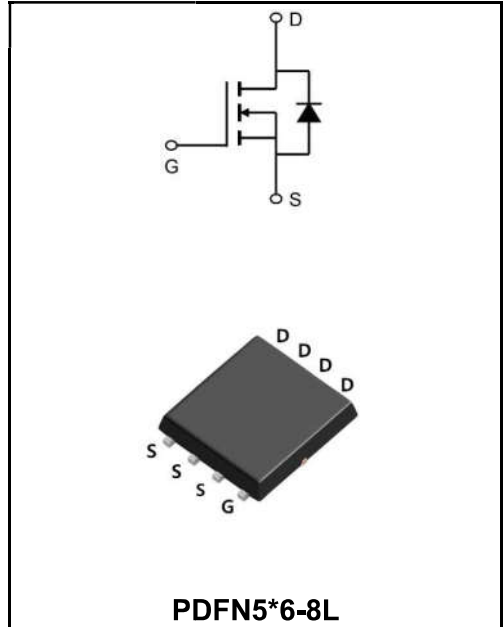


**40V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	120A
<b>V<sub>DSS</sub></b>	40V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 5mΩ( <b>Type:3.5 mΩ</b> )



**Application**

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

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW120N04NF	PDFN5*6-8L	YFW 120N04NF 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>	40	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Continuous Drain Current	<b>I<sub>D</sub></b>	120	<b>A</b>
Pulsed Drain Current (Note1)	<b>I<sub>DM</sub></b>	400	<b>A</b>
Total Power Dissipation	<b>P<sub>D</sub></b>	120	<b>W</b>
Single Pulse Avalanche Energy (Note1)	<b>E<sub>AS</sub></b>	480	<b>mJ</b>
Operating Temperature Range	<b>T<sub>J</sub></b>	150	<b>°C</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance Junction to Case	<b>R<sub>θJC</sub></b>	1.04	<b>°C/W</b>
Thermal Resistance Junction to Ambient	<b>R<sub>θJA</sub></b>	55	<b>°C/W</b>

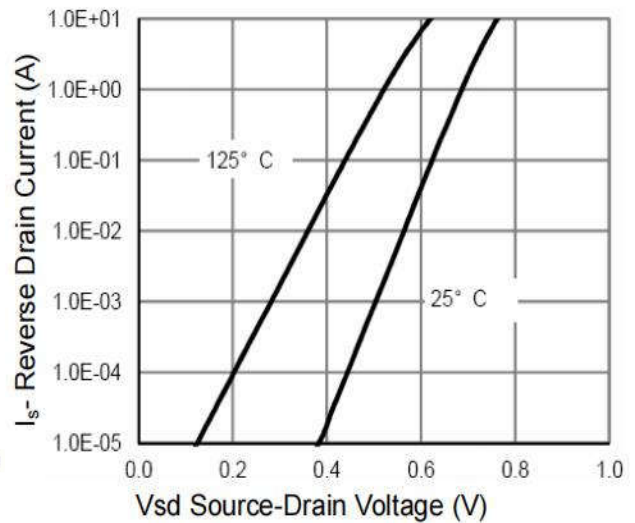
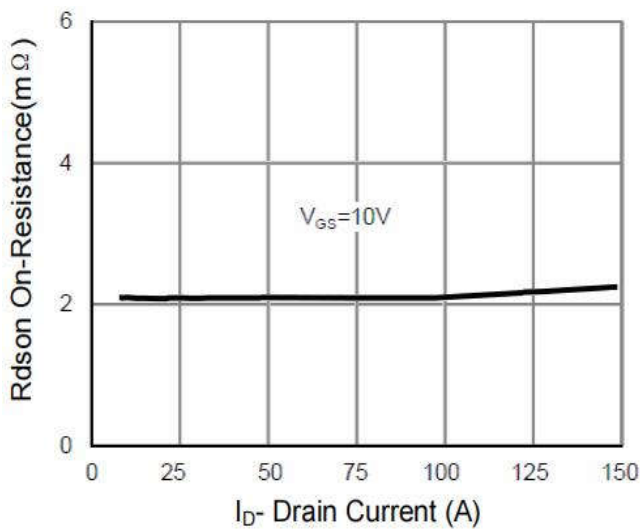
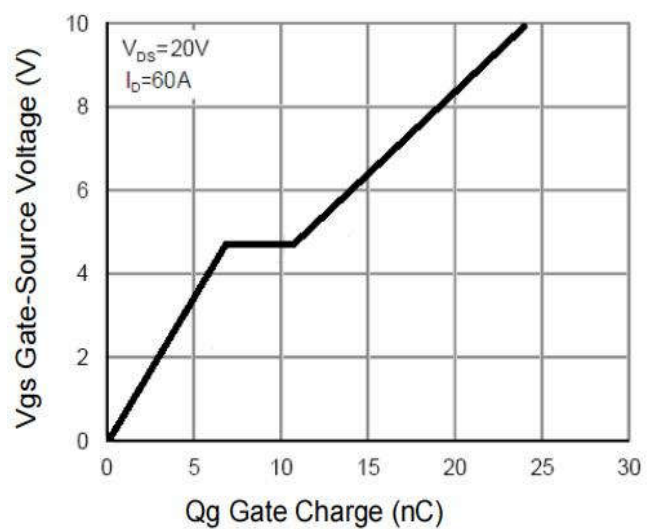
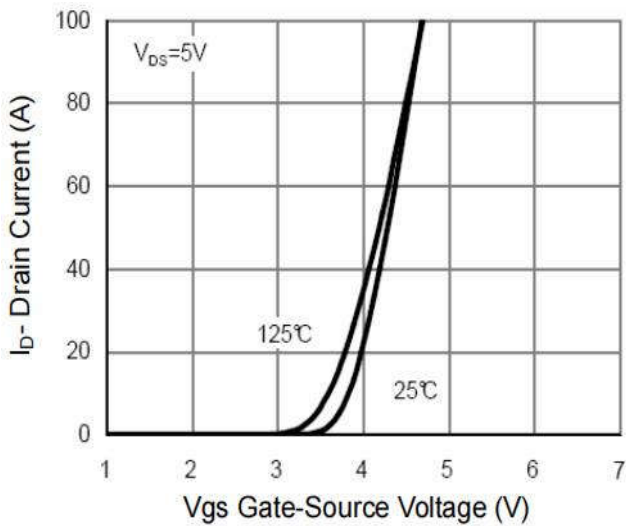
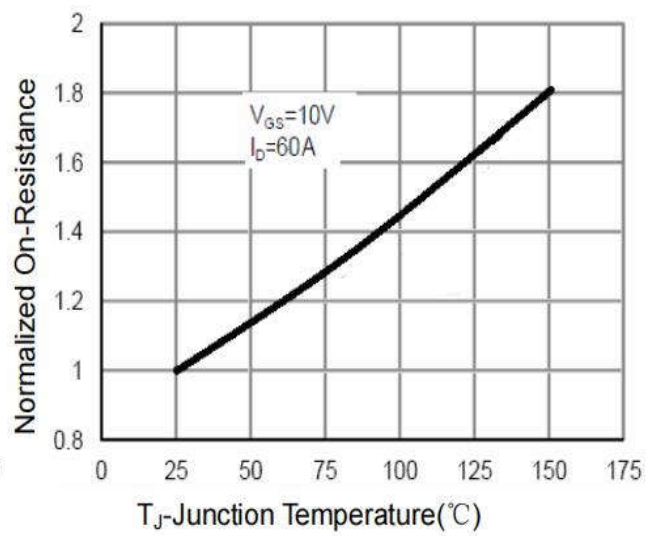
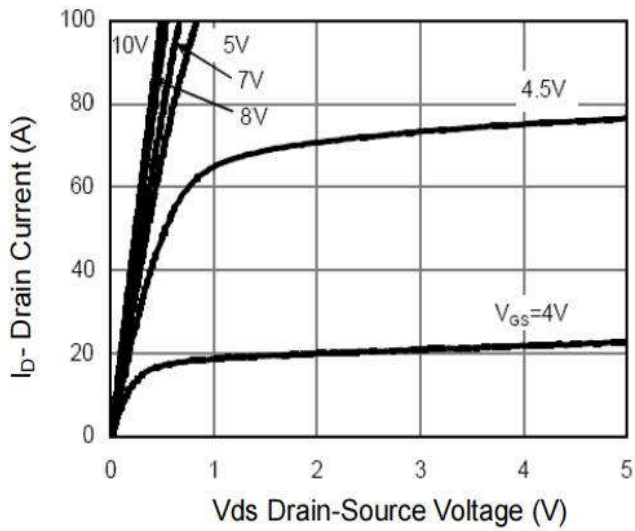
**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	40	-	-	V
Drain -Source Leakage Current	$V_{DS}=40V, V_{GS}=0V$	$I_{DSS}$	-	-	1	$\mu A$
Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	$I_{GSS}$	-	-	$\pm 100$	nA
Gate - Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance (Note 3)	$V_{GS}=10V, I_D=30A$	$R_{DS(ON)}$	-	3.5	5	m $\Omega$
	$V_{GS}=4.5V, I_D=20A$		-	5.5	8	
Forward Transconductance	$V_{DS}=5V, I_D=60A$	$g_{FS}$	-	56	-	S
Input Capacitance	$V_{DS}=20V$ $V_{GS}=0V$ $f=1MHz$	$C_{iss}$	-	1820	-	pF
Output Capacitance		$C_{oss}$	-	435	-	
Reverse Transfer Capacitance		$C_{rss}$	-	34	-	
Turn-on delay time(Note 2)	$V_{DD}=20V$ $V_{GS}=10V$ $R_G=1.6\Omega$ $I_D=60A$	$t_{d(on)}$	-	7	-	ns
Rise Time(Note 2)		$T_r$	-	2.5	-	
Turn-Off Delay Time(Note 2)		$t_{d(OFF)}$	-	24	-	
Fall Time(Note 2)		$t_f$	-	3.5	-	
Total Gate Charge(Note2)	$V_{DS}=20V, V_{GS}=10V, I_D=60A$	$Q_G$	-	24	-	nC
Gate to Source Charge(Note2)		$Q_{gs}$	-	7	-	
Gate to Drain Charge(Note2)		$Q_{gd}$	-	3.5	-	
Maximun Body-Diode Continuous Current		$I_S$	-	-	120	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=60A, T_J=25^\circ C$	$V_{SD}$	-	1.2	-	V
Reverse Recovery Time(Note2)	$T_J = 25^\circ C, I_F = I_S, di / dt = 100 A/\mu s$	$t_{rr}$	-	21	-	ns
Reverse Recovery Charge(Note2)		$Q_{rr}$	-	60	-	nC

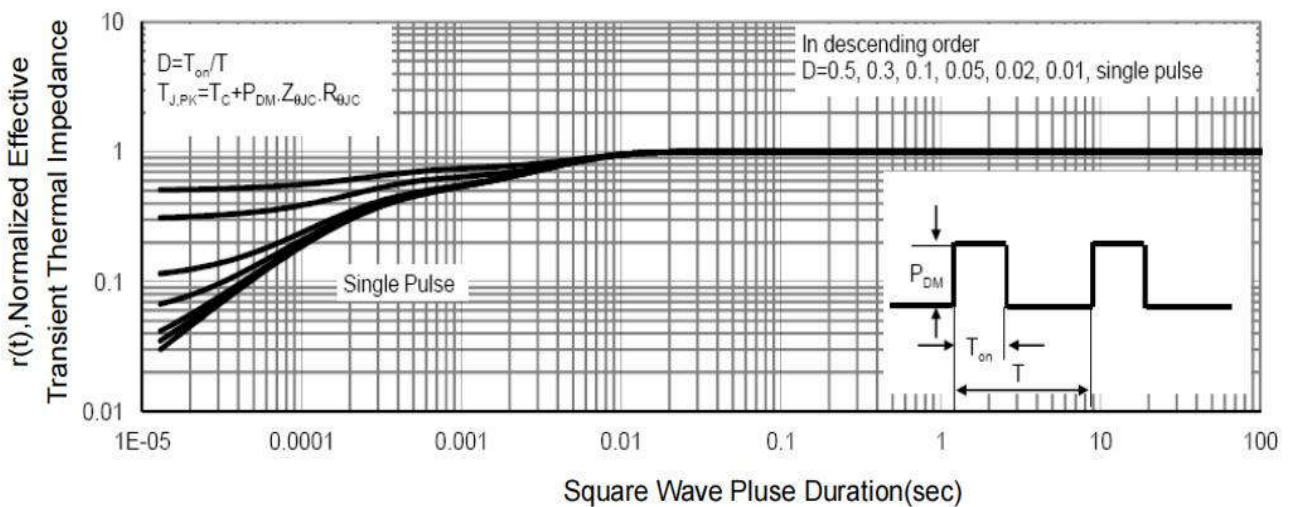
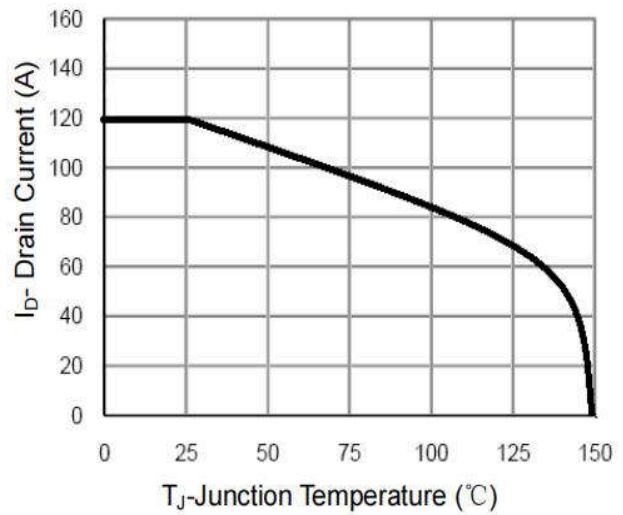
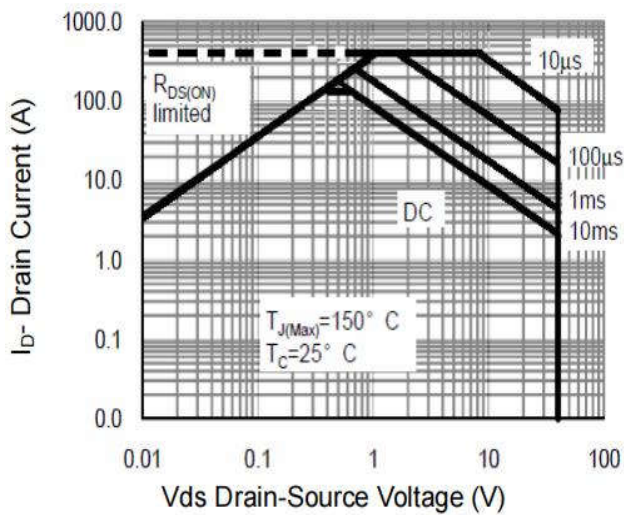
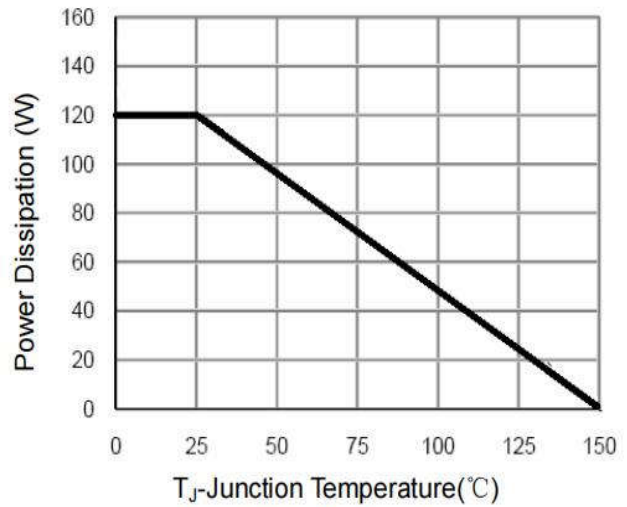
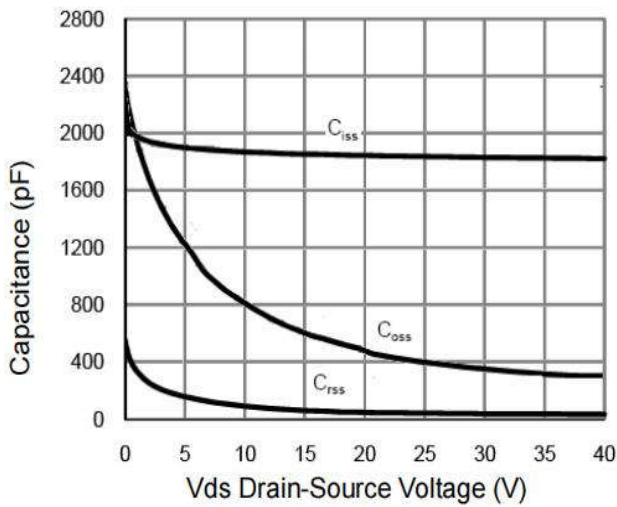
Note1: Pulse test: 300  $\mu s$  pulse width, 2 % duty cycle

Note 2: Pulse test: 300  $\mu s$  pulse width, 2 % duty cycle

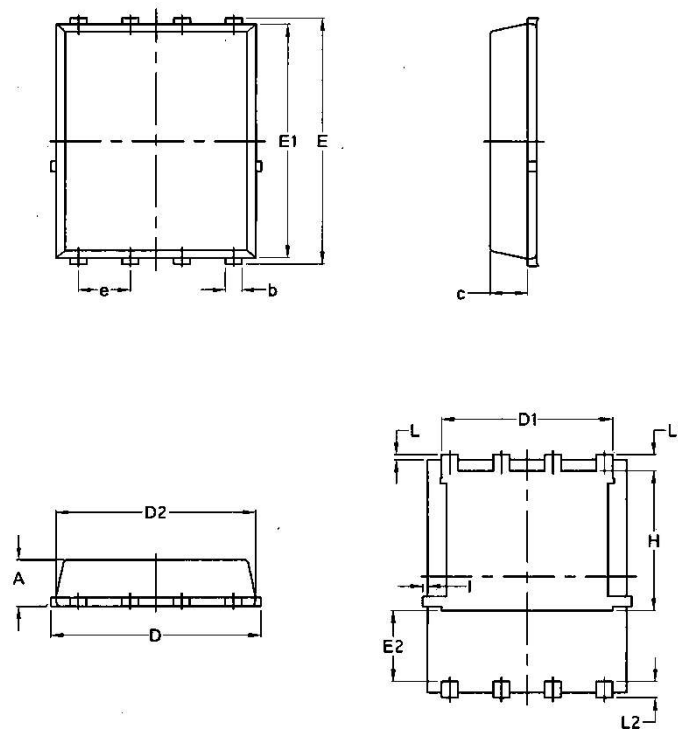
Ratings and Characteristic Curves



**Ratings and Characteristic Curves**



PDFN5\*6-L



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