

Product Summary

- $V_{DS} = -30V, I_D = -30A$
- $R_{DS(on)} < 15m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 25.5m\Omega @ V_{GS} = 4.5V$

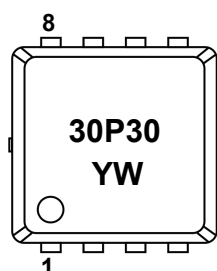
Features

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

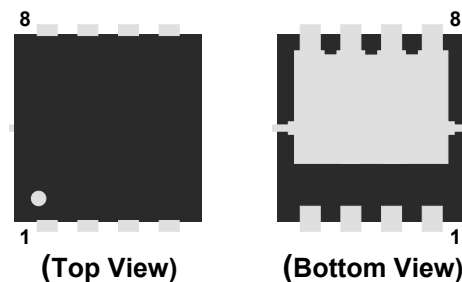
Application

- Lithium battery protection
- Wireless impact
- Mobile phone fast chargin

Marking Code

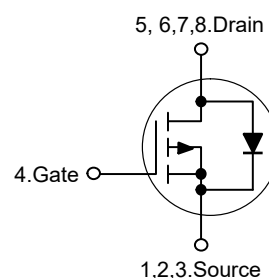


PDFN3x3-8L



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	$-V_{DS}$	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	$-I_D$	30	A
Drain Current-Pulsed ^{Note1}	$-I_{DM}$	100	A
Maximum Power Dissipation	P_D	28	W
Single Pulse Avalanche Energy ^{Note2}	E_{AS}	39	mJ
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	4.46	°C/W
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Electrical Characteristics(T_C=25°C 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	30	--	--	V
Zero Gate Voltage Drain Current	-I _{DSS}	V _{DS} =-30V, 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	1	1.6	2.5	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =-10V, I _D =-15A	--	--	15	mΩ
		V _{GS} =-4.5V, I _D =-10A	--	--	25.5	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	900	--	pF
Output Capacitance	C _{oss}		--	172	--	pF
Reverse Transfer Capacitance	C _{rss}		--	146	--	pF
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-5A V _{GS} =-10V	--	22	--	nC
Gate-Source Charge	Q _{gs}		--	3	--	nC
Gate-Drain Charge	Q _{gd}		--	6	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-15V, I _D =-5A, V _{GS} =-10V, R _{GEN} =2.5Ω	--	10	--	nS
Turn-on Rise Time	t _r		--	14	--	nS
Turn-off Delay Time	t _{d(off)}		--	50	--	nS
Turn-off Fall Time	t _f		--	20	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage	-V _{SD}	V _{GS} =0V, I _S =-20A	--	--	1.2	V
Diode Forward Current	-I _S		--	--	30	A

Note :

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS Condition: T_J=25°C, V_{DD}=-15V, V_G=-10V, R_G=25Ω, L=0.5mH, I_{AS}=-12.5A.
3. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%

Typical Performance Characteristics

Figure 1: Output Characteristics

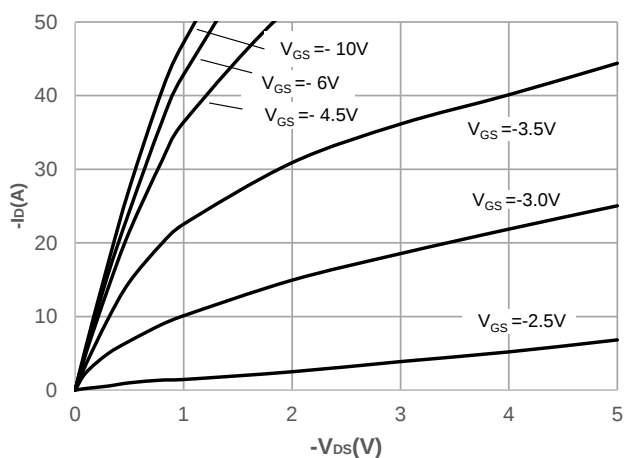


Figure 2: Typical Transfer Characteristics

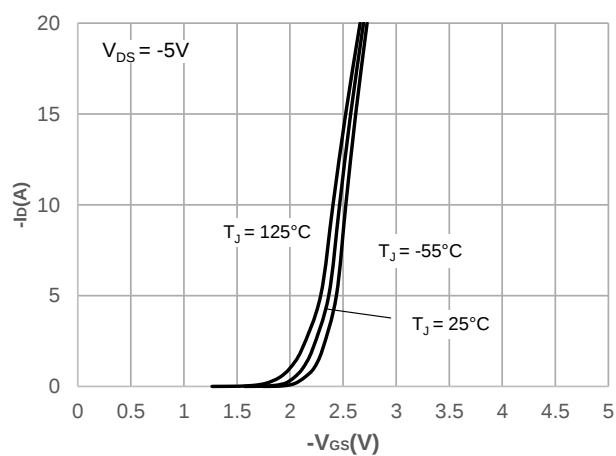


Figure 3: On-resistance vs. Drain Current

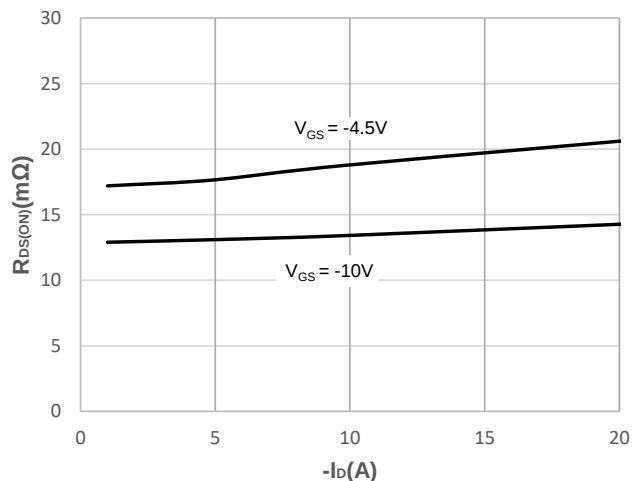


Figure 4: Body Diode Characteristics

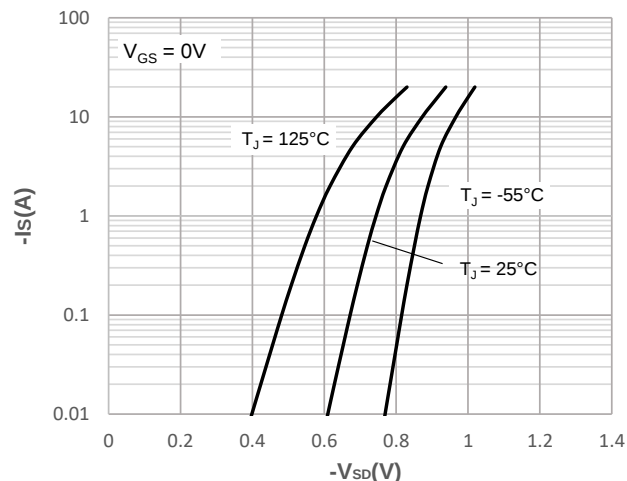


Figure 5: Gate Charge Characteristics

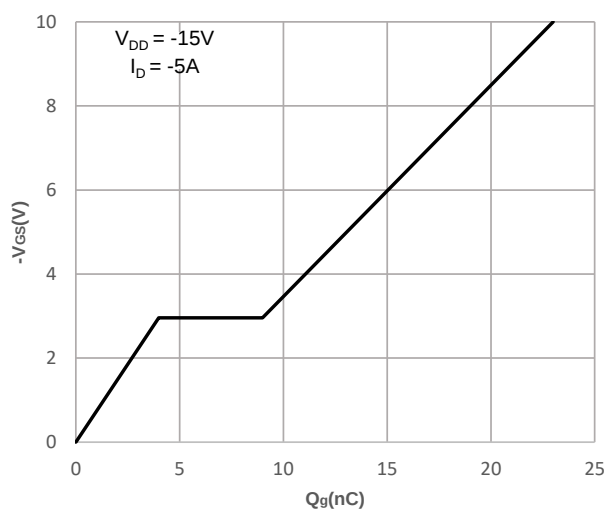
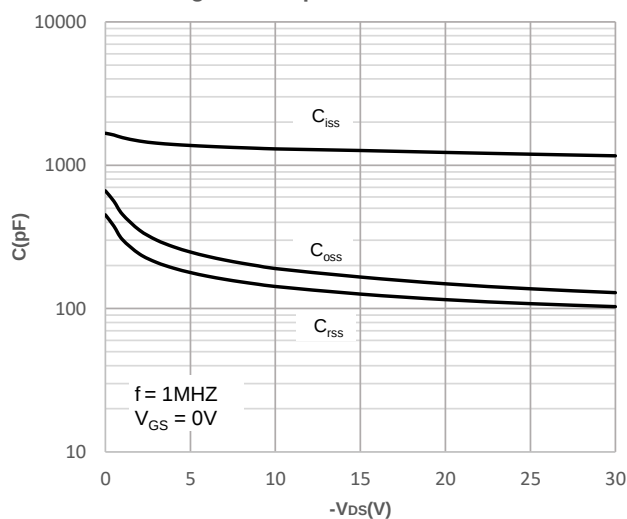


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

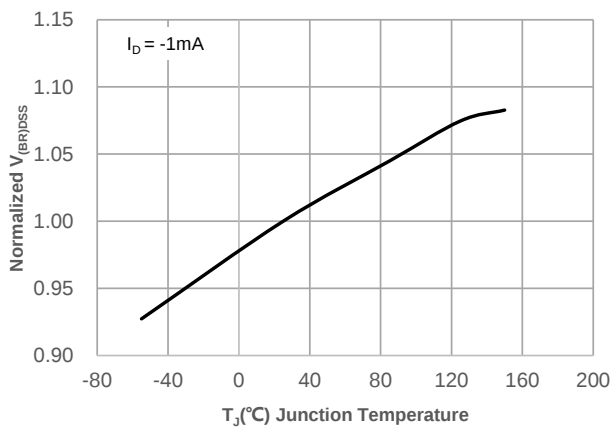


Figure 8: Normalized on Resistance vs. Junction Temperature

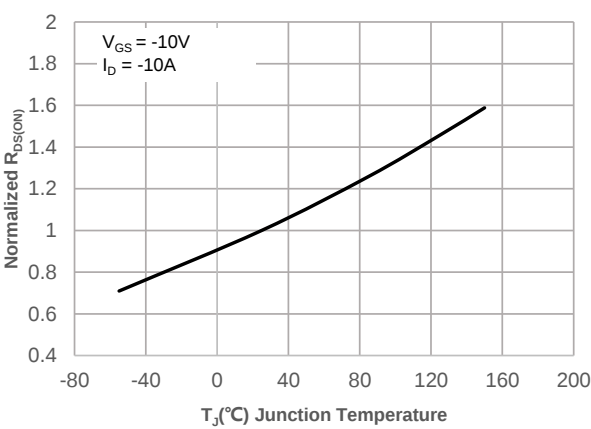
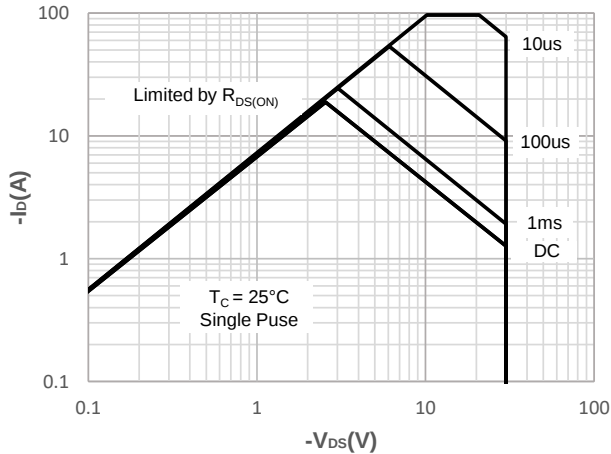


Figure 9: Maximum Safe Operating Area



Test Circuit

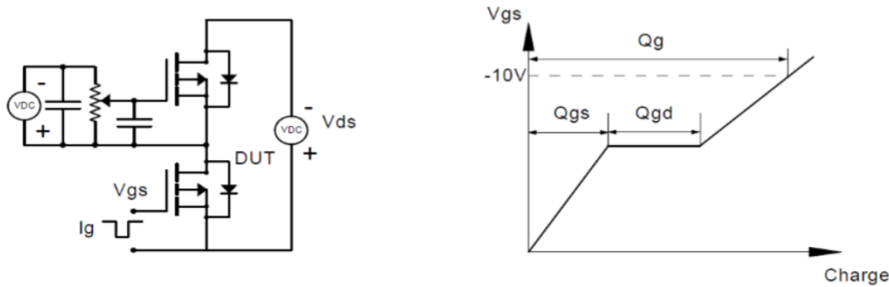


Figure 1: Gate Charge Test Circuit & Waveform

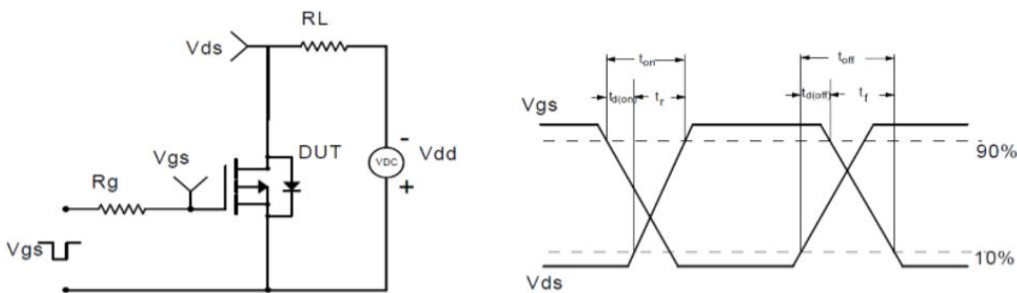


Figure 2: Resistive Switching Test Circuit & Waveform

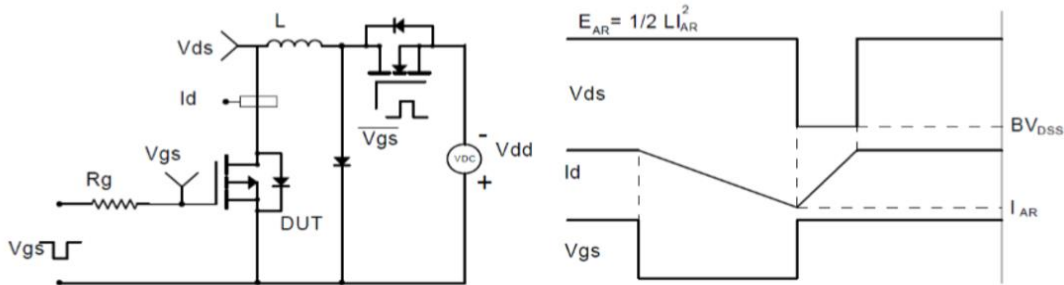


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

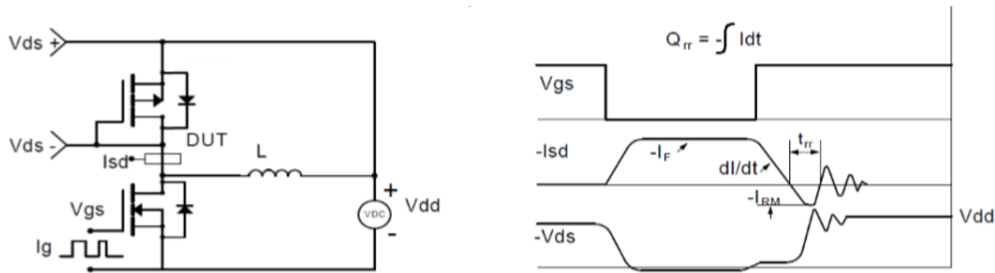
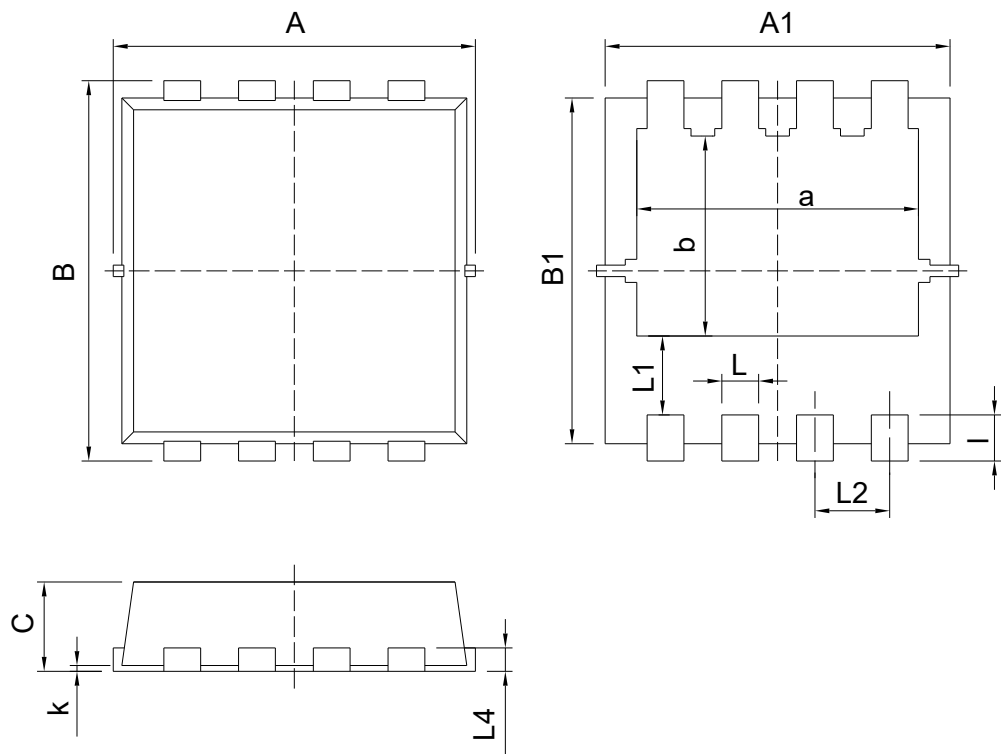


Figure 4: Diode Recovery Test Circuit & Waveform

Package Outline

PDFN3x3-8L

Dimensions in mm



Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	3.2	3.4	L2	0.55	0.75
A1	3.1	3.2	L4	0.14	0.20
B	3.2	3.4	a	2.35	2.55
B1	2.95	3.05	b	1.635	1.835
C	0.75	0.85	k	0.0	0.05
L	0.25	0.35	l	0.3	0.5
L1	-	0.75			

Contact Information

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For additional information, please contact your local Sales Representative.



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