

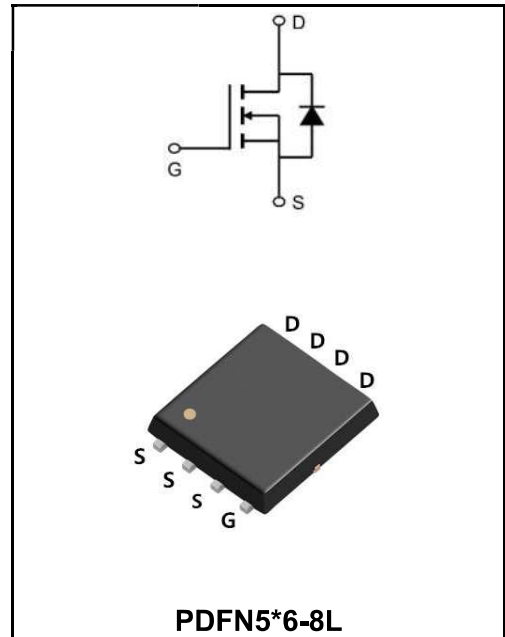
**85V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	95A
<b>V<sub>DSS</sub></b>	85V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 5.2mΩ ( <b>Type:4.5 mΩ</b> )

**Applications**

- ♣ Battery protection
- ♣ Load switch
- ♣ Uninterruptible power supply



**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW90N08NF	PDFN5*6-8L	YFW 90N08NF XXXXX	5000PCS/Tape

**Maximum Ratings at T<sub>c</sub>=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	85	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Continuous Drain Current , V <sub>GS</sub> @10V @T <sub>c</sub> =25°C	<b>I<sub>D</sub></b>	95	<b>A</b>
Continuous Drain Current , V <sub>GS</sub> @10V @T <sub>c</sub> =100°C	<b>I<sub>D</sub></b>	75	<b>A</b>
Pulsed Drain Current	<b>I<sub>DM</sub></b>	480	<b>A</b>
Single Pulse Avalanche Energy	<b>E<sub>AS</sub></b>	560	<b>mJ</b>
Avalanche Current	<b>I<sub>AS</sub></b>	43.4	<b>A</b>
Total Power Dissipation <sup>4</sup> @T <sub>c</sub> =25°C	<b>P<sub>D</sub></b>	180	<b>W</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>
Operating Junction Temperature Range	<b>T<sub>J</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance Junction-Ambient	<b>R<sub>θJA</sub></b>	0.70	<b>°C/W</b>
Thermal Resistance Junction-Case	<b>R<sub>θJC</sub></b>	62	<b>°C/W</b>

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	<b>V(BR)DSS</b>	85	92	-	<b>V</b>
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A, T_J=25^\circ C$	<b>V<sub>GS(th)</sub></b>	2.0	3.0	4.0	<b>V</b>
Zero gate voltage drain current	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ C$	<b>I<sub>DSS</sub></b>	-	-	1	<b>μA</b>
	$V_{DS}=80V, V_{GS}=0V, T_J=125^\circ C$		-	-5	-	
Gate- Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	<b>I<sub>GSS</sub></b>	-	-	100	<b>nA</b>
Drain-source on-state resistance	$V_{GS}=10V, I_D=50A, T_J=25^\circ C$	<b>R<sub>DS(ON)</sub></b>	-	4.5	5.2	<b>mΩ</b>
Transconductance	$V_{DS}=5V, I_D=50V$	<b>g<sub>fs</sub></b>	-	80	-	<b>S</b>
Input Capacitance	$V_{GS}=0V$ $V_{DS}=40V$ $f=1MHz$	<b>C<sub>iss</sub></b>	-	4032	-	<b>pF</b>
Output Capacitance		<b>C<sub>oss</sub></b>	-	546	-	
Reverse Transfer Capacitance		<b>C<sub>rss</sub></b>	-	35	-	
Total Gate Charge	$V_{GS}=10V$ $V_{DS}=40V$ $I_D=25A$	<b>Q<sub>g</sub></b>	-	65.7	-	<b>nC</b>
Gate-Source Charge		<b>Q<sub>gs</sub></b>	-	24.9	-	
Gate-Drain Charge		<b>Q<sub>gd</sub></b>	-	13.9	-	
Turn-on delay time	$T_J=25^\circ C$ $V_{GS}=10V$ $V_{DS}=40V$ $R_L=3\Omega$	<b>t<sub>d(on)</sub></b>	-	20.1	-	<b>ns</b>
Rise Time		<b>T<sub>r</sub></b>	-	38	-	
Turn-Off Delay Time		<b>t<sub>d(OFF)</sub></b>	-	45.1	-	
Fall Time		<b>t<sub>f</sub></b>	-	21	-	
Gate Resistance	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	<b>R<sub>g</sub></b>	-	2	-	<b>Ω</b>
Body Diode Forward Voltage	$V_{GS}=0V, I_{SD}=50A$	<b>V<sub>SD</sub></b>	-	0.9	1.2	<b>V</b>
Body Diode Reverse Recovery Time	$I_F=20A, dI/dt=500A/\mu s$	<b>t<sub>rr</sub></b>	-	61	-	<b>ns</b>
Body Diode Reverse Recovery Charge		<b>Q<sub>rr</sub></b>	-	340	-	<b>nC</b>

Note :

- 1、 The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width .The EAS data shows Max. rating .
- 3、 The test cond ≅ 300us duty cycle ≅ 2%, duty cycle ition is VDD=64VGS=10V,L=0.1mH,IAS=53.8A
- 4、 The power dissipation is limited by 175°C junction temperature
- 5、 The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

**Ratings and Characteristic Curves**

**Typical Characteristics**

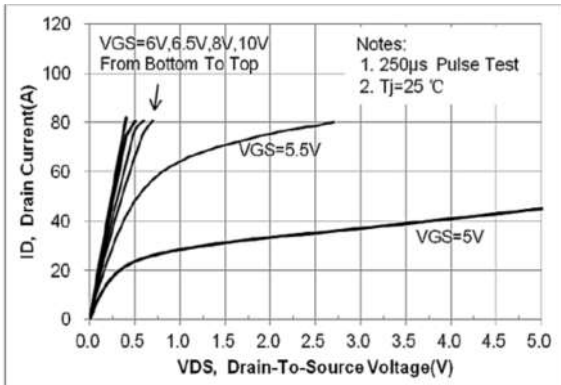


Figure 1. Typ. Output Characteristics (Tj=25 °C)

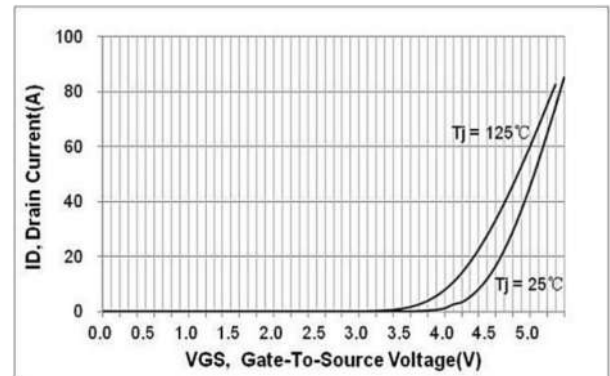


Figure 2. Transfer Characteristics

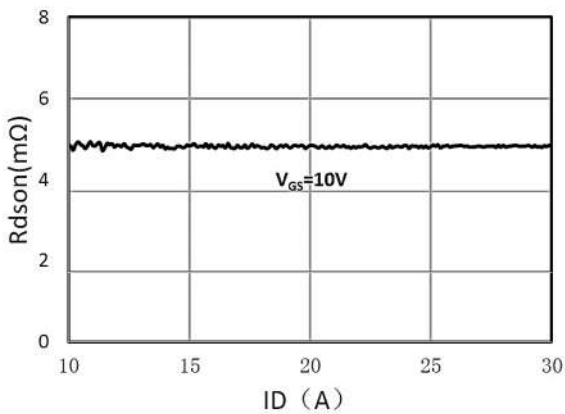


Figure 3. On-Resistance vs. Drain Current and Gate Voltage Figure

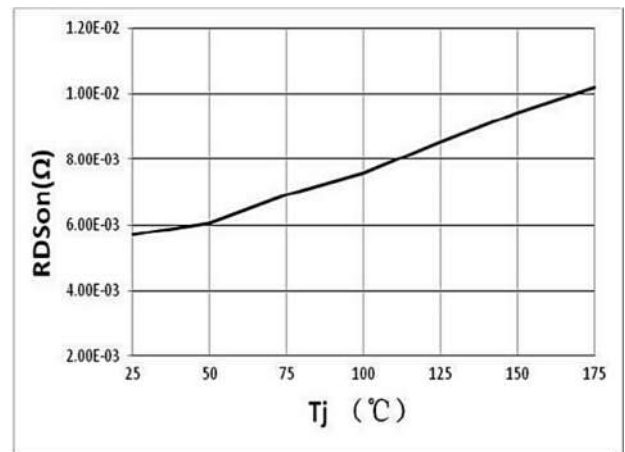


Figure 4. On-Resistance vs. Junction Temperature

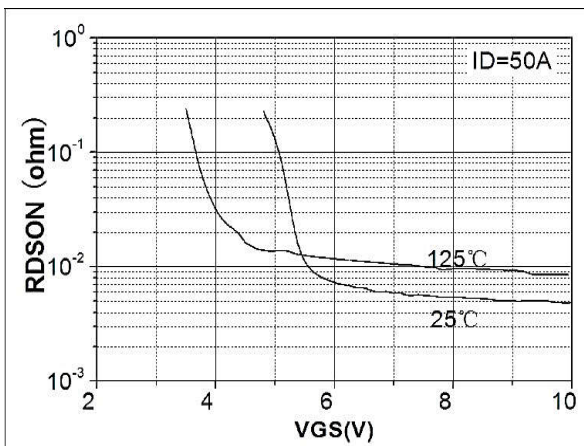


Figure 5. On-Resistance vs. Gate-Source Voltage

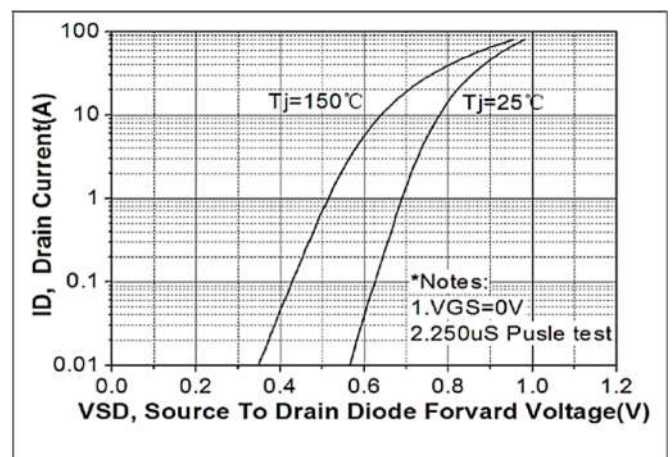


Figure 6 . Body-Diode Characteristics

Ratings and Characteristic Curves

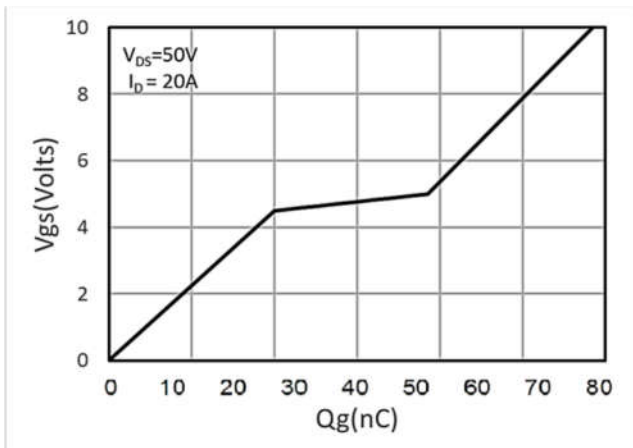


Figure 7. Gate-Charge Characteristics

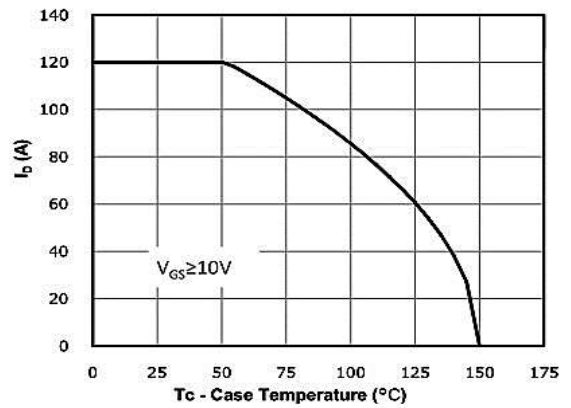


Figure 8. Drain Current Derating

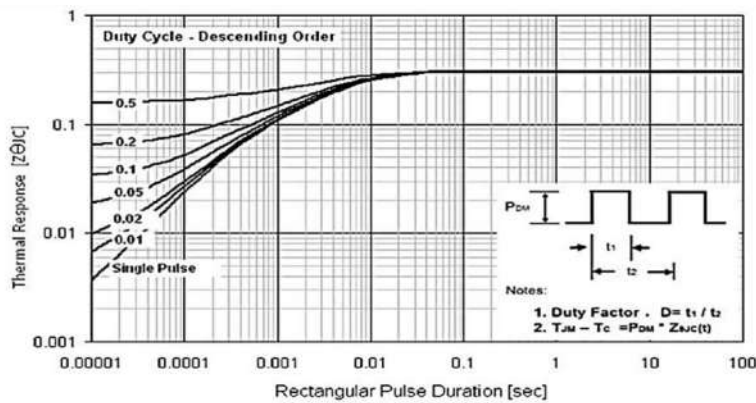


Figure 9: Normalized Maximum Transient Thermal Impedance

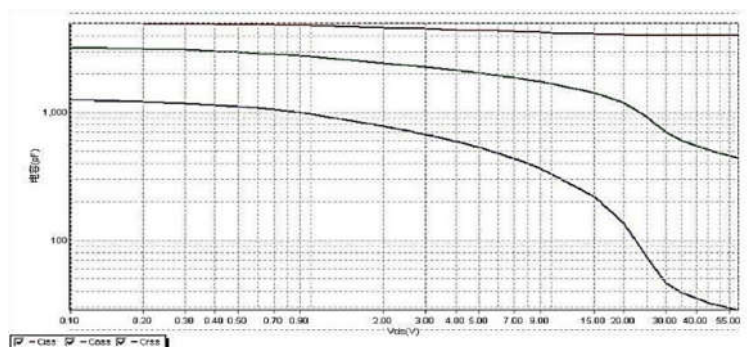
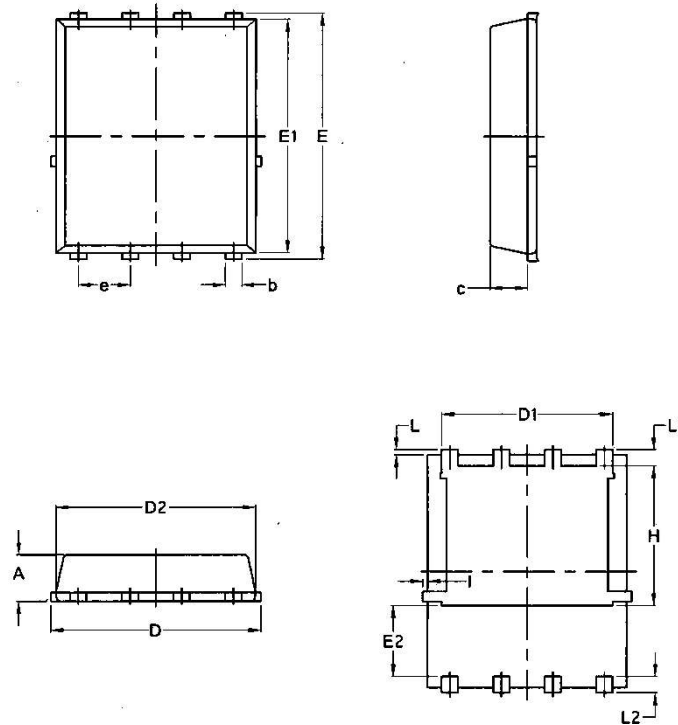


Figure 10. Capacitance Characteristics

PDFN5\*6-8L



Symbol	Common			
	mm		Inch	
	Min	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070