PJMG75DN40DN

Dual N-Channel Enhancement Mode Power MOSFET

Product Summary

- V_{DS}= 40V,I_D= 75A
- $R_{DS(on)}$< 5mΩ @V_{GS}= 10V
- $R_{DS(on)}$< 7mΩ @V_{GS}= 4.5V

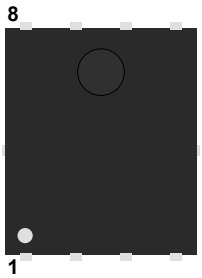
Features

- Advanced Split Gate Trench Technology
- 100% Avalanche Tested
- RoHS Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

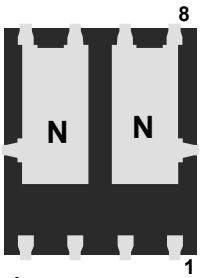
Application

- DC-DC Converter
- Power Switching Application

PDFN5x6A-8L



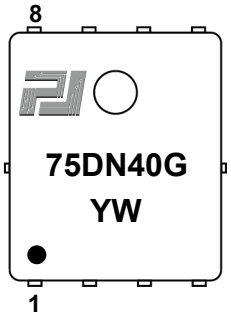
(Top View)



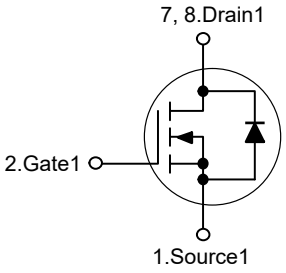
(Bottom View)

Pin	Description	Pin	Description
1	Source1	4	Gate2
2	Gate1	5,6	Drain2
3	Source2	7,8	Drain1

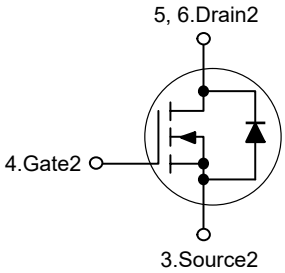
Marking Code



Schematic Diagram



N-Channel



N-Channel

Absolute Maximum Ratings

Ratings at 25℃ case temperature unless otherwise specified.

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current-Continuous	T_C=25°C	I_D	75	A
	T_C=100°C		48	
Drain Current-Pulsed Note1		I_{DM}	300	A
Maximum Power Dissipation		P_D	48	W
Single Pulse Avalanche Energy Note2		E_{AS}	100	mJ
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case Note3	$R_{\theta JC}$	2.6	°C/W

Electrical Characteristics

(T_J=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	40	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note4	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	1.5	2.5	V
Drain-Source On-Resistance Note4	$R_{DS(on)}$	V_{GS}=10V,I_D=15A	--	--	5	mΩ
		V_{GS}=4.5V,I_D=10A	--	--	7	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=20V,V_{GS}=0V,f=1MHz	--	1815	--	pF
Output Capacitance	C_{oss}		--	525	--	pF
Reverse Transfer Capacitance	C_{rss}		--	40	--	pF
Total Gate Charge	Q_g	V_{DS}=20V,I_D=20A, V_{GS}=10V	--	24	--	nC
Gate-Source Charge	Q_{gs}		--	3.5	--	nC
Gate-Drain Charge	Q_{gd}		--	4.5	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=20V, I_D=20A, V_{GS}=10V, R_{GEN}=6Ω	--	5	--	nS
Turn-on Rise Time	t_r		--	9	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	23	--	nS
Turn-off Fall Time	t_f		--	15.2	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage Note4	V_{SD}	V_{GS}=0V,I_S=30A	--	--	1.2	V
Diode Forward Current	I_S		--	--	75	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. EAS Condition: T_J=25℃,V_{DD}=20V,V_G=10V,R_G=25Ω,L=0.5mH,I_{AS}=20A.
3. Surface mounted on 1inch^2 FR-4 board with 2OZ copper
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Typical Characteristic Curves

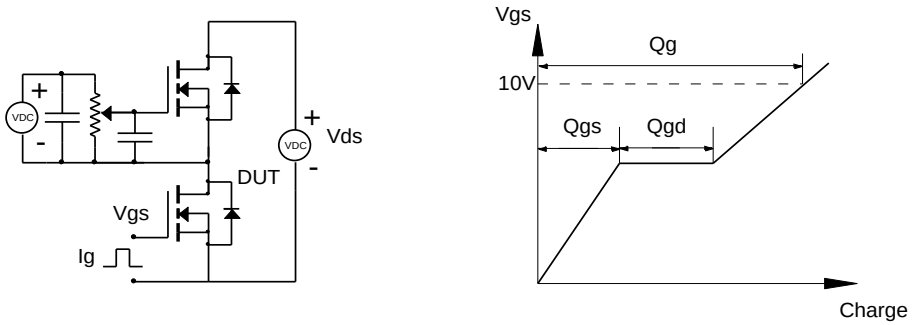


Figure 1: Gate Charge Test Circuit & Waveform

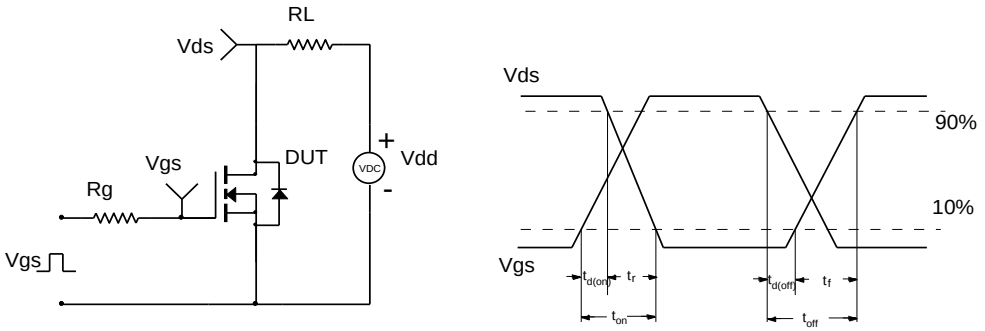


Figure 2: Resistive Switching Test Circuit & Waveform

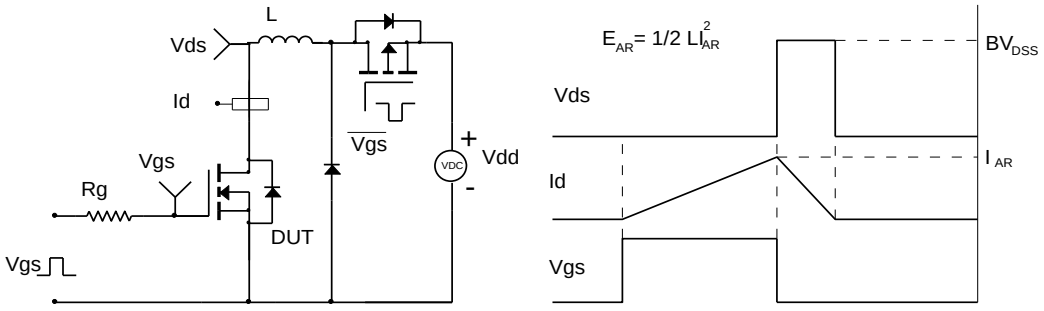


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

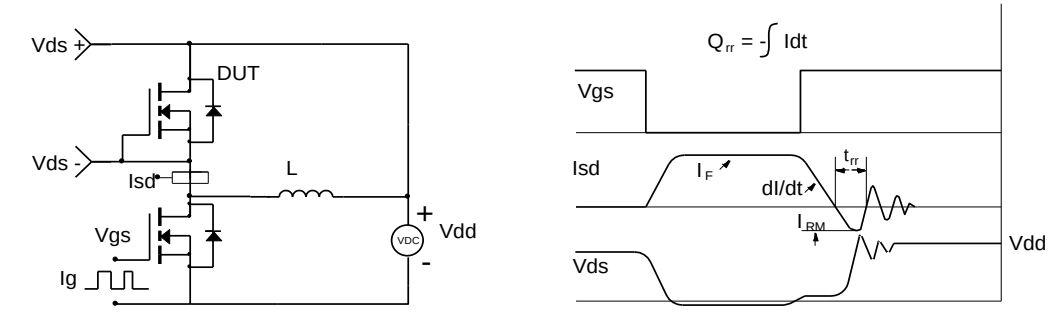
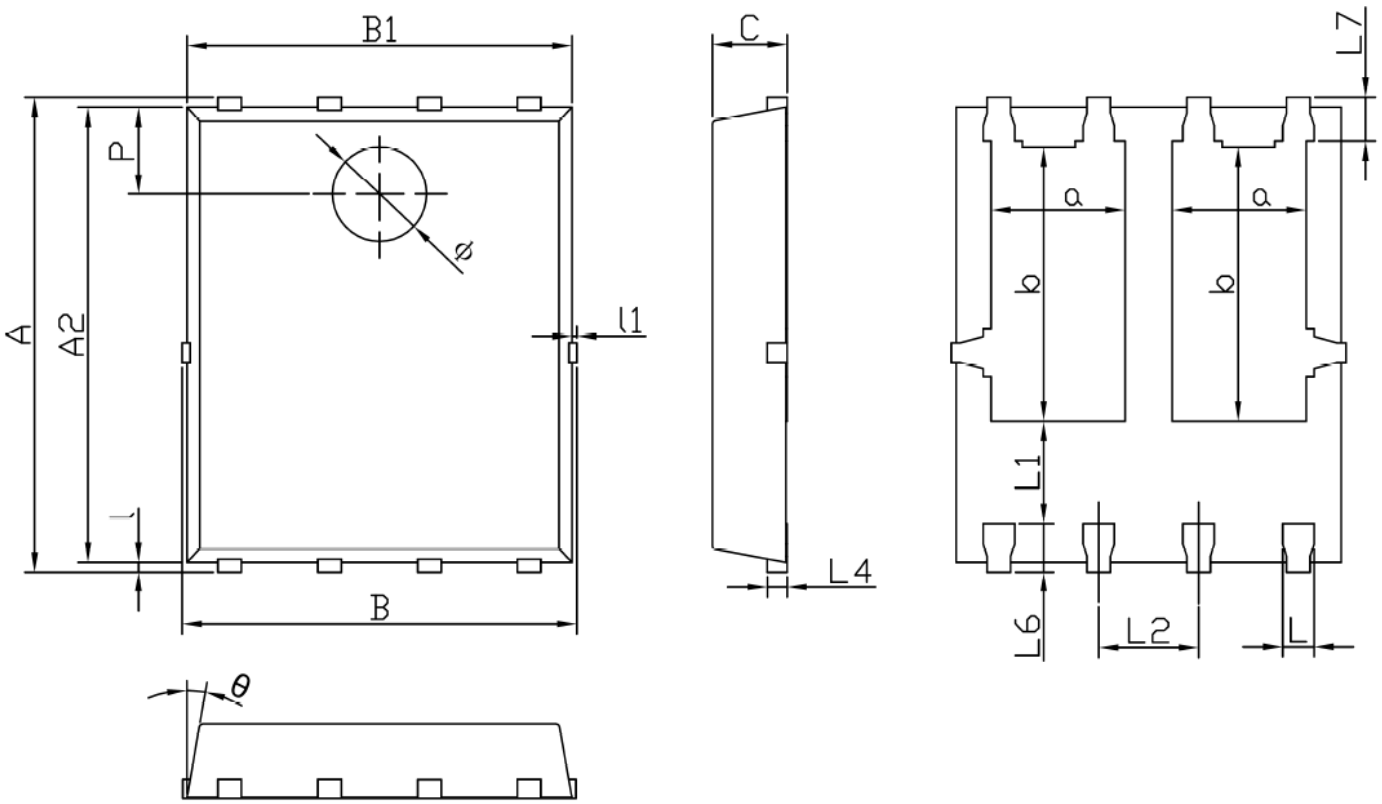


Figure 4: Diode Recovery Test Circuit & Waveform

Package Outline

PDFN5x6A-8L

Dimensions in mm



Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	5.90	6.10	L1	1.10	-
a	1.605	1.805	l1	-	0.10
A2	5.70	5.80	L2	1.17	1.37
B	4.90	5.10	L4	0.21	0.34
b	3.375	3.575	L6	0.51	0.71
B1	4.80	5.00	L7	0.45	0.65
C	0.90	1.00	P	1.00	1.20
L	0.35	0.45	θ	8°	12°
l	0.06	0.20	Φ	1.10	1.30