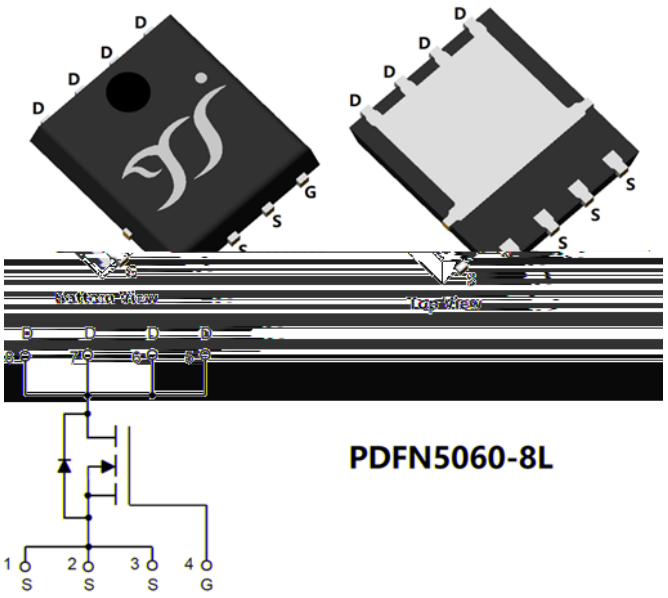
N-Channel Enhancement Mode Field Effect Transistor



Product Summary

V_{DS}	80V
I_D	100A
$R_{DS(ON)}$(at V_{GS}=10V)	4.5mohm
$R_{DS(ON)}$(at V_{GS}=4.5V)	6.5mohm

100% EAS Tested

100% V_{DS} Tested

General Description

Split gate trench MOSFET technology
Excellent package for heat dissipation
High density cell design for low $R_{DS(ON)}$
Moisture Sensitivity Level 1
Epoxy Meets UL 94 V-0 Flammability Rating
Halogen Free

Applications

Battery protection
Load switch
Uninterruptible power supply

Absolute Maximum Ratings (T_A=25 unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	80	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	T_C=25	I_D	100	A
	T_C=100		58	
Pulsed Drain Current [A]		I_{DM}	400	A
Avalanche energy [B]		E_{AS}	600	mJ
Total Power Dissipation [C]	Tc=25	P_D	152	W
	Tc=100		61	
Junction and Storage Temperature Range		T_J ,T_{STG}	-55 +150	

Thermal resistance

Parameter		Symbol	Limit	Units
Thermal Resistance Junction-to-Ambient [D]	t ≤ 10S	R	22.3	/W
Thermal Resistance Junction-to-Ambient [D]	Steady-State		40.7	
Thermal Resistance Junction-to-Case	Steady-State	R	0.82	

Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG100G08E	F1	YJG100G08E	5000	10000	100000	13 reel

Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250	80	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V,V_{GS}=0V	-	-	1	
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ± 20V, V_{DS}=0V	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	-	3.6	4.5	m
		V_{GS}=4.5V, I_D=20A	-	4.8	6.5	
Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V	-	0.8	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	100	A
Gate resistance	R_G	f=1MHz	-	2	-	
Transconductance	Gfs	VDS=10V,ID=50A		107		S

Typical Performance Characteristics

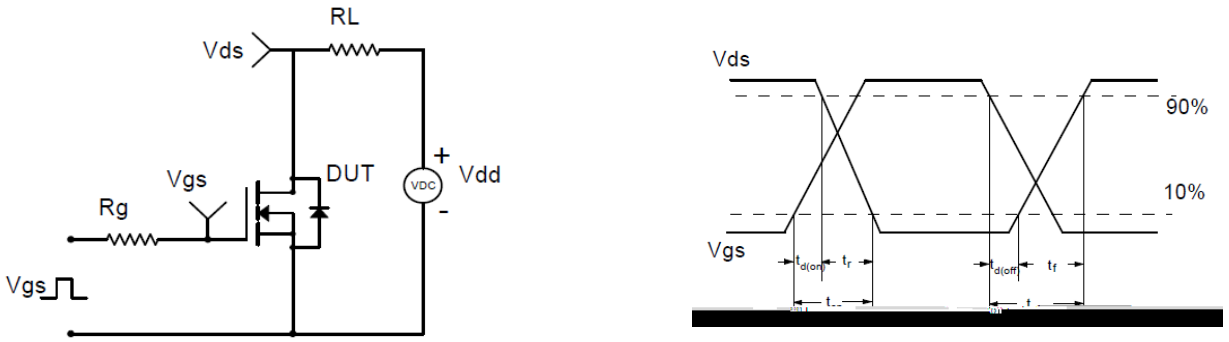
Figure1. Output Characteristics

Figure2. Transfer Characteristics

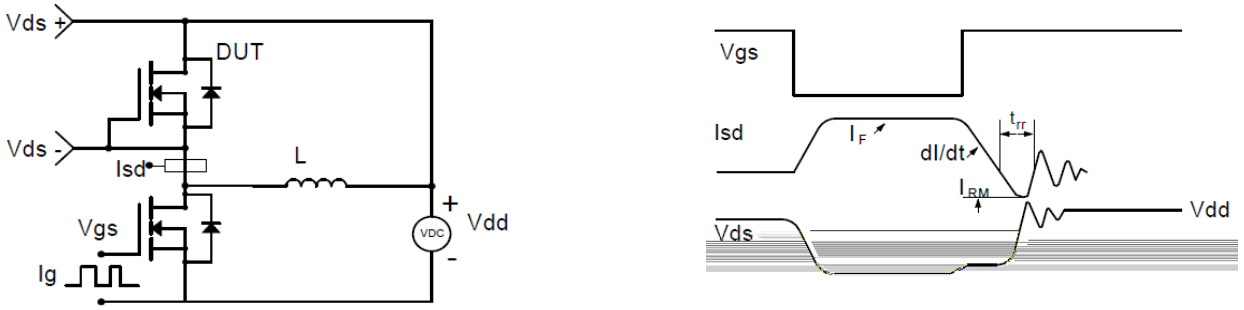
Figure3. Capacitance Characteristics

Figure4. Gate Charge

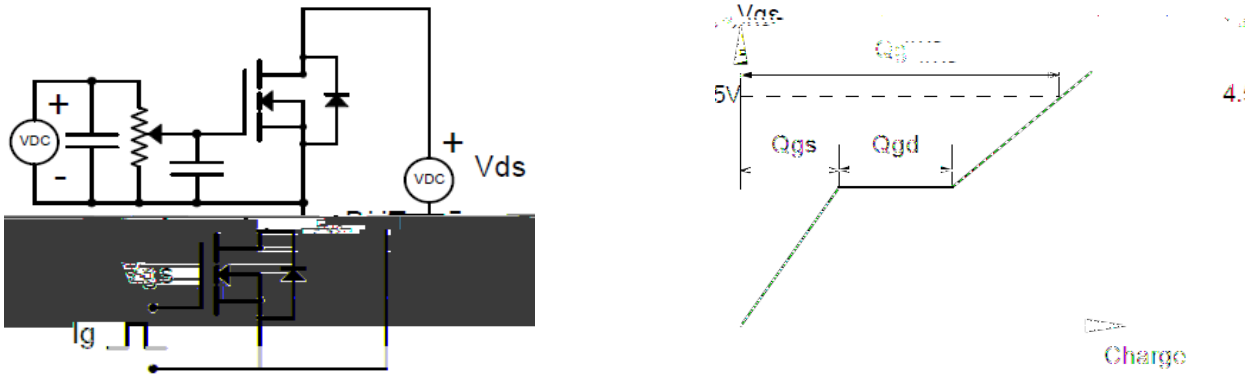
Figure5. On-Resistance vs.



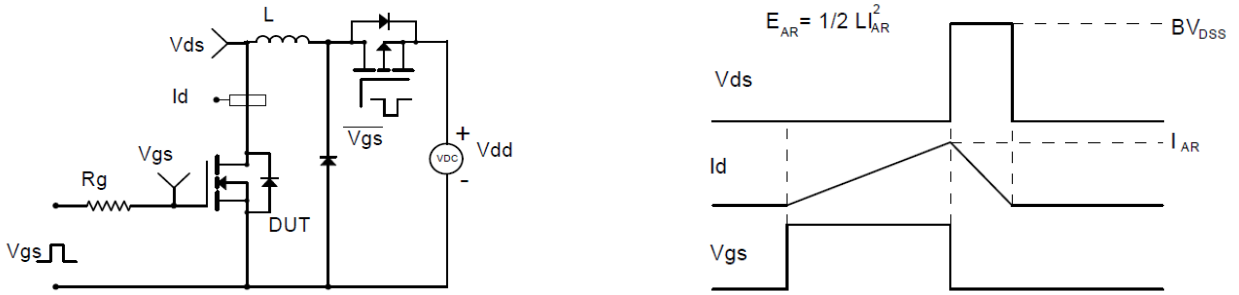
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

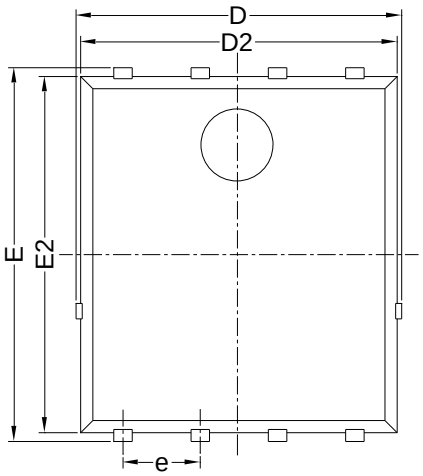


Gate Charge Test Circuit & Waveform

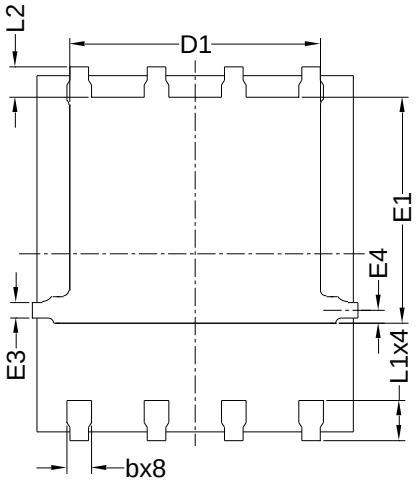


Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

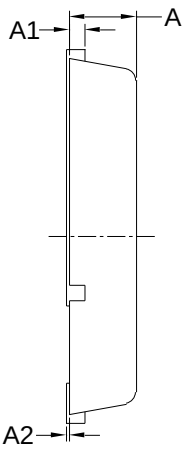
PDFN5060-8L-B-1.1MM Package information



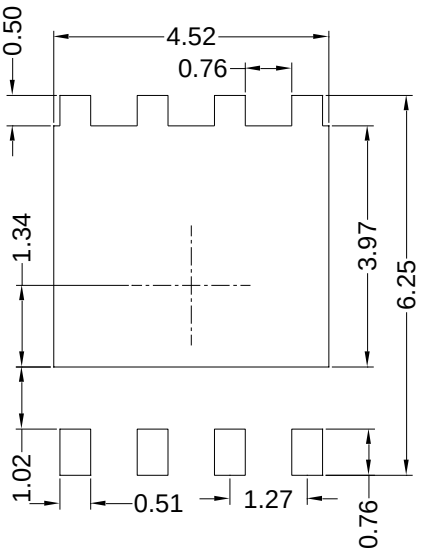
Top View



Bottom View



Side View



Suggested Solder Pad Layout
Top View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	5.15	5.35	5.55
E	5.95	6.15	6.35
A	1.00	1.10	1.20
A1		0.254 BSC	
A2			0.10
D1	3.92	4.12	4.32
E1	3.52	3.72	3.92
D2	5.00	5.20	5.40
E2	5.66	5.86	6.06
E3		0.254 REF	
E4		0.21 REF	
L1	0.56	0.66	0.76
L2		0.50 BSC	
b	0.31	0.41	0.51
e		1.27 BSC	

Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.10mm.
3.The pad layout is for reference purposes only.

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