

SGT Dual N-Channel Enhancement-Mode MOSFET (60V,28A)

PRODUCT SUMMARY

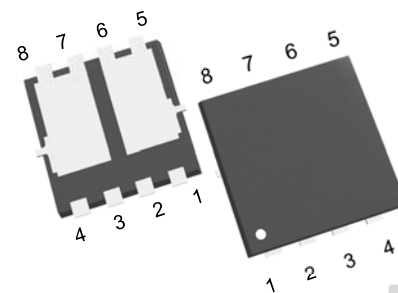
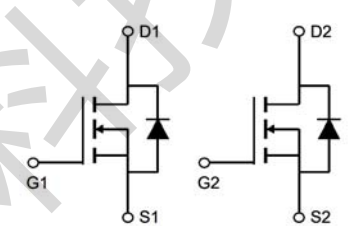
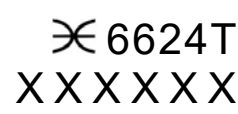
PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(on)} (mΩ) Typ.
60V	28A	15@ V _{GS} = 10V, I _D =28A
		20@ V _{GS} = 4.5V, I _D =10A

Features

- Super high density cell design for extremely low R_{DS(ON)}
- Exceptional on-resistance and maximum DC current capability
- Excellent Q_g x R_{DS(ON)} product (FOM)
- Lead (Pb) -free and halogen-free

Applications

- Motor control and drive
- LED Backlight

		PDFN5*6-8L Pin1: Source1 Pin2: Gate1 Pin3: Source2 Pin4: Gate2 Pin5/6: Drain2 Pin7/8: Drain1
		TOP Marking  XXXXXXXX:D/C

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

Symbol	Parameter	Max N	Units
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current (Continuous)@T _A =25°C	28	A
	Drain Current (Continuous)@T _A =75°C	18	A
I _{DM}	Drain Current (Pulsed) ^a	84	A
P _D	Total Power Dissipation @T _c =25°C	48	W
	Total Power Dissipation @T _c =75°C	21	W
I _S	Maximum Diode Forward Current	18	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	45	°C/W

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

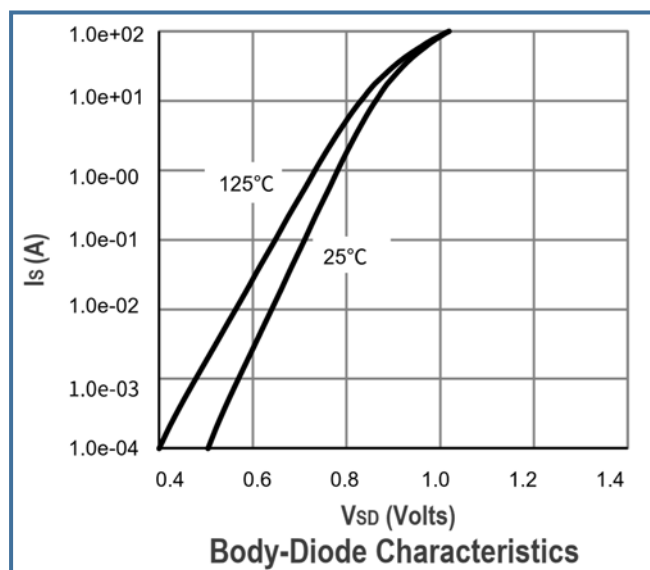
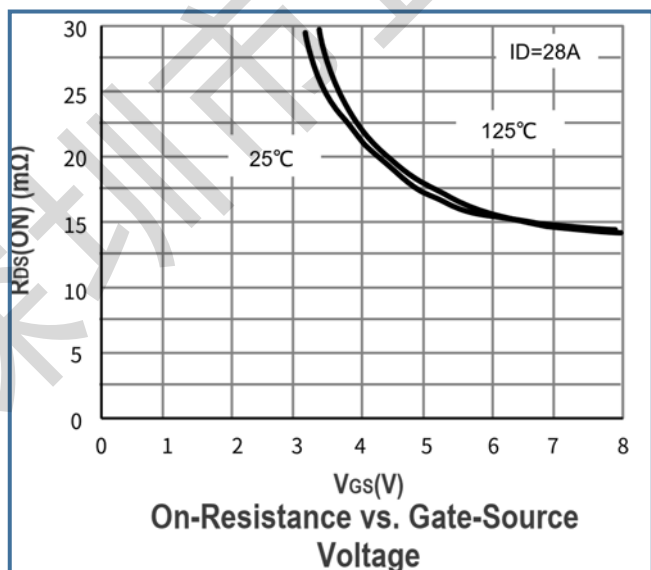
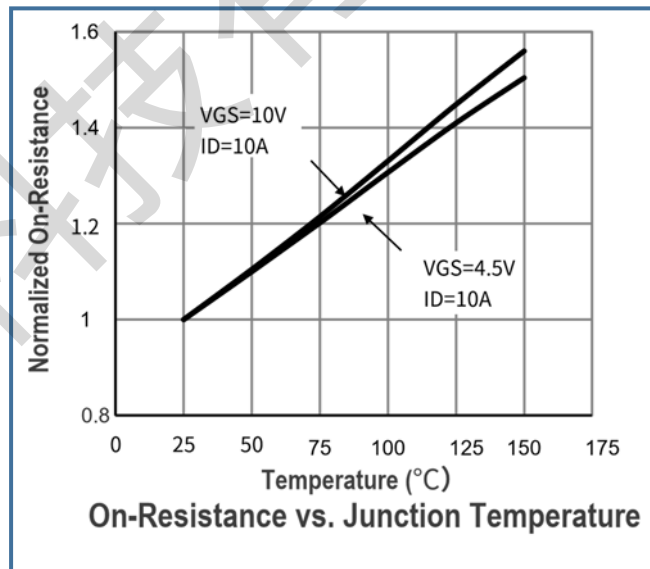
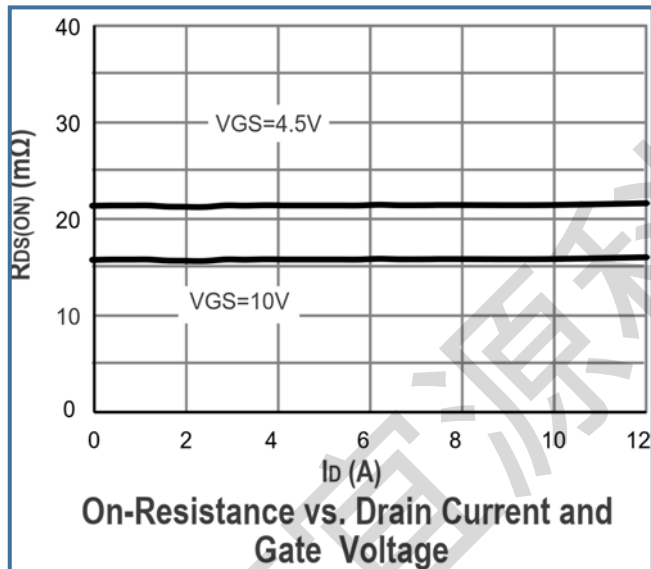
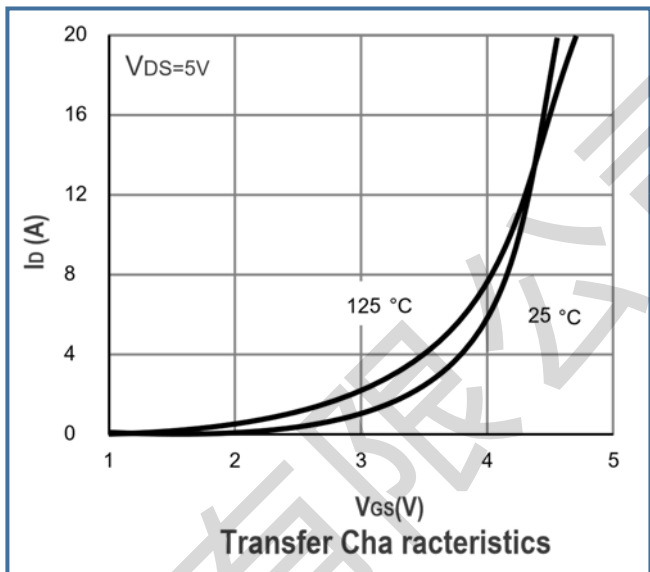
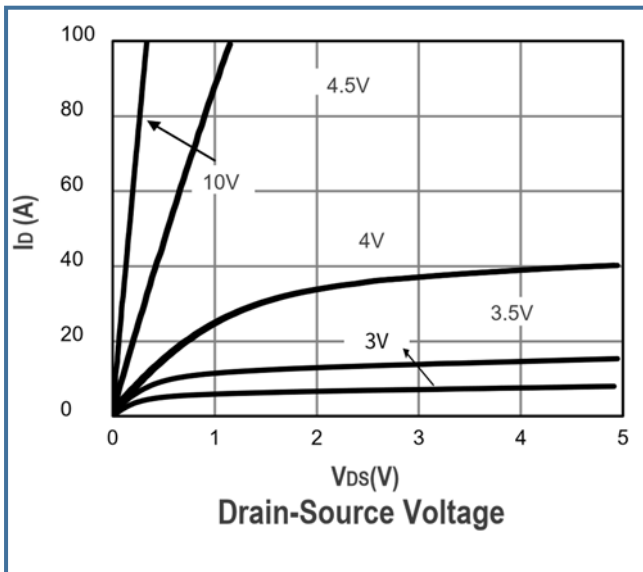
b: 1-in² 2oz Cu PCB board

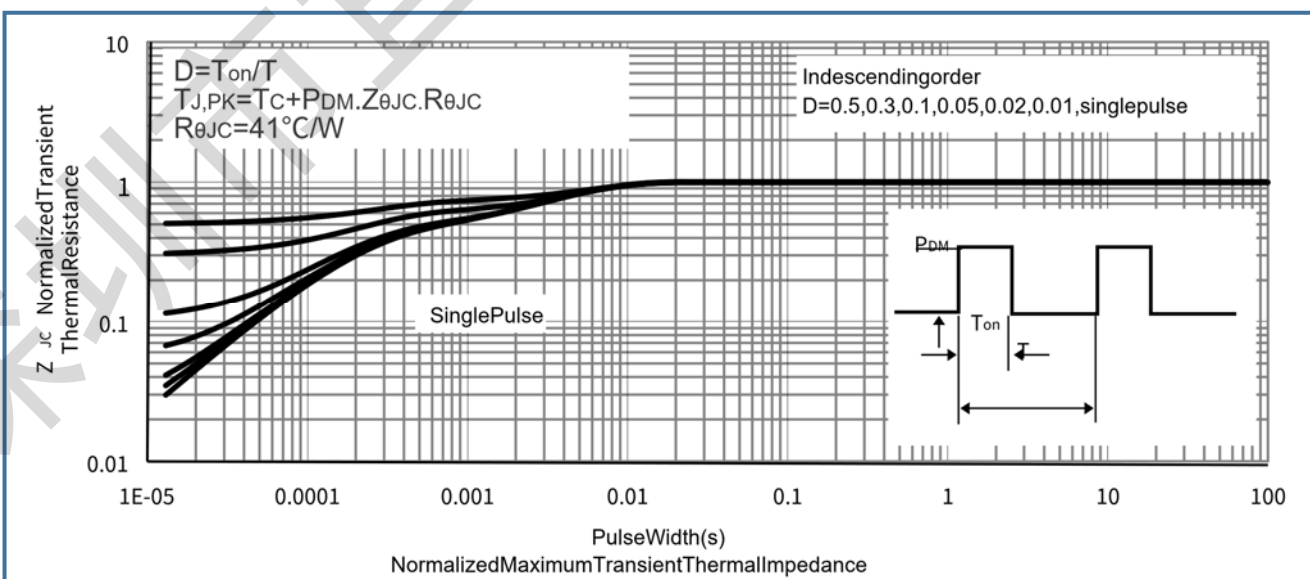
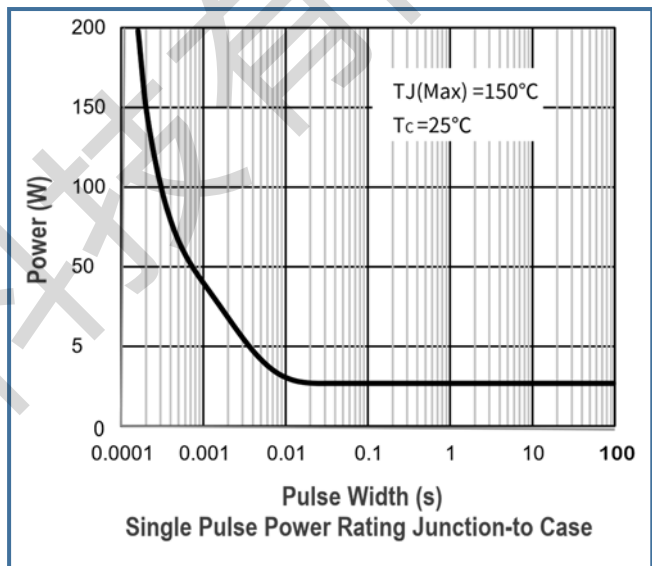
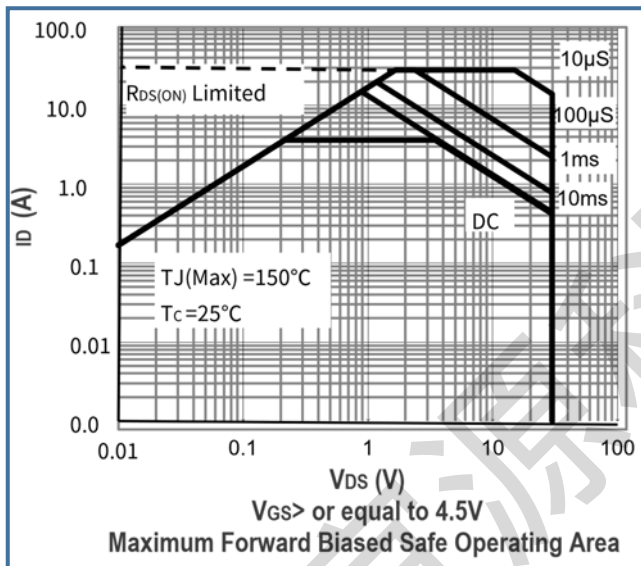
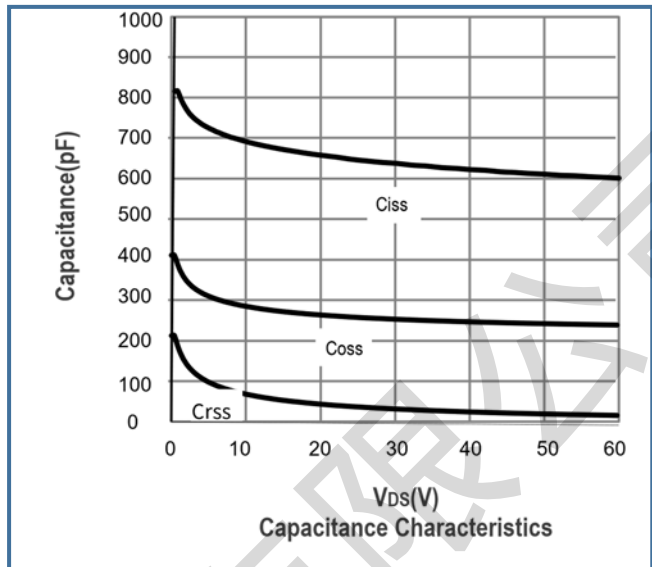
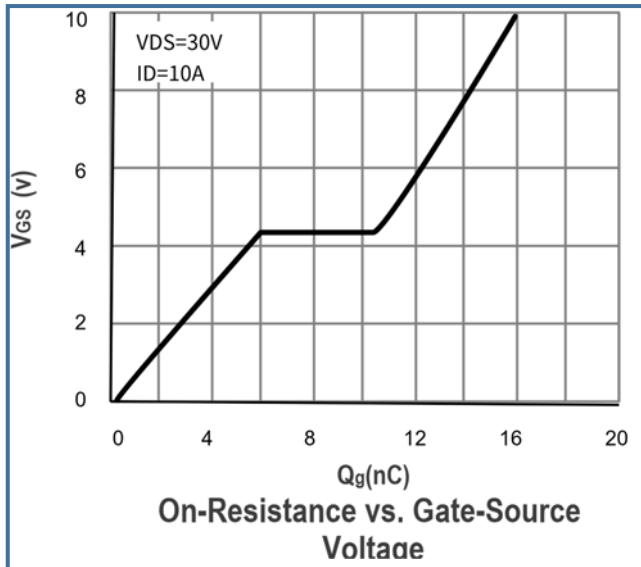
Electrical Characteristics (TA=25°C, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, 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	1.4	1.65	2.2	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =10A	-	15	18	mΩ
		V _{GS} =4.5V, I _D =5A	-	20	25	
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =10A		43		S
• Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	-	635	-	PF
C _{oss}	Output Capacitance		-	128	-	
C _{rss}	Reverse Transfer Capacitance		-	14	-	
• Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =30V, I _D =10A, V _{GS} =10V	-	15	-	nC
Q _{gs}	Gate-Source Charge		-	5.3	-	
Q _{gd}	Gate-Drain Charge		-	4.1	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, R _L =15Ω, I _D =10A, V _{GEN} =10V, R _G =3Ω	-	11	-	nS
t _r	Turn-on Rise Time		-	1.5	-	
t _{d(off)}	Turn-off Delay Time		-	16	-	
t _f	Turn-off Fall Time		-	1.5	-	
• Drain-Source Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =10A	-	-	1.2	V
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1.4	-	Ω

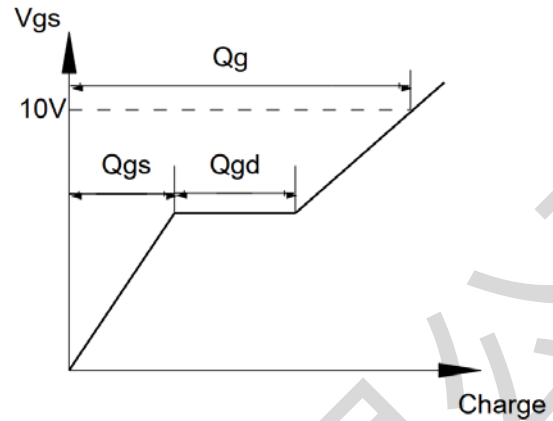
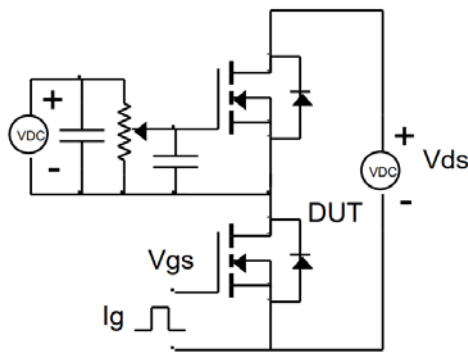
Note: Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

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

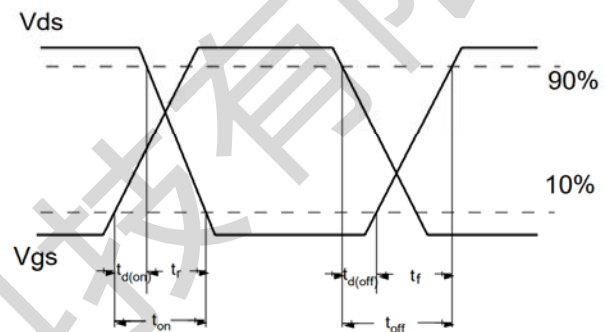
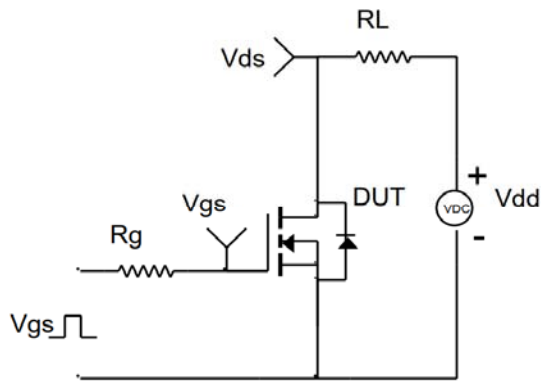




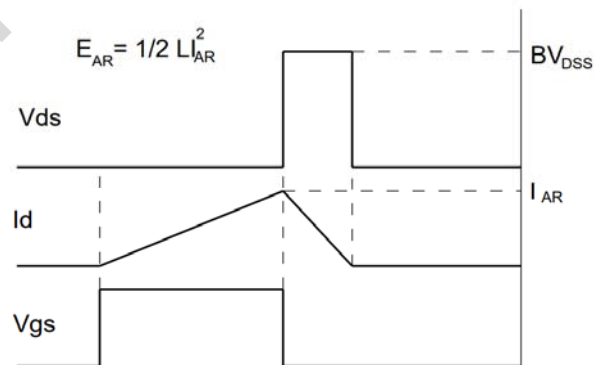
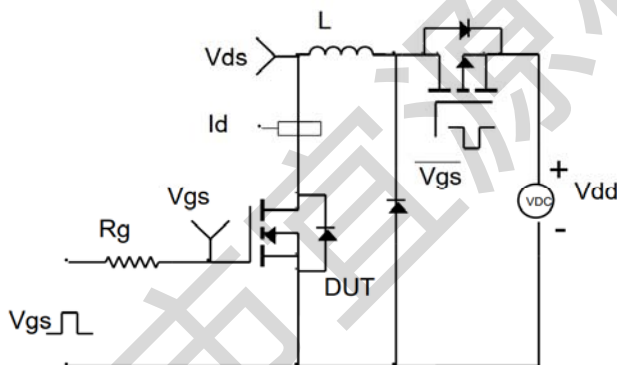
Gate Charge Test Circuit & Waveforms



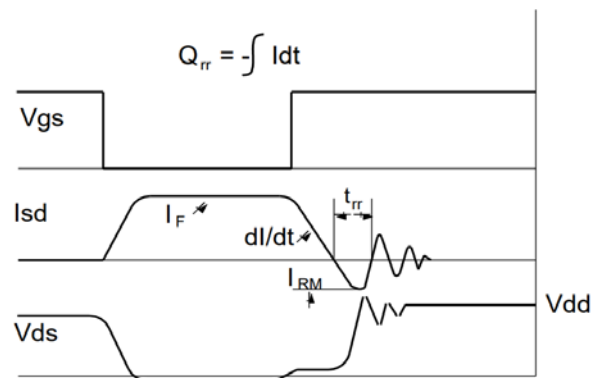
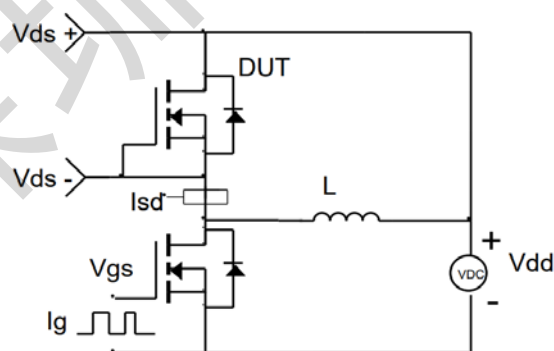
Resistive Switching Test Circuit & Waveforms



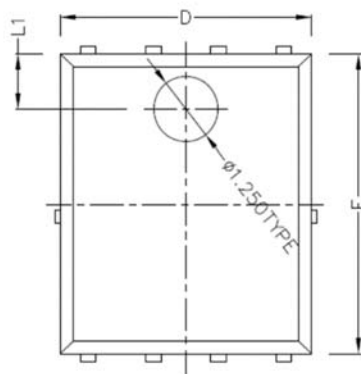
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



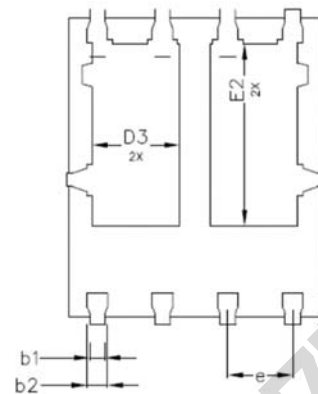
Diode Recovery Test Circuit & Waveforms



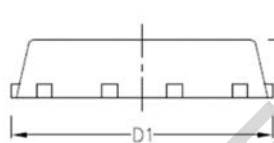
PDFN5*6-8L Package Outline Data



TOP VIEW



BOTTOM VIEW OPTION



SIDE VIEW



SIDE VIEW

Symbol	Dimensions (unit : mm)		
	Min	TYP	Max
A1	0.254 BSC		
A2	1.000	1.100	1.200
b1	0.250	0.300	0.350
b2	0.350	0.400	0.450
D	4.800	4.900	5.000
D1	5.000	5.100	5.200
D3	1.605	1.705	1.805
E	5.650	5.750	5.850
E1	5.950	6.050	6.150
E2	3.375	3.475	3.575
e	1.270 TYPE		
L1	1.00REF		
L	0.53	0.63	0.73
θ	6°	10°	14°