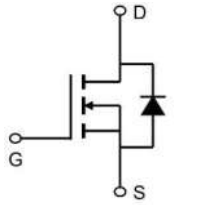
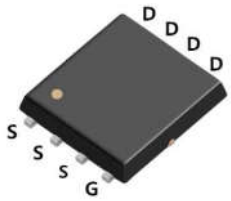
40V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	200A
V_{DSS}	40V
R_{DSON}-typ(@V_{GS}=10V)	< 1.0mΩ(Type:0.75 mΩ)





PDFN5*6-8L

Features

♦YFW-SGT technology

Application

♦BMS
♦BLDC
♦UPS

Product Specification Classification

Part Number	Package	Marking	Pack
YFWG200N04NF	PDFN5*6-8L	YFW 200N04NF XXXXX	5000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	40	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=25℃	I_D	200	A
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=100℃	I_D	130	A
Pulsed Drain Current	I_{DM}	800	A
Single Pulse Avalanche Energy	E_{AS}	420	mJ
Avalanche Current	I_{AS}	70	A
Power Dissipation @T_C=25℃	P_D	68	W
Thermal Resistance Junction-ambient [1]	$R_{\theta JA}$	25	°C/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.4	°C/W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

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=250uA	**V(BR)DSS**	40	48	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=40V , V_{GS}=0V	**I_{DSS}**	-	-	1.0	**μA**
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	**I_{GSS}**	-	-	±100	**nA**
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	**$V_{GS(th)}$**	1.0	1.5	2.5	**V**
Static Drain-Source on-Resistance	V_{GS}=10V, I_D=30A	**$R_{DS(ON)}$**	-	0.75	1.0	**mΩ**
	V_{GS}=4.5V, I_D=20A		-	1.1	1.5	
Input Capacitance	V_{DS}=20V V_{GS}=0V f=1.0MHz	**C_{iss}**	-	7400	-	**pF**
Output Capacitance		**C_{oss}**	-	1930	-	
Reverse Transfer Capacitance		**C_{rss}**	-	11	-	
Total Gate Charge	V_{DS}=20V V_{GS}=10V I_D=85A	**Q_g**	-	125	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	18	-	
Gate-Drain("Miller") Charge		**Q_{gd}**	-	13	-	
Turn-on delay time	V_{DD}=20V I_D=85A R_G=1.6Ω V_{GS}=10V	**$t_{d(on)}$**	-	14.1	-	**ns**
Turn-on Rise Time		**T_r**	-	7.9	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	56.5	-	
Turn-Off Fall Time		**t_f**	-	9.6	-	
Maximum Continuous Drain to Source Diode Forward Current		**I_S**	-	-	200	**A**
Maximum Pulsed Drain to Source Diode Forward Current		**I_{SM}**	-	-	800	**A**
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=30A	**V_{SD}**	-	-	1.2	**V**
Body Diode Reverse Recovery Time	T_J=25℃,I_F=I_S, dI/dt=100A /μs	**t_{rr}**	-	35	-	**ns**
Body Diode Reverse Recovery Charge		**Q_{rr}**	-	124	-	**nC**

Note :
1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.
2、The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3、The EAS data shows Max. rating . The test condition is VDD =32V,VGS =10V,L=0.1mH,IAS =70A
4、The power dissipation is limited by 150℃ junction temperature
5、The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

Typical Characteristics

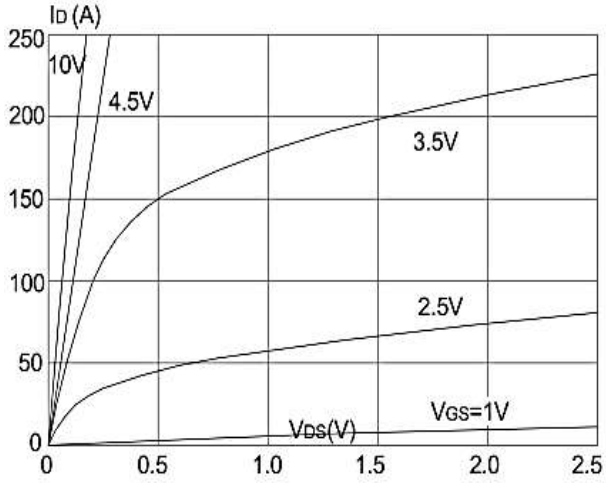


Figure1: Output Characteristics

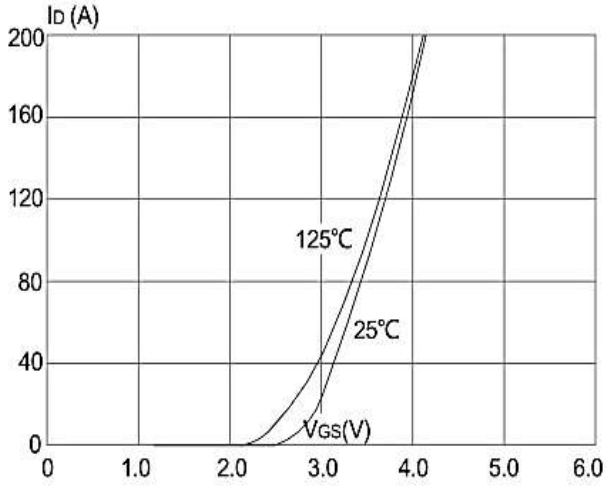


Figure 2: Typical Transfer Characteristics

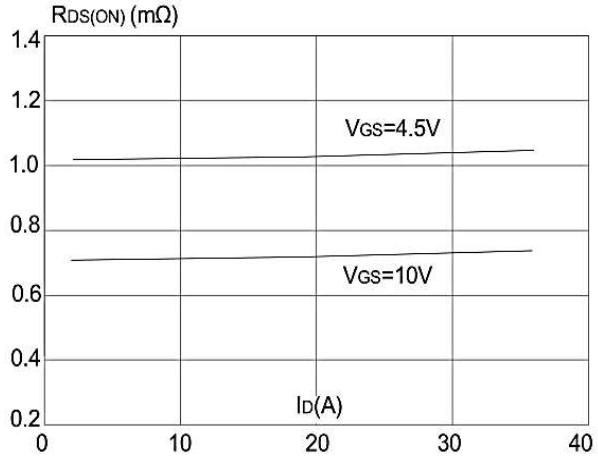


Figure 3:On-resistance vs. Drain Current

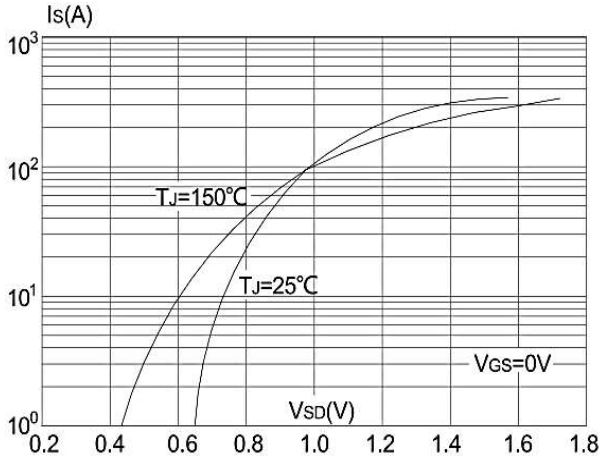


Figure 4: Body Diode Characteristics

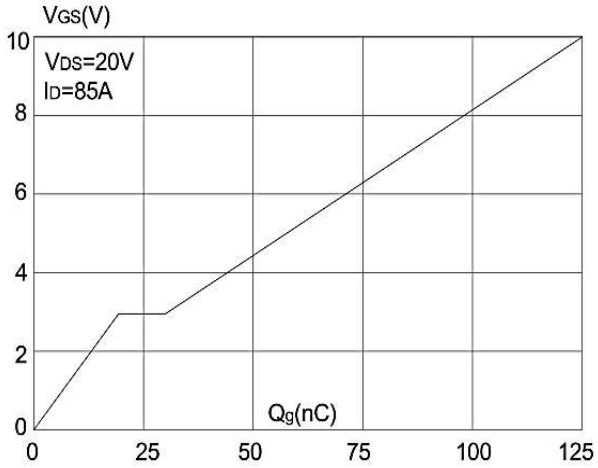


Figure 5: Gate Charge Characteristics

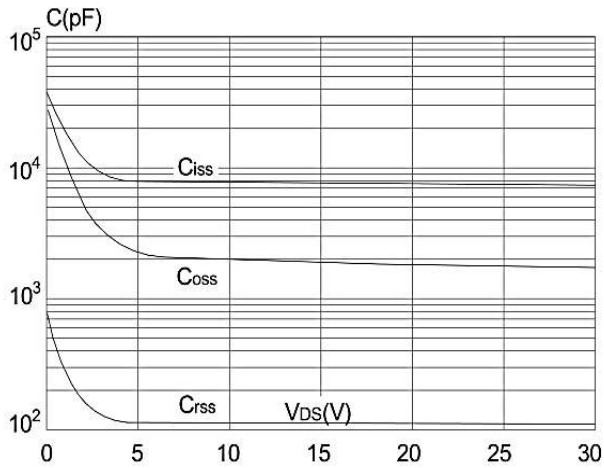


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

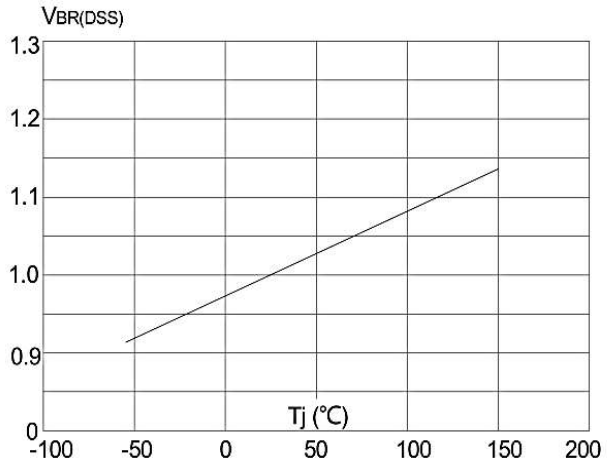


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

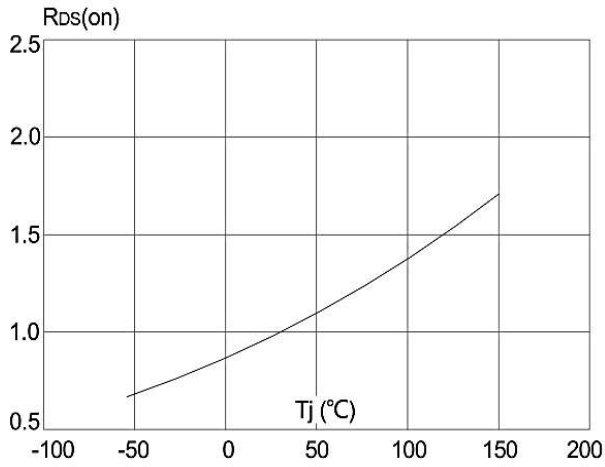


Figure 8: Normalized on Resistance vs Junction Temperature

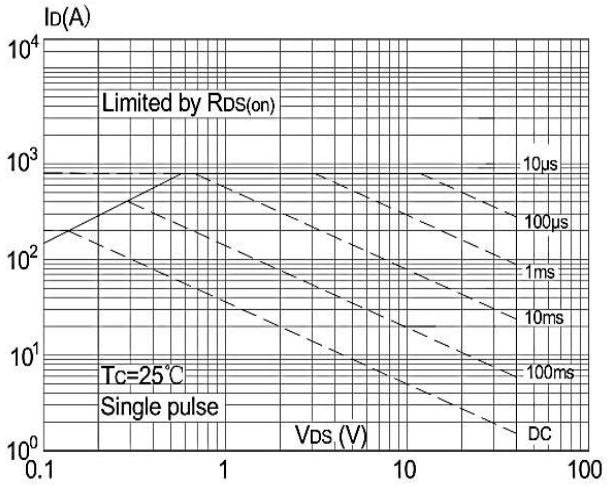


Figure 9: Maximum Safe Operating Area

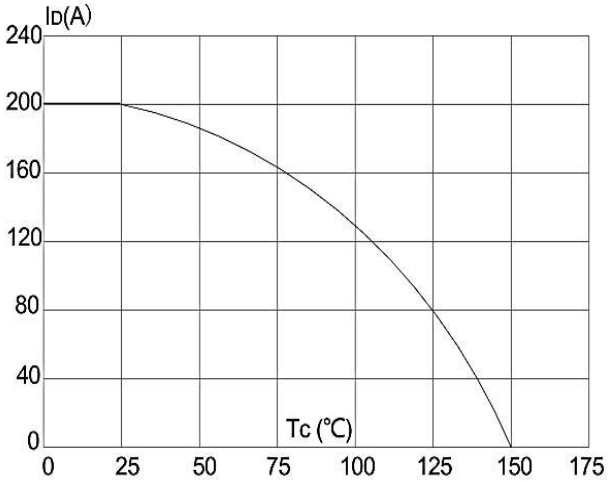


Figure 10: Maximum Continuous Drain Currentvs. Case Temperature

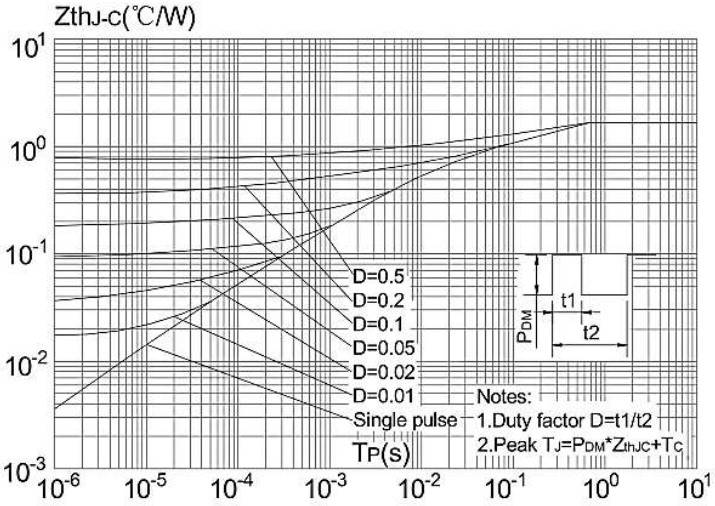
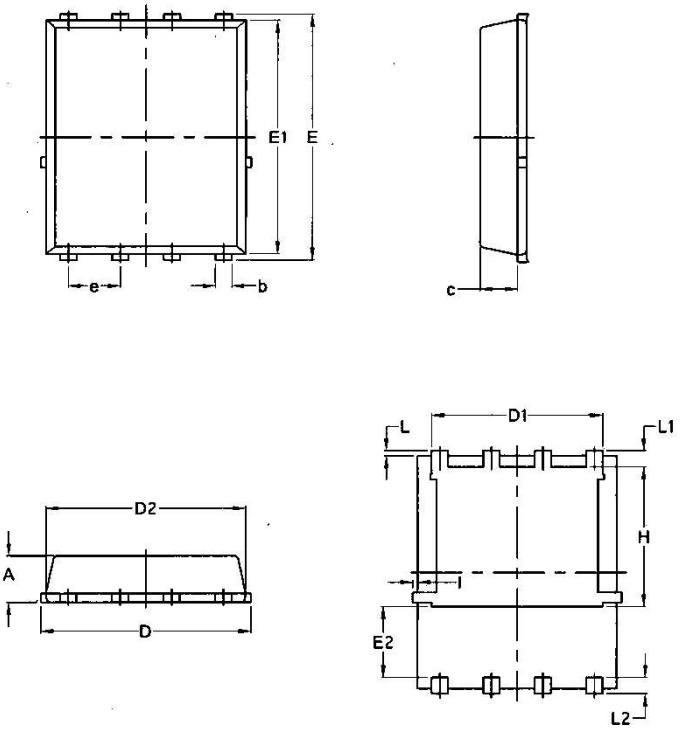


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Cas

Package Outline Dimensions Millimeters

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