

### Product Summary

- $V_{DS} = 30V, I_D = 90A$
- $R_{DS(on)} < 4m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 6m\Omega @ V_{GS} = 4.5V$

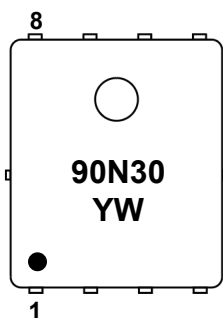
### Features

- Advanced Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

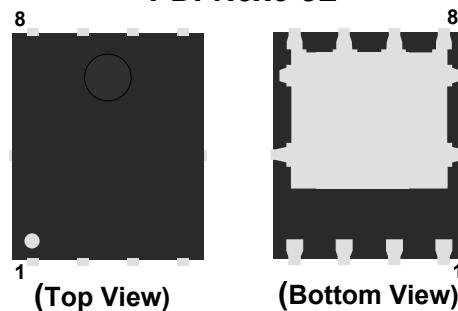
### Application

- BLDC
- Wireless impact
- Mobile phone fast charging

### Marking Code

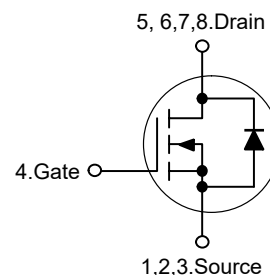


### PDFN5x6-8L



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

### Schematic Diagram



### Absolute Maximum Ratings

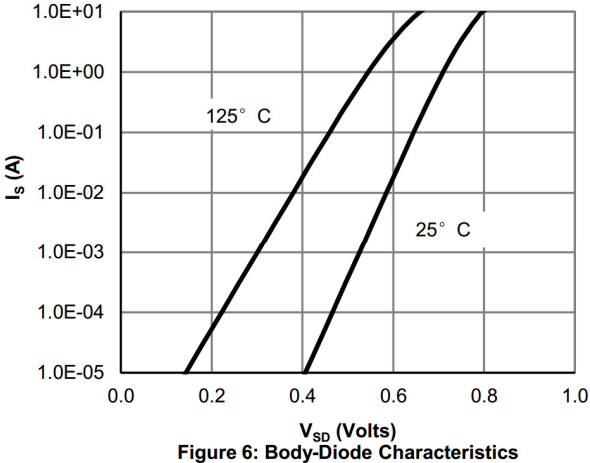
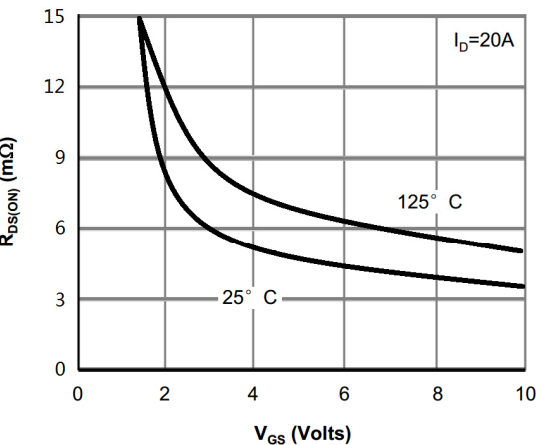
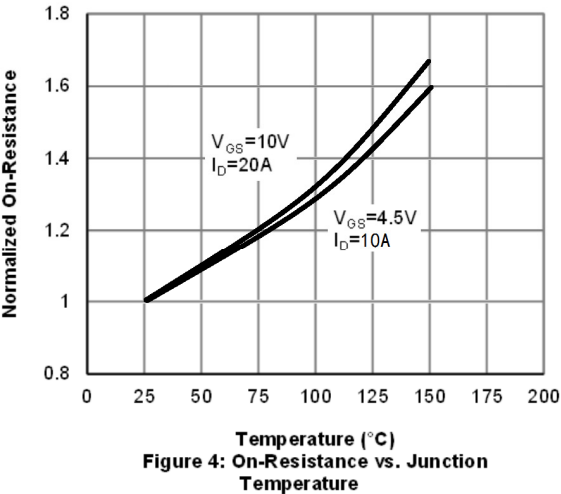
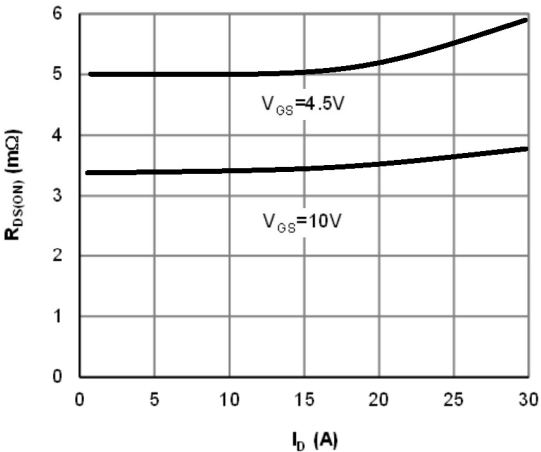
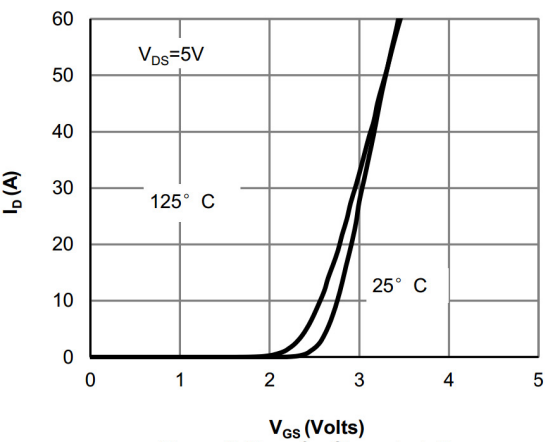
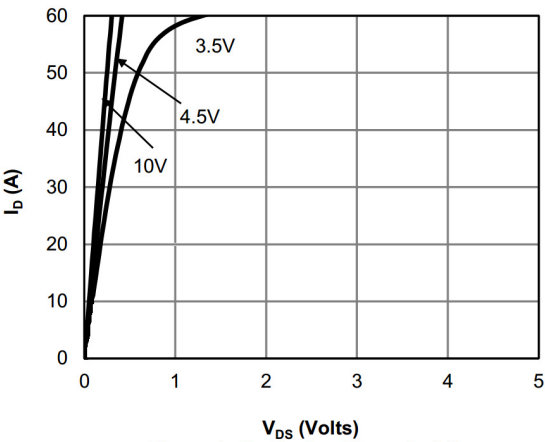
Ratings at 25°C case temperature unless otherwise specified.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Continuous Drain Current	$I_D$	95	A
Pulsed Drain Current	$I_{DM}$	175	A
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Power Dissipation	$P_D(T_c=25^\circ C)$	55	W
Avalanche energy(L=0.5mH)	$E_{AS}$	281	mJ
Avalanche Current(L=0.5mH)	$I_{AS}$	26.5	A
Junction and Storage Temperature Range	$T_j, T_{stg}$	-55 to 150	°C
Maximum Junction-to-Ambient	$t \leq 10s$	$R_{\theta JA}$	25
	Steady-State	$R_{\theta JA}$	55
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	2.3

Electrical Characteristics

(T<sub>J</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =250uA, V <sub>GS</sub> =0V	30	33		V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1.0	uA
Gate-Body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> = ±20V		±100		nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1	1.7	3.0	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =20A		3.5	3.6	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A		5.0	6.5	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V			1.4	V
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V V <sub>GS</sub> =0V f=1.0MHz		2200		
Output Capacitance	C <sub>oss</sub>			145	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>			210		
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V V <sub>DS</sub> =0V f=1MHz		2.0	Ω	
Total Gate Charge	Q <sub>g(10V)</sub>	V <sub>GS</sub> =10V V <sub>DS</sub> =15V I <sub>D</sub> =20A		32		nC
Total Gate Charge	Q <sub>g(4.5V)</sub>			15		
Gate Source Charge	Q <sub>gs</sub>			5.2		
Gate Drain Charge	Q <sub>gd</sub>			6.5		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> =10V V <sub>DS</sub> =15V R <sub>L</sub> =0.75 Ω R <sub>GEN</sub> =3 Ω		8.5		ns
Turn-On Rise Time	t <sub>r</sub>			4.2		
Turn-Off Delay Time	t <sub>d(off)</sub>			30		
Turn-Off Fall Time	t <sub>f</sub>			5.7		



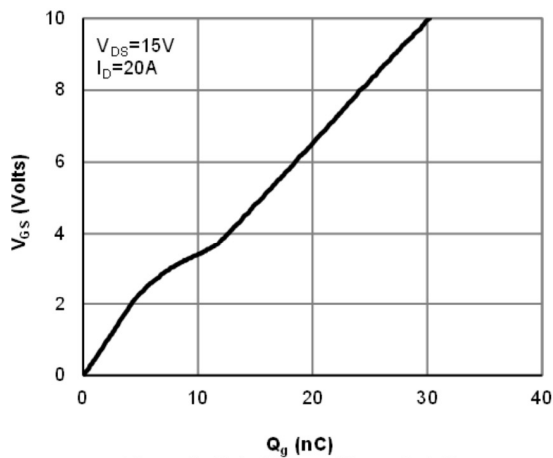


Figure 7: Gate-Charge Characteristics

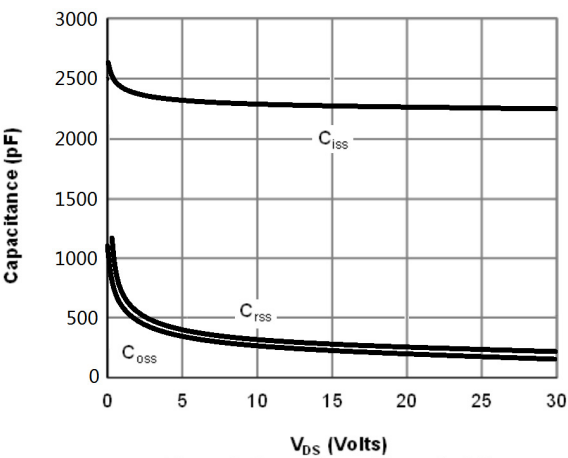


Figure 8: Capacitance Characteristics

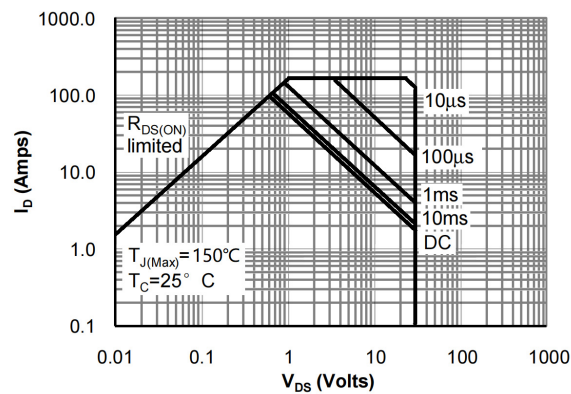


Figure 9: Maximum Forward Biased Safe Operating Area

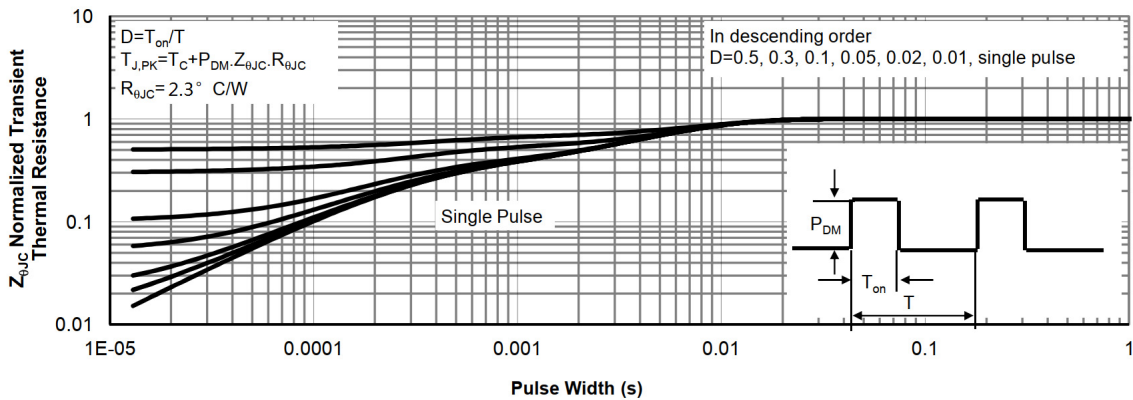


Figure 10: Normalized Maximum Transient Thermal Impedance



Test Circuit

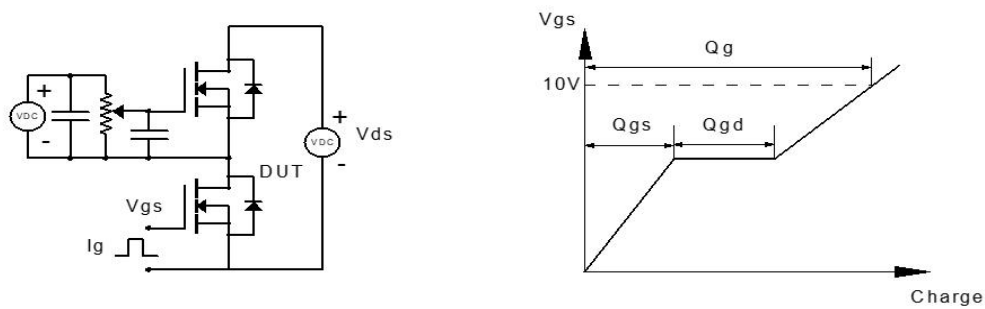


Figure 1: Gate Charge Test Circuit & Waveform

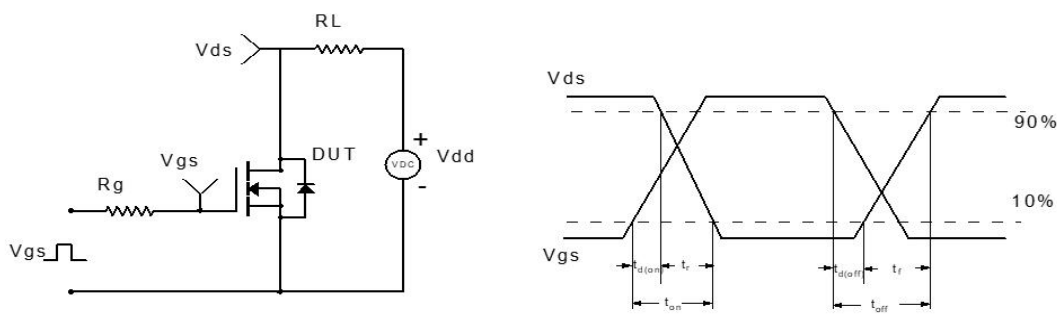


Figure 2: Resistive Switching Test Circuit & Waveform

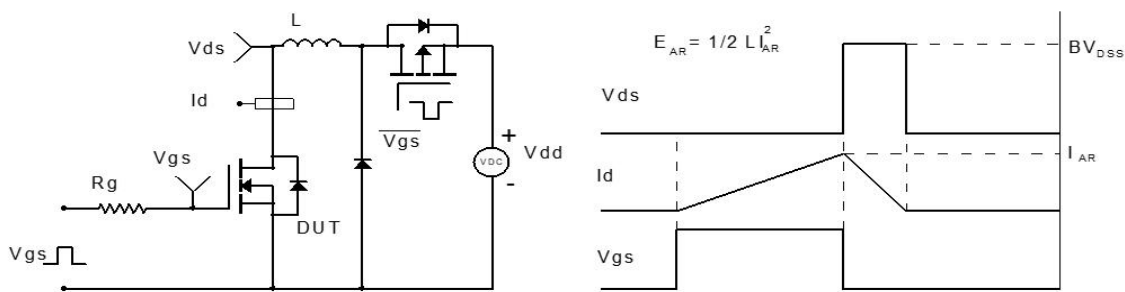


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

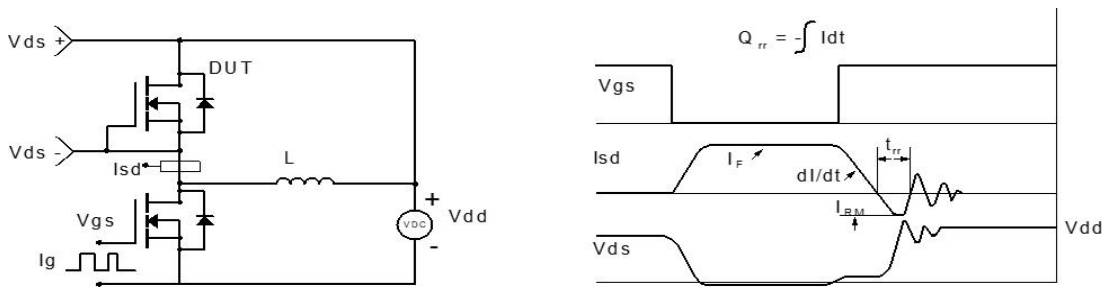
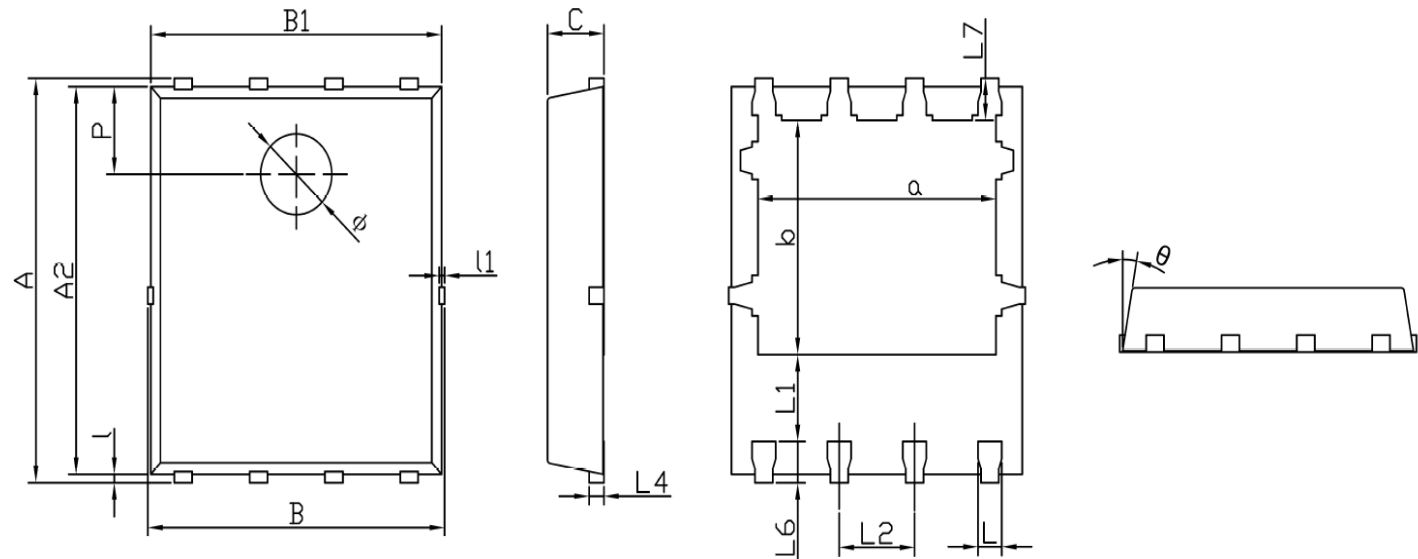


Figure 4: Diode Recovery Test Circuit & Waveform

Package Outline

PDFN5x6-8L Dimensions in mm




Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	5.90	6.10	L1	1.10	-
a	3.91	4.11	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	0.51	0.71
C	0.90	1.00	P	1.15	1.45
L	0.30	0.50	θ	8°	12°
l	0.06	0.20	Φ	1.10	1.30

Contact Information

TANI website: <http://www.tanisemi.com> Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

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