

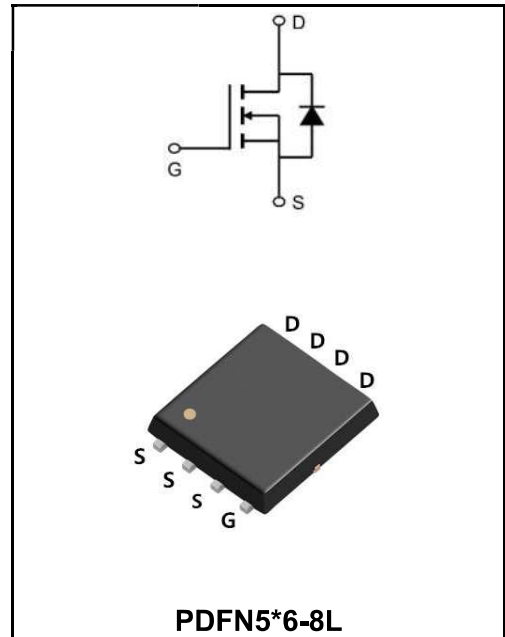
85V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	120A
V_{DSS}	85V
R_{DS(on)-typ(@V_{GS}=10V)}	< 4mΩ(Type:3.2 mΩ)

Applications

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW120N08NF	PDFN5*6-8L	YFW 120N08NF XXXXX	5000PCS/Tape

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	85	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current , V _{GS} @10V @T _C =25°C	I_D	120	A
Continuous Drain Current , V _{GS} @10V @T _C =100°C	I_D	83	A
Pulsed Drain Current	I_{DM}	480	A
Single Pulse Avalanche Energy	E_{AS}	320	mJ
Total Power Dissipation ⁴ @T _C =25°C	P_D	122.5	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-Ambient	R_{θJA}	25	°C/W
Thermal Resistance Junction-Case	R_{θJC}	1.02	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V(BR)DSS	85	95	-	V
Gate-body Leakage current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Zero gate voltage drain current	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1	μA
	$V_{DS}=80V, V_{GS}=0V, T_J=100^\circ C$		-	-	100	
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	2	3	4	V
Drain-source on-state resistance ²	$V_{GS}=10V, I_D=20A$	R_{DS(ON)}	-	3.2	4	mΩ
Forward Transconductance ²	$V_{DS}=10V, I_D=20V$	g_{fs}	-	75	-	S
Input Capacitance	$V_{GS}=0V$ $V_{DS}=40V$ $f=1MHz$	C_{iss}	-	5235	-	pF
Output Capacitance		C_{oss}	-	985	-	
Reverse Transfer Capacitance		C_{rss}	-	58	-	
Gate Resistance	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	R_g	-	0.6	-	Ω
Total Gate Charge	$V_{GS}=10V$ $V_{DS}=40V$ $I_D=20A$	Q_g	-	78.5	-	nC
Gate-Source Charge		Q_{gs}	-	19.6	-	
Gate-Drain Charge		Q_{gd}	-	17	-	
Turn-on delay time	$V_{GS}=10V$ $V_{DS}=40V$ $R_G=3\Omega$ $I_D=20A$	t_{d(on)}	-	15.4	-	ns
Rise Time		T_r	-	13	-	
Turn-Off Delay Time		t_{d(OFF)}	-	34	-	
Fall Time		t_f	-	6.2	-	
Diode Forward Voltage ²	$V_{GS}=0V, I_F=20A$	V_{SD}	-	-	1.2	V
Continuous Source Current ^{1,5}	$V_G=V_D=0V, \text{Force Current}$	I_S	-	-	130	A
Body Diode Reverse Recovery Time	$I_F=20A, di/dt=100A/\mu s$	t_{rr}	-	57	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	114	-	nC

Note :

- 1、 The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width .The EAS data shows Max. rating .
- 3、 The test cond \cong 300us duty cycle \cong 2%, duty cycle ition is $V_{DD}=64V_{GS}=10V, L=0.1mH, I_{AS}=40A$
- 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

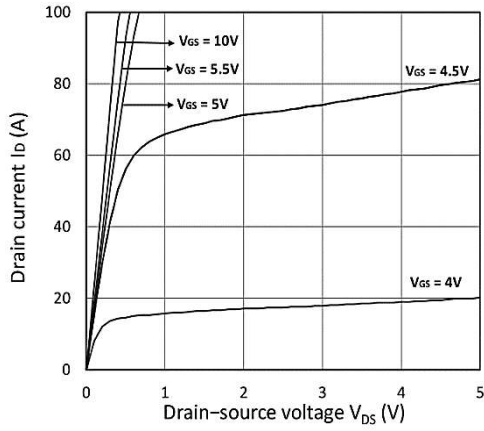


Figure 1. Output Characteristics

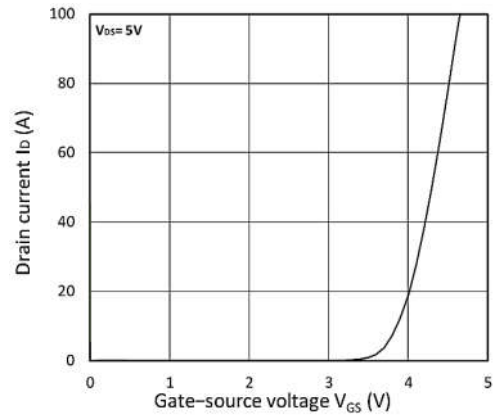


Figure 2. Transfer Characteristics

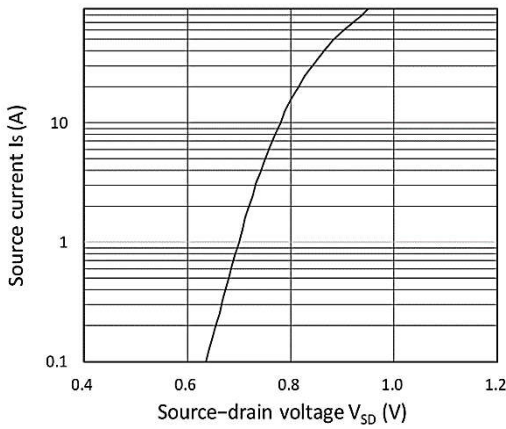


Figure 3. Forward Characteristics of Reverse

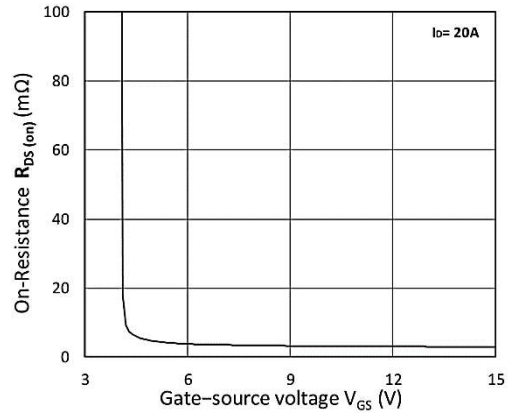


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

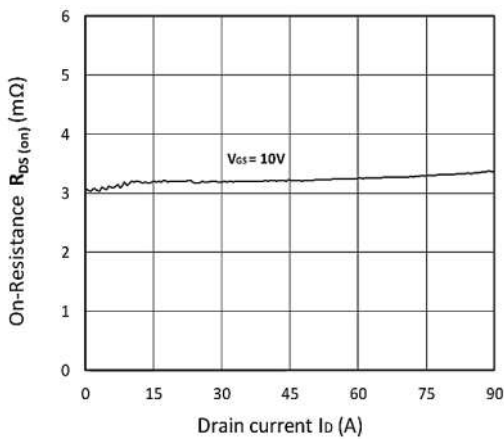


Figure 5. $R_{DS(ON)}$ vs. I_D

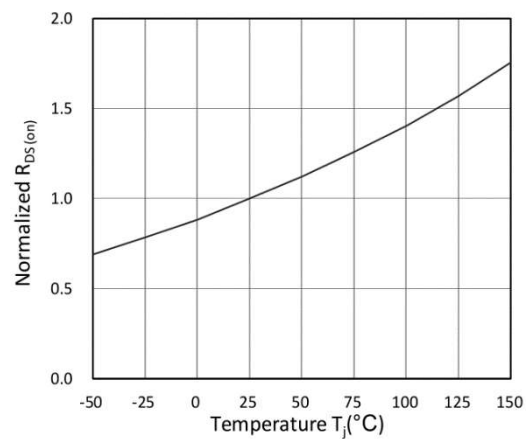


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

Ratings and Characteristic Curves

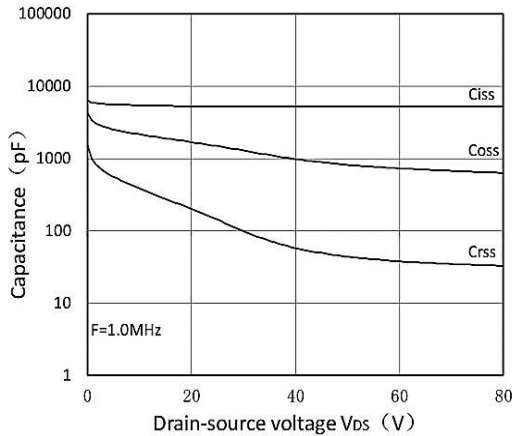


Figure 7. Capacitance Characteristics

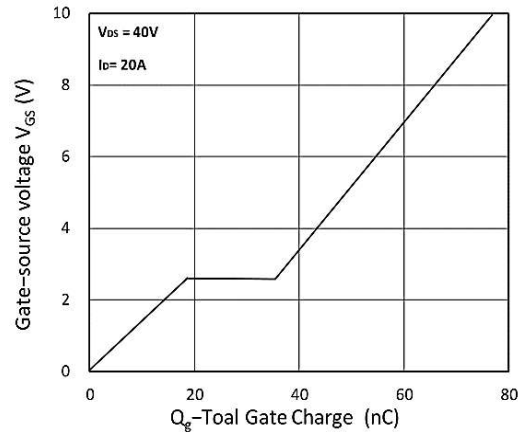


Figure 8. Gate Charge Characteristics

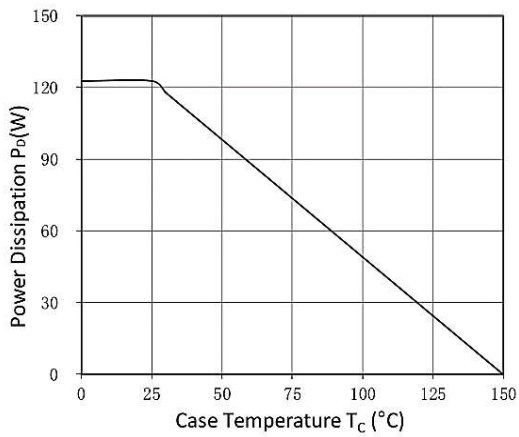


Figure 9. Power Dissipation

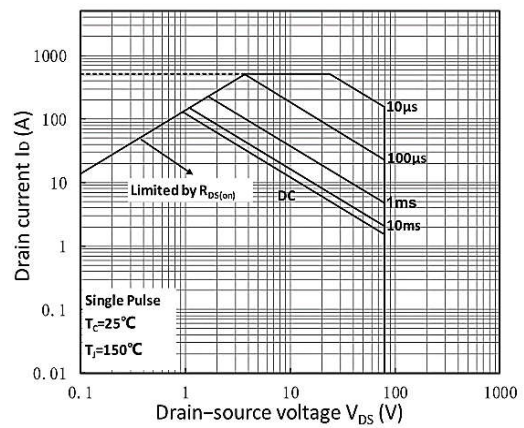


Figure 10. Safe Operating Area

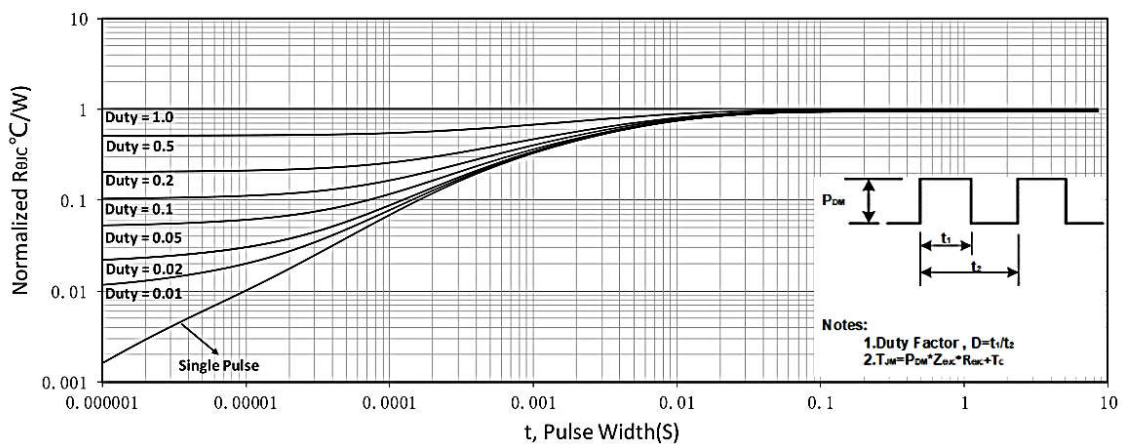
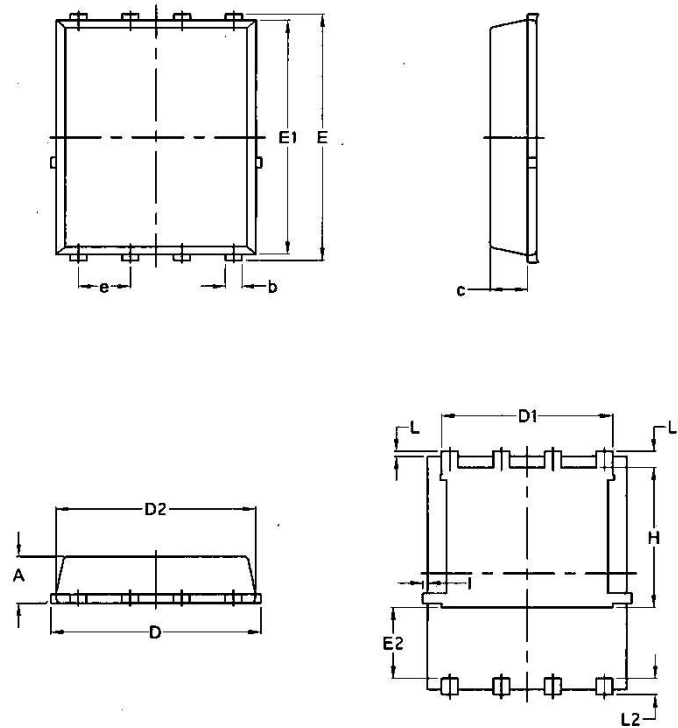


Figure 11. Normalized Maximum Transient Thermal Impedance

PDFN5*6-8L



Symbol	Common			
	mm		Inch	
	Mim	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
l	/	0.18	/	0.0070