteristics



VGS> or equal to 4.5V
Maximum Forward Biased Safe Operating Area

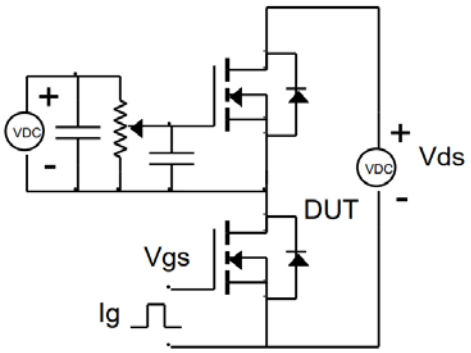


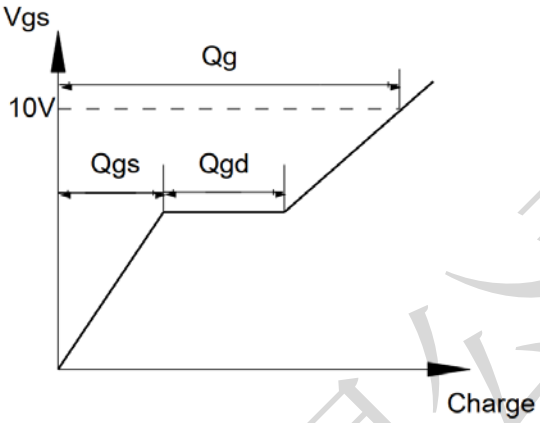
Single Pulse Power Rating Junction-to Case



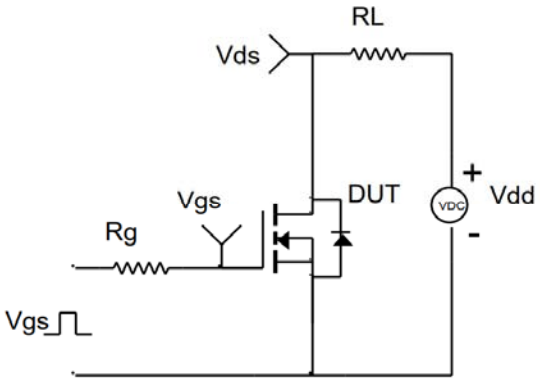
NormalizedMaximumTransientThermalImpedance

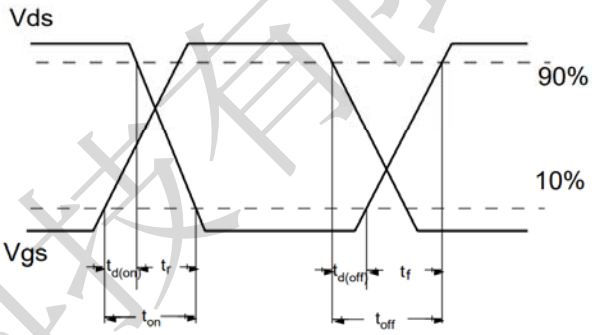
Gate Charge Test Circuit & Waveforms



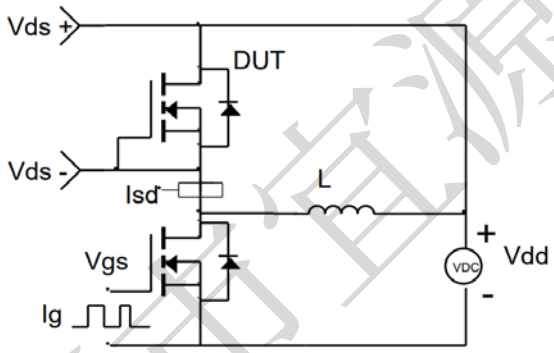


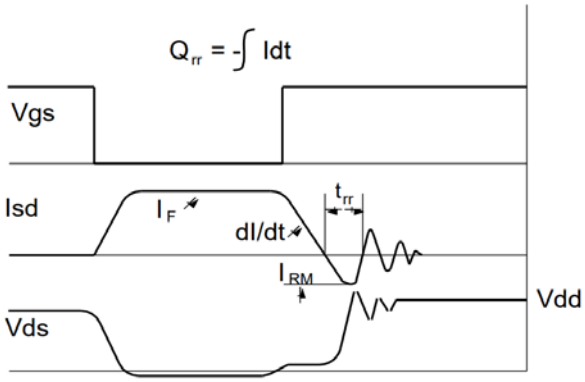
Resistive Switching Test Circuit & Waveforms



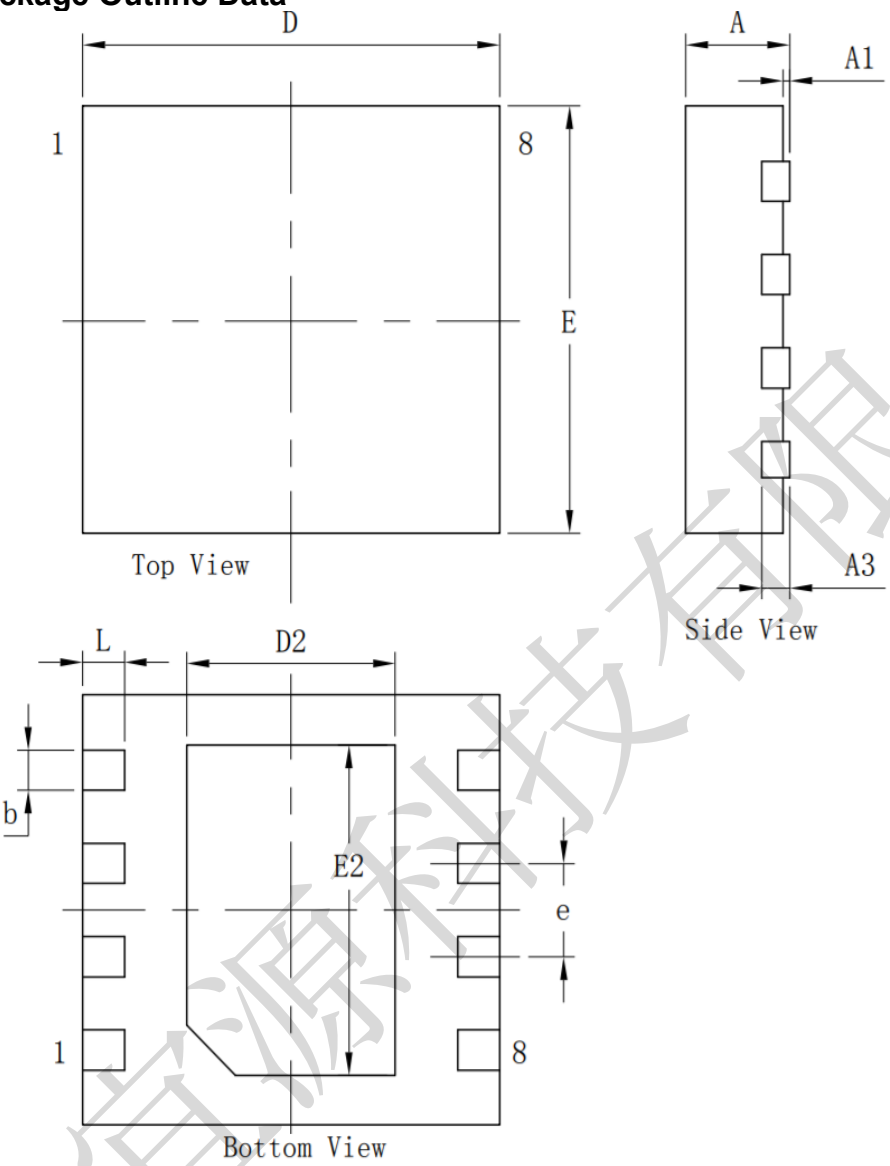


Diode Recovery Test Circuit & Waveforms





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