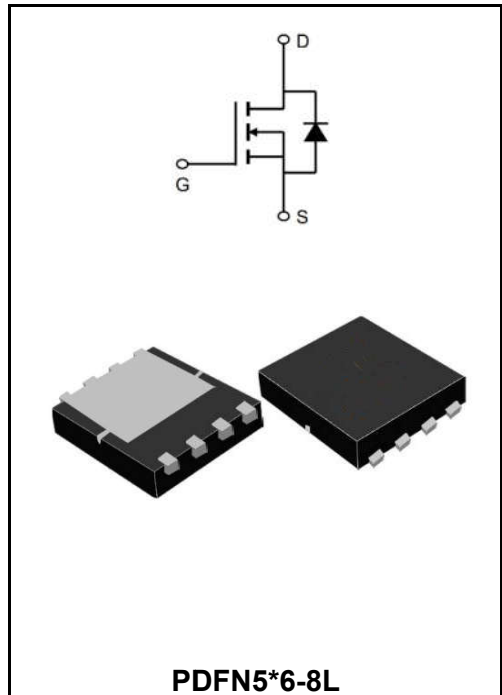


20V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	70A
V_{DSS}	20V
$R_{DS(on)-typ}(@V_{GS}=4.5V)$	< 5.5mΩ (Type: 3.8 mΩ)



Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW70N02NF	PDFN5*6-8L	YFW 70N02NF XXXXX	5000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	20	V
Gate - Source Voltage	V_{GS}	± 12	V
Continuous Drain Current, V_{GS} @ 4.5V @ $T_A=25^{\circ}C$	I_D	60	A
Continuous Drain Current, V_{GS} @ 4.5V @ $T_A=70^{\circ}C$	I_D	42	A
Pulsed Drain Current note1	I_{DM}	210	A
Single Pulse Avalanche Energy note2	E_{AS}	56.2	mJ
Power Dissipation @ $T_A=25^{\circ}C$	P_D	57	W
Operating Junction Temperature Range	T_J, T_{STG}	-55 to +175	°C
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	62	°C/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	2.63	°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	20	24	-	V
Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	I_{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	0.5	0.7	1.2	V
Static Drain-Source On-Resistance note3	$V_{GS}=4.5V, I_D=30A$	R_{DS(ON)}	-	3.8	5.5	mΩ
	$V_{GS}=2.5V, I_D=20A$		-	7.4	9.0	
Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	2500	-	pF
Output Capacitance		C_{oss}	-	407	-	
Reverse Transfer Capacitance		C_{rss}	-	386	-	
Total Gate Charge	$V_{DS}=10V$ $I_D=30A$ $V_{GS}=4.5V$	Q_g	-	32	-	nC
Gate-Source Charge		Q_{gs}	-	3	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	11	-	
Turn-on delay time	$V_{DS}=10V$ $I_D=30A$ $R_{GEN}=3\Omega$ $V_{GS}=4.5V$	t_{d(on)}	-	17	-	ns
Turn-on Rise Time		T_r	-	49	-	
Turn-Off Delay Time		t_{d(OFF)}	-	74	-	
Turn- Off Fall Time		t_f	-	26	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	75	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	300	A
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=30A$	V_{SD}	-	-	1.2	V

Notes:

- 1、Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2、The test condition is, VDD=10V, VG=4.5V, L=0.5mH, RG=25Ω, IAS=15A
- 3、The data tested by pulsed Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%
- 4、The power dissipation is limited by 150°C junction temperature

Ratings and Characteristic Curves

Typical Characteristics

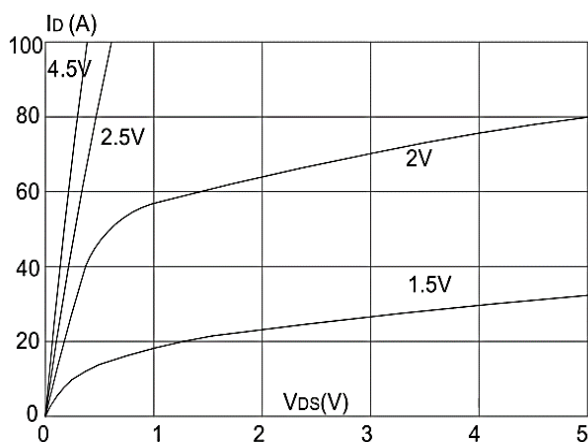


Figure1: Output Characteristics

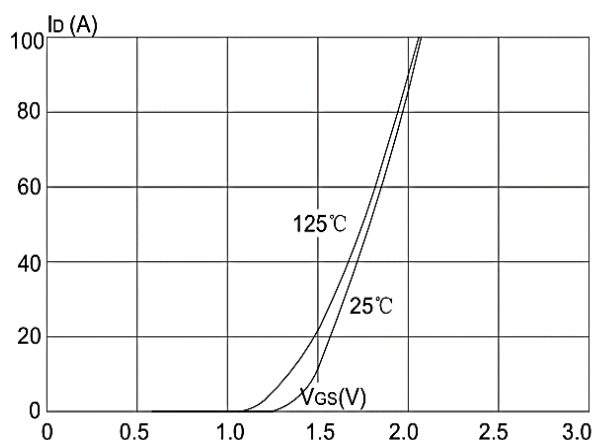


Figure 2: Typical Transfer Characteristics

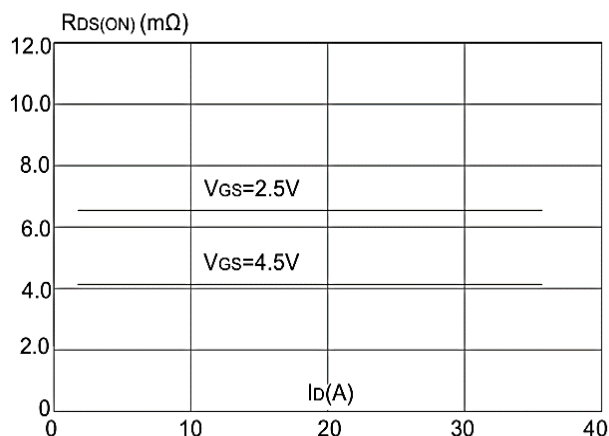


Figure 3: On-resistance vs. Drain Current

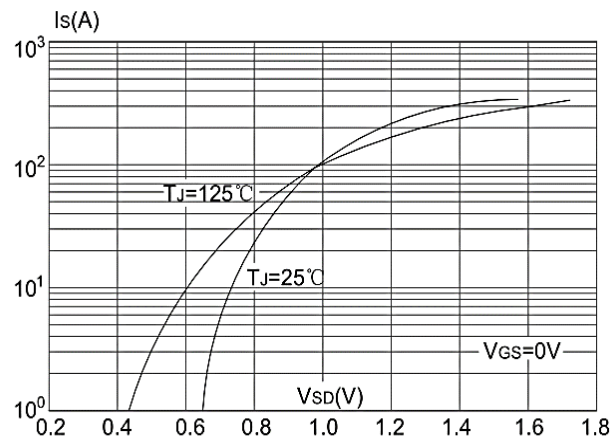


Figure 4: Body Diode Characteristics

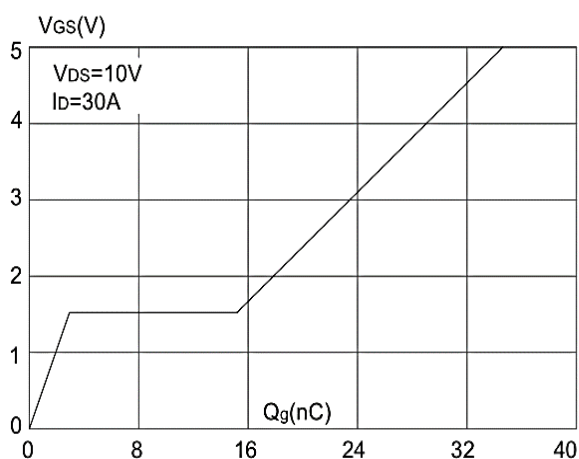


Figure 5: Gate Charge Characteristics

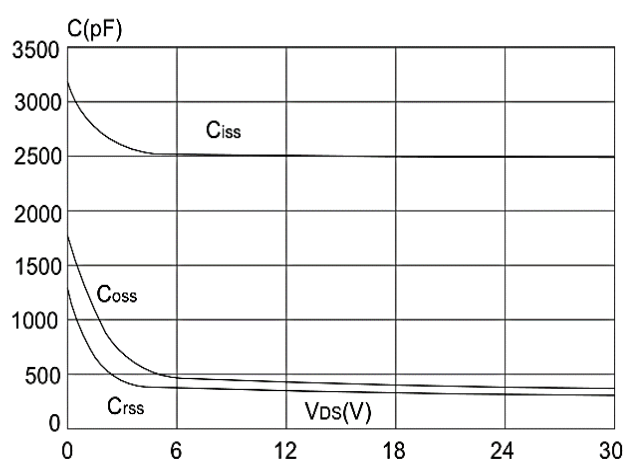


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

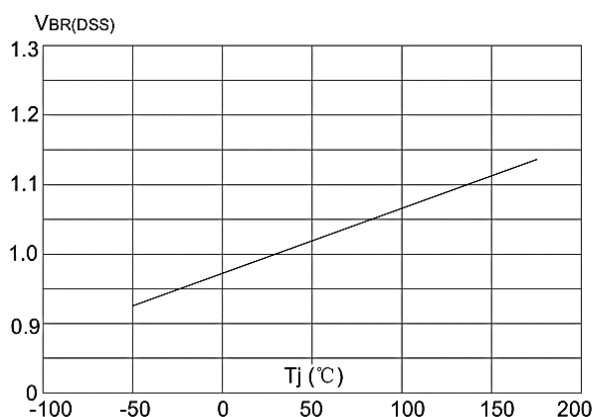


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

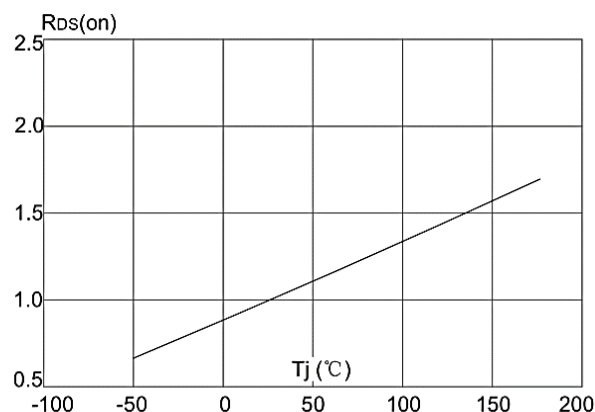


Figure 8: Normalized on Resistance vs. Junction Temperature

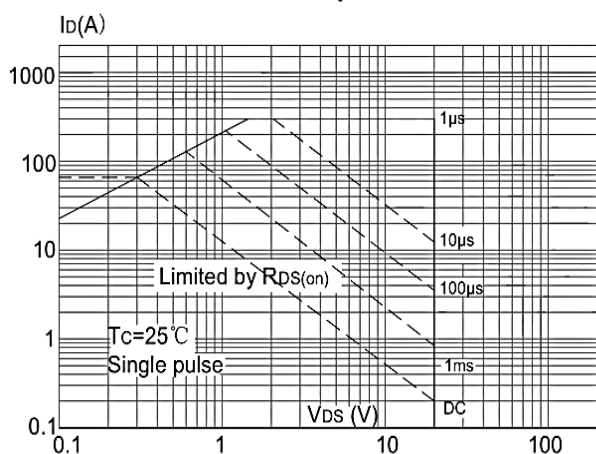


Figure 9: Maximum Safe Operating Area Current Temperature

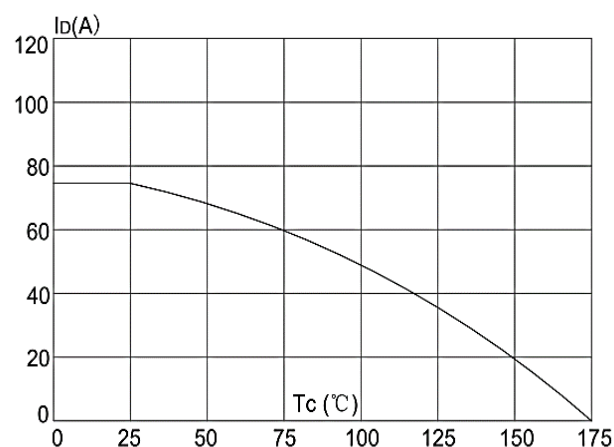


Figure 10: Maximum Continuous Drain vs. Case

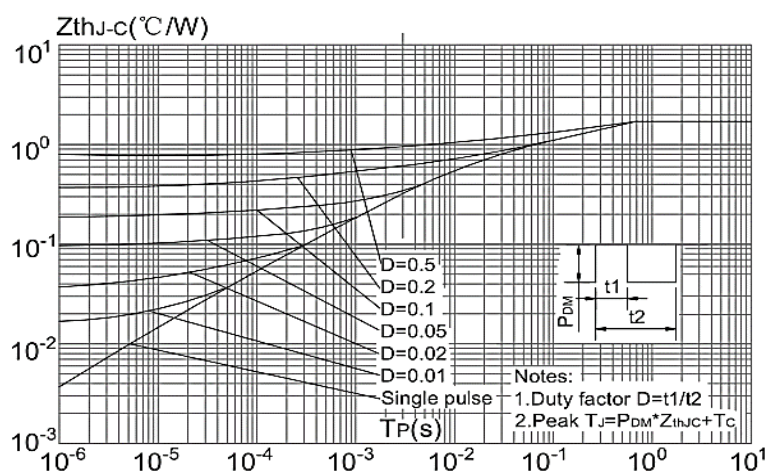
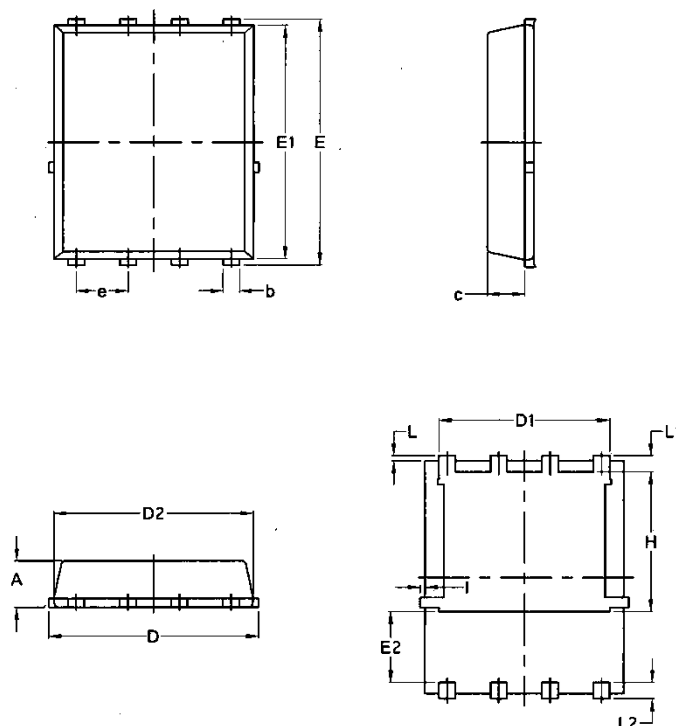


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

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
I	/	0.18	/	0.0070