



PJMG12H90HNDN

N-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS}=120V, I_D=90A$
- $R_{DS(on)} < 8.5m\Omega @ V_{GS}=10V$

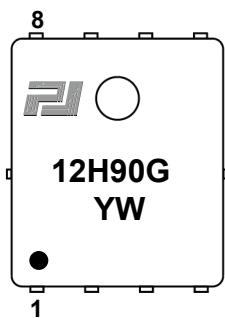
Features

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

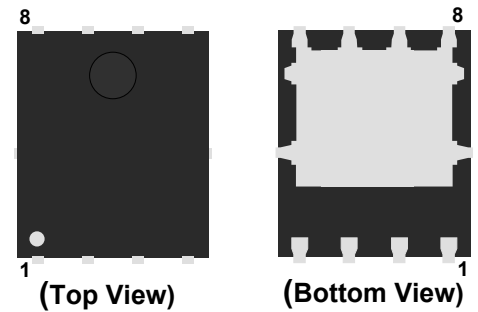
Application

- Load Switch
- PWM Application
- Power Management

Marking Code

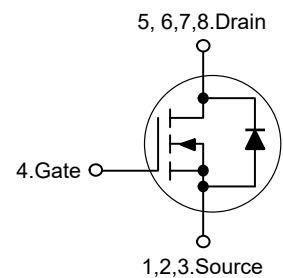


PDFN5x6-8L



Pin	Description
1,2,3	Source
4	Gate
5,6,7,8	Drain

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	120	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current-Continuous	$T_C=25^\circ C$	I_D	90	A
	$T_C=100^\circ C$		54	
Drain Current-Pulsed ^{Note1}		I_{DM}	360	A
Maximum Power Dissipation		E_{AS}	225	mJ
Single Pulse Avalanche Energy ^{Note2}		P_D	125	W
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1	°C/W
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Electrical Characteristics

(T_J=25°C unless otherwise specified)

Parameter	Sym bol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	120	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =120V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.4	--	3.6	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =10V, I _D =30A	--	--	8.5	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =60V, V _{GS} =0V, f=1MHz	--	2712	--	pF
Output Capacitance	C _{oss}		--	815	--	pF
Reverse Transfer Capacitance	C _{rss}		--	7	--	pF
Total Gate Charge	Q _g	V _{DS} =60V, I _D =20A, V _{GS} =10V	--	33	--	nC
Gate-Source Charge	Q _{gs}		--	7	--	nC
Gate-Drain Charge	Q _{gd}		--	8	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =60V, I _D =20A, V _{GS} =10V, R _{GEN} =6Ω	--	11	--	nS
Turn-on Rise Time	t _r		--	20	--	nS
Turn-off Delay Time	t _{d(off)}		--	32	--	nS
Turn-off Fall Time	t _f		--	28	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	V _{SD}	V _{GS} =0V, I _S =30A	--	--	1.2	V
Diode Forward Current	I _S		--	--	90	A
Body Diode Reverse Recovery Time	t _{rr}	I _F =15A, di/dt=100A/us	--	54	--	ns
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =15A, di/dt=100A/us	--	58	--	nC

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. EAS Condition: T_J=25°C, V_{DD}=60V, V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}=30A.
3. Pulse Test: Pulse width≤300μs, duty cycle≤0.5%.

Test Circuit

N-MOS

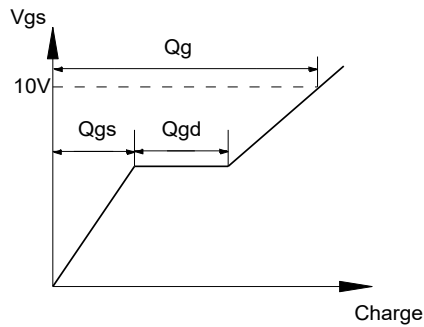
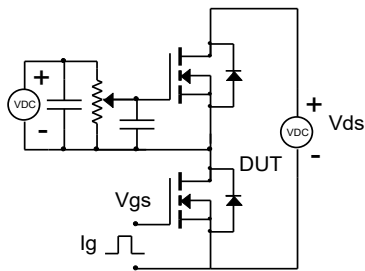


Figure 1: Gate Charge Test Circuit & Waveform

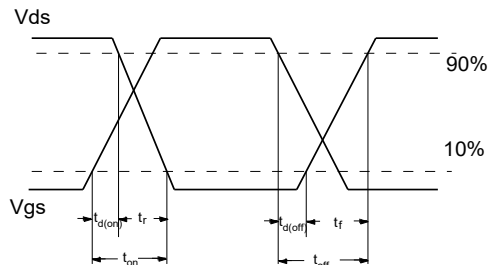
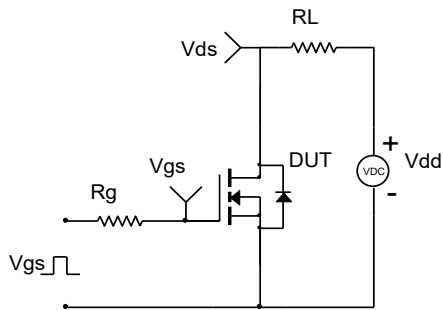


Figure 2: Resistive Switching Test Circuit & Waveform

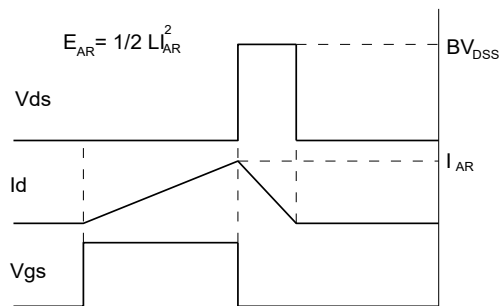
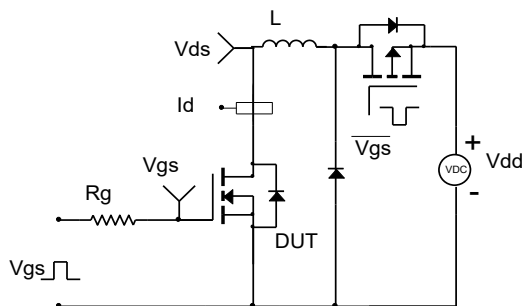


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

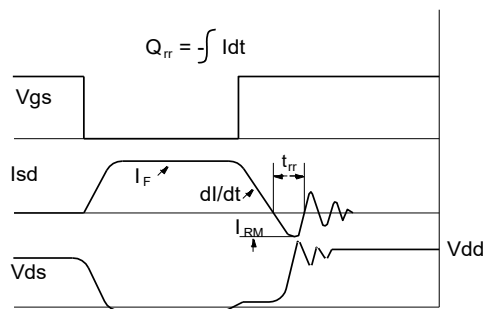
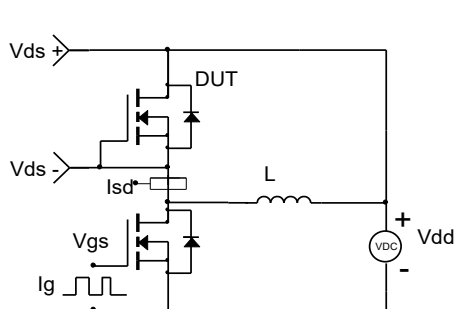


Figure 4: Diode Recovery Test Circuit & Waveform



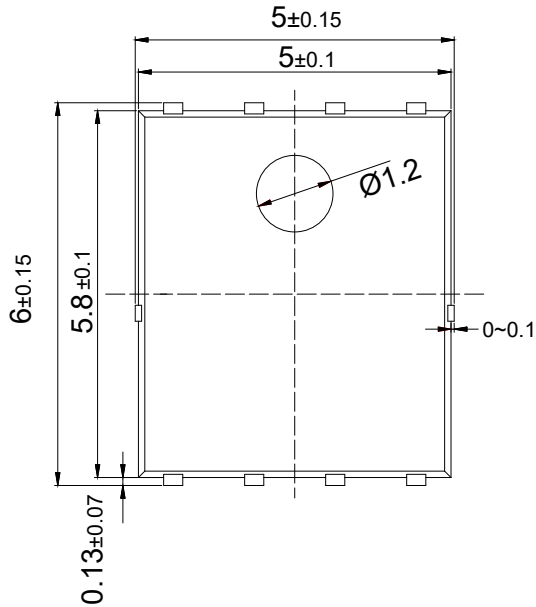
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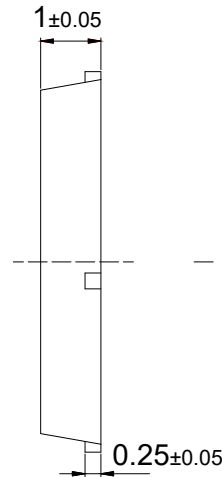
Package Outline

PDFN5x6-8L

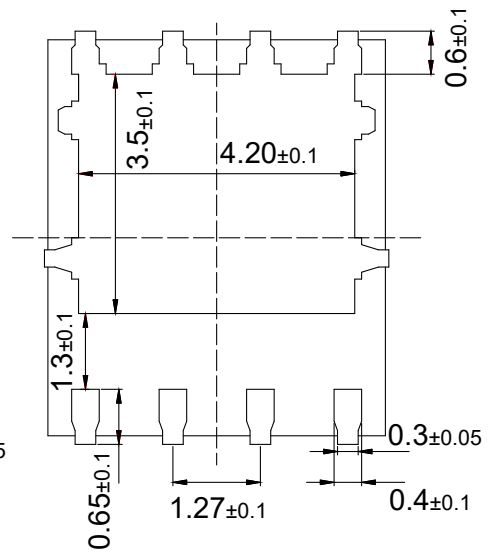
Dimensions in mm



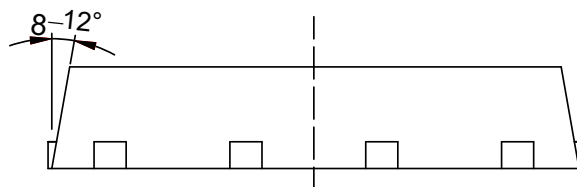
TOP VIEW



RIGHT VIEW



BOTTOM VIEW



SIDE VIEW