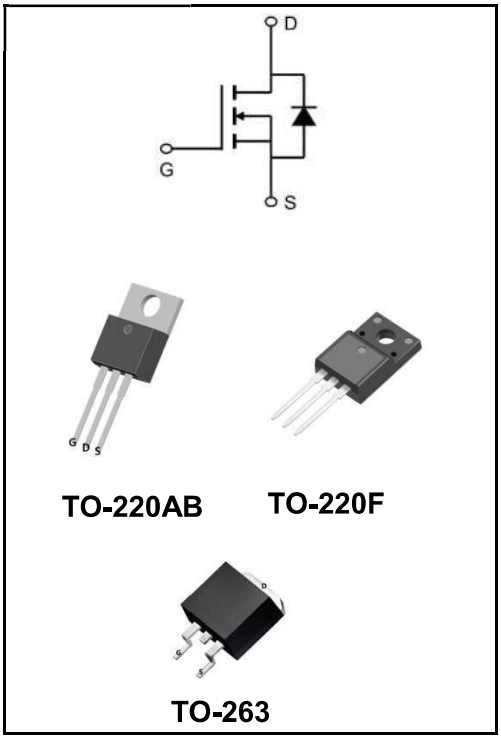
80V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	85A
V_{DSS}	80V
R_{DSON}-typ(@V_{GS}=10V)	< 8.5mΩ(Type:6.5 mΩ)



Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW85N08BT	TO-220AB	YFW 85N08BT XXXXX	1000PCS/box
YFW85N08BF	TO-220F	YFW 85N08BF XXXXX	1000PCS/box
YFW85N08BS	TO-263	YFW 85N08BS XXXXX	800PCS/Reel

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage (VGS=0V)	V_{DS}	80	V
Gate-Source Voltage (VDS=0V)	V_{GS}	±20	V
Continuous Drain Current, VGS @ 10V @TC=25℃	I_D	85	A
Continuous Drain Current, VGS @ 10V @TC=100℃	I_D	55	A
Drain Current-Continuous@ Current-Pulsed	I_{DM}	300	A
Maximum Power Dissipation(Tc=25℃)	P_D	160	W
Single pulsed avalanche energy	E_{AS}	550	mJ
Storage Temperature Range	T_{STG}	-55 to +150	A
Operating Junction Temperature Range	T_J	-55 to +175	°C
Thermal Resistance, Junction-Ambient	$R_{\theta JA}$	0.94	°C/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	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=250uA	**V(BR)DSS**	80	85	-	**V**
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA, T_j=25°C	**$V_{GS(th)}$**	2.0	3.0	4.0	**V**
Zero Gate Voltage Drain Current	V_{DS}=80V,V_{GS}=0V T_j=25°C	**I_{DSS}**	-	-	1	**μA**
	V_{DS}=80V,V_{GS}=0V T_j=125°C		-	-5	-	
Gate -Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	**I_{GSS}**	-	-	±100	**nA**
Drain-source on-state resistance	V_{GS}=10V, I_D=50A, T_j=25°C	**$R_{DS(ON)}$**	-	6.5	8.5	**mΩ**
Transconductance	V_{DS}=5V, I_D =50V	**g_{fs}**		80		**S**
Input Capacitance	V_{DS}=40V V_{GS}=0V f=1MHz	**C_{iss}**	-	2948	-	**pF**
Output Capacitance		**C_{oss}**	-	354	-	
Reverse Transfer Capacitance		**C_{rss}**	-	98	-	
Total Gate Charge	V_{DS}=40V I_D=50A V_{GS}=10V	**Q_g**	-	61	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	13	-	
Gate-Drain Charge		**Q_{gd}**	-	24	-	
Turn-on delay time	T_j=25°C V_{GS}=10V V_{DS}=40V , R_L=3Ω,	**$t_{d(on)}$**	-	24	-	**ns**
Rise Time		**T_r**	-	15	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	52	-	
Fall Time		**t_f**	-	17	-	
Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz	**R_G**	-	1.2	-	**Ω**
Body Diode Forward Voltage	V_{GS}=0V , I_{SD}=50A	**V_{SD}**	-	0.9	1.2	**V**
Body Diode Reverse Recovery Time	I_F=20A , dI/dt=500A/μs	**t_{rr}**	-	40	-	**ns**
Body Diode Reverse Recovery Charge		**Q_{rr}**	-	61	-	**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≦ 300us duty cycle ≦ 2%, duty cycle ition is V_{DD}=64V_{GS}=10V,L=0.1mH,I_{AS}=41A
4、The power dissipation is limited by 175℃ 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

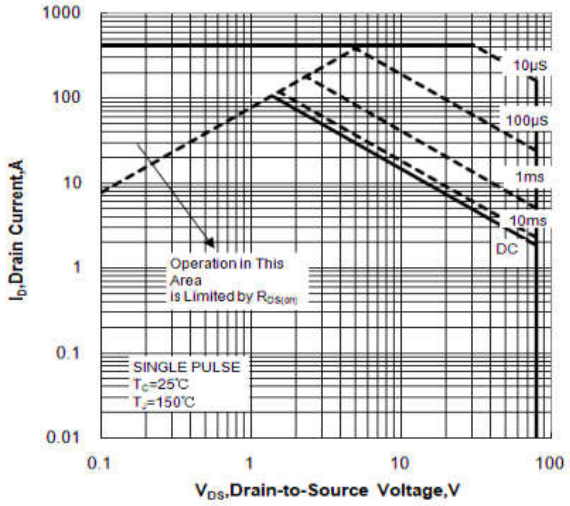


Figure 1. Maximum Safe Operating Area

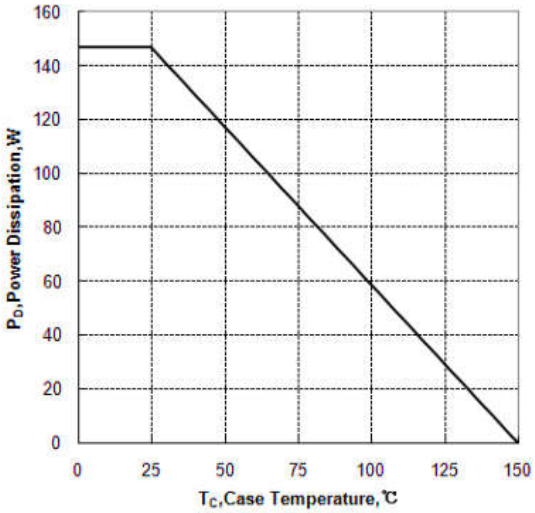


Figure 2. Maximum Power Dissipation vs Case Temperature

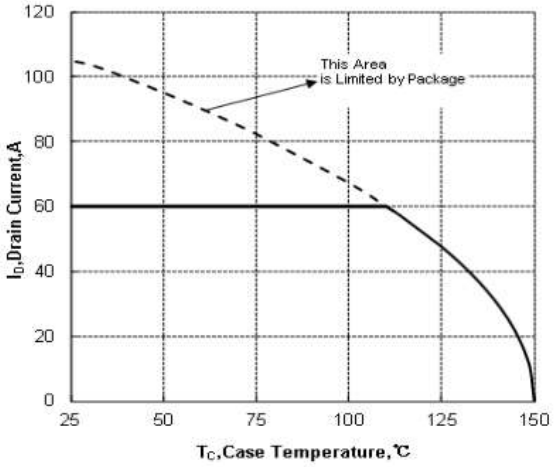


Figure 3. Maximum Continuous Drain Current vs

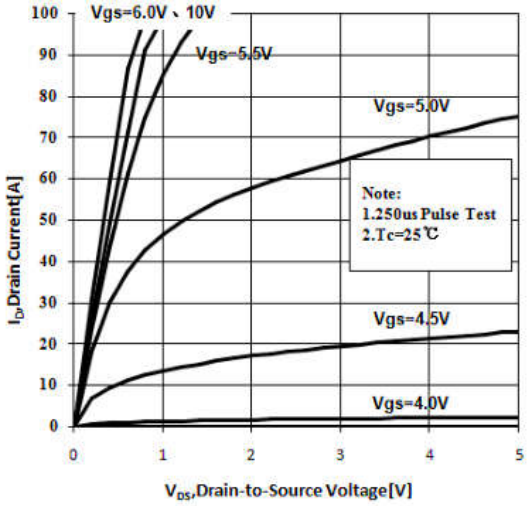


Figure 4. Typical output Characteristics

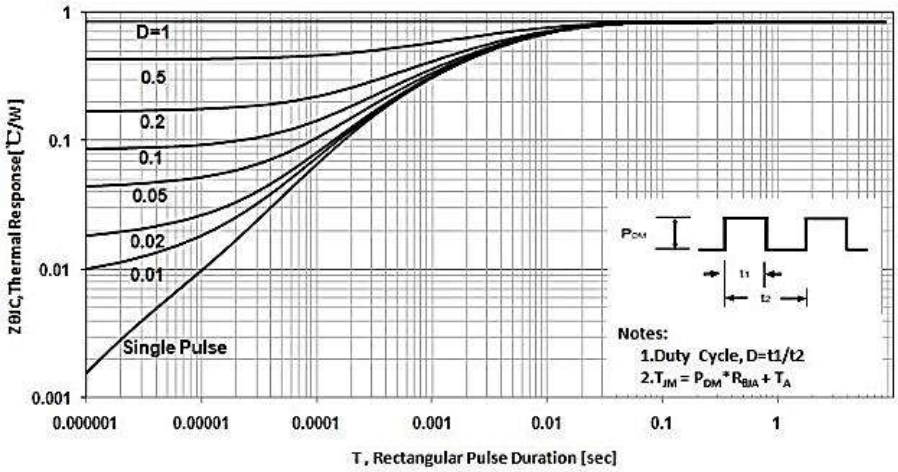


Figure 5 Maximum Effective Thermal Impedance , Junction to Case

Ratings and Characteristic Curves

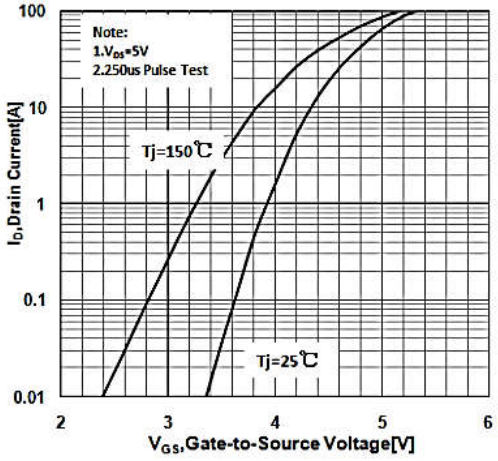


Figure 6 Typical Transfer Characteristics

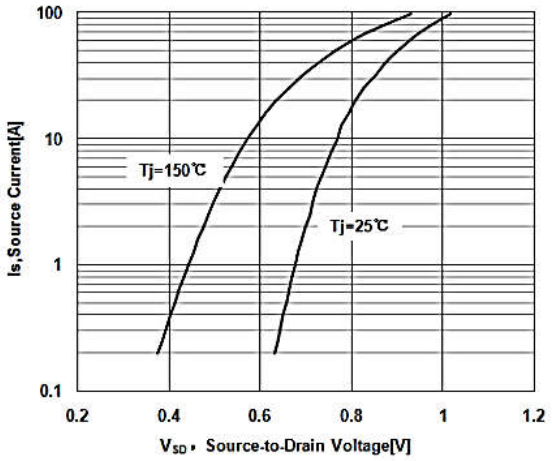


Figure 7 Typical Body Diode Transfer Characteristics

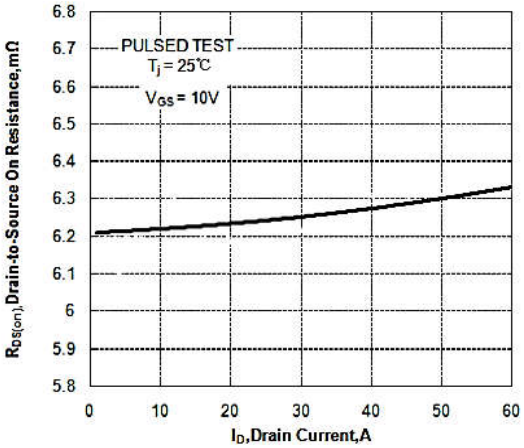


Figure 8. Drain-to-Source On Resistance vs Drain Current

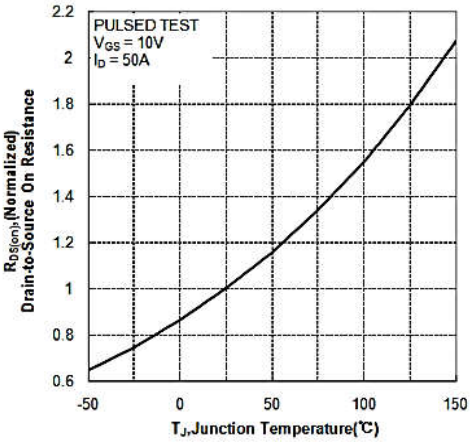


Figure 9. Normalized On Resistance vs Junction Temperature

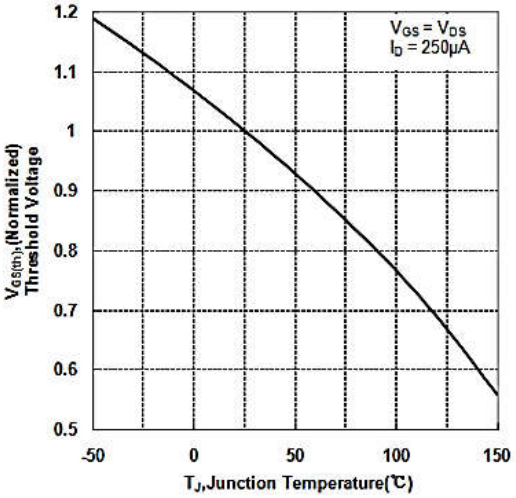


Figure10. Normalized Threshold Voltage vs Junction Temperature

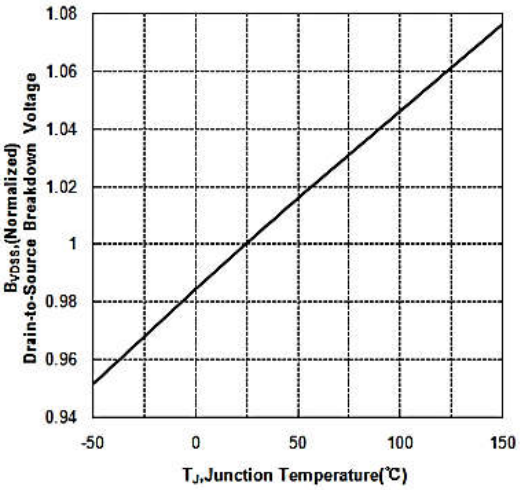


Figure 11. Normalized Breakdown Voltage vs Junction Temperature

Ratings and Characteristic Curves

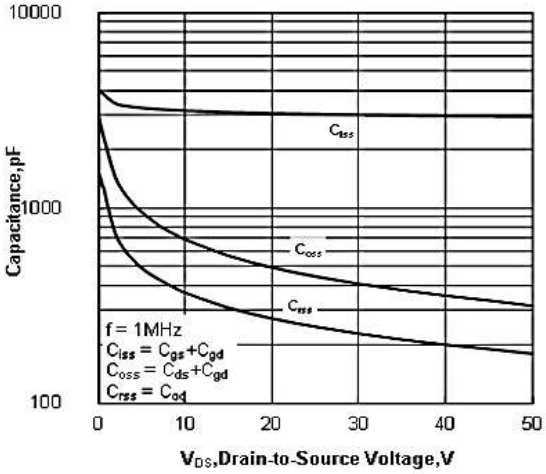


Figure 12. Capacitance Characteristics

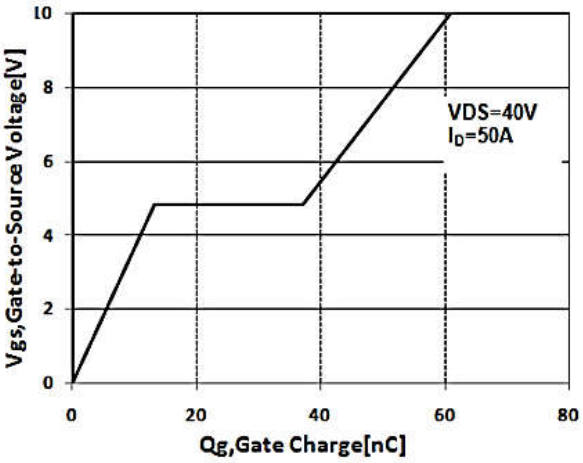
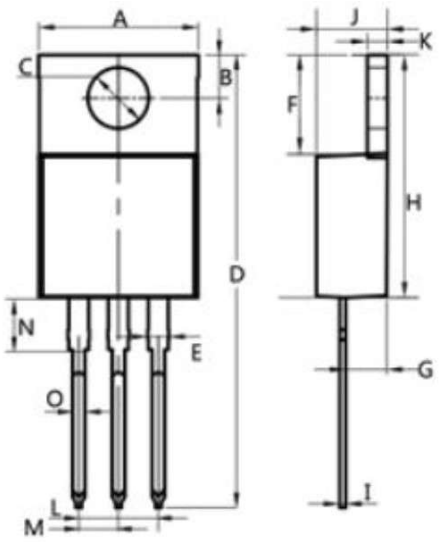


Figure 13 .Typical Gate Charge vs Gate to Source Voltage

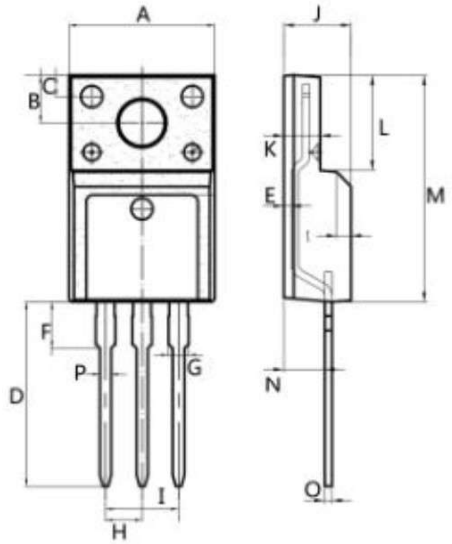
Package Outline Dimensions Millimeters

TO-220AB



Dim.	Min.	Max.
A	10.15	10.35
B	2.65	2.95
C	3.70	3.90
D	28.5	29.5
E	1.30	1.45
F	6.35	6.55
G	2.9	3.3
H	15.0	16.0
I	0.38	0.42
J	4.45	4.55
K	1.25	1.35
L	Typ 5.08	
M	Typ 2.54	
N	3.1	3.3
O	0.76	0.84
All Dimensions in millimeter		

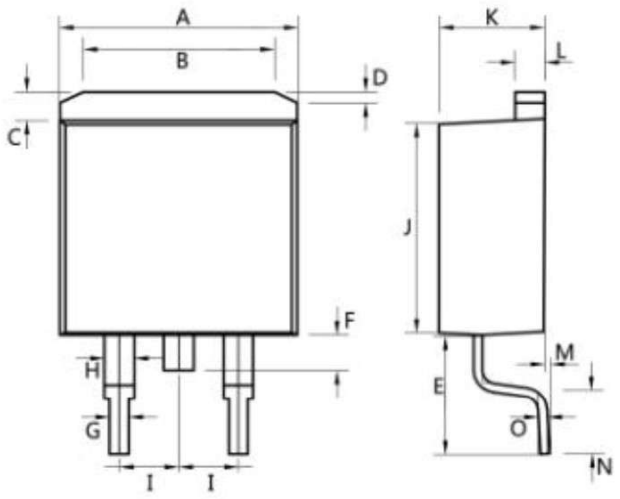
TO-220F



Dim.	Min.	Max.
A	9.95	10.25
B	2.95	3.25
C	1.25	1.45
D	12.95	13.25
E	0.50	0.65
F	3.1	3.3
G	1.30	1.45
H	Typ 2.54	
I	Typ 5.08	
J	4.60	4.75
K	2.50	2.65
L	6.35	6.55
M	15.4	16.0
N	2.75	3.05
O	0.48	0.52
P	0.76	0.84
All Dimensions in millimeter		

Package Outline Dimensions Millimeters

TO-263



Dim.	Min.	Max.
A	10.1	10.2
B	7.4	7.6
C	1.3	1.5
D	0.55	0.75
E	5.0	6.0
F	1.4	1.6
G	0.78	0.86
H	1.2	1.3
I	Typ2.54	
J	8.4	8.6
K	4.45	4.55
L	1.25	1.35
M	0.02	0.1
N	2.4	2.8
O	0.36	0.40
All Dimensions in millimeter		