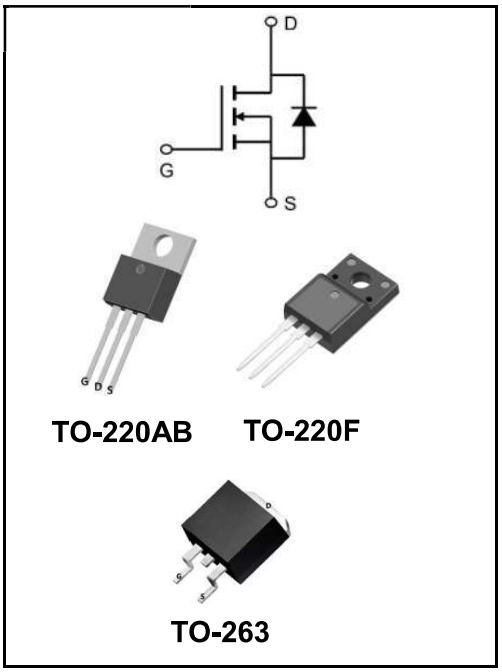
800V N- CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	6A
V_{DSS}	800V
R_{DSON}-typ(@V_{GS}=10V)	< 1.5Ω



Features

- Hight EAS(on) & FOM
- Extremely low switching loss
- Excellent stability and uniformity or Invertors

Application

- Consumer electronic power supply Motor control
- Synchronous-rectification Isolated DC
- Synchronous-rectification applications

Product Specification Classification

Part Number	Package	Marking	Pack
YFW6N80AT	TO-220AB	YFW 6N80AT XXXXX	1000PCS/Box
YFW6N80AF	TO-220F	YFW 6N80AF XXXXX	1000PCS/Box
YFW6N80AS	TO-263	YFW 6N80AS XXXXX	800PCS/Reel

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	800	V
Gate - Source Voltage	V_{GS}	±30	V
Drain Current, V_{GS} @ 10V[3] T_C=25℃	I_D	6	A
Pulsed Drain Current[1]	I_{DM}	24	A
Total Power Dissipation T_C=25 ℃	P_D	34.7	W
Total Power Dissipation T_A=25 ℃		1.92	
Single Pulse Avalanche Energy[4]	E_{AS}	18	mJ
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C
Maximum Thermal Resistance, Junction-case	$R_{\theta JC}$	3.6	°C/W
Maximum Thermal Resistance, Junction-ambient	$R_{\theta JA}$	65	°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	BV_{DSS}	800	-	-	V
Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=3A	$R_{DS(ON)}$	-	-	1.5	Ω
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	$V_{GS(th)}$	2.5	-	4.5	V
Forward Transconductance	V_{DS}=20V, I_D=3A	g_{fs}	-	8	-	S
Drain-source leakage current	V_{DS}=640V , V_{GS}=0V	I_{DSS}	-	-	100	μA
Gate Source Leakage	V_{GS}=±30V， V_{DS}=0V	I_{GSS}	-	-	±1	nA
Total Gate Charge	I_D=7A V_{DS}=640V V_{GS}=10V	Q_g	-	41	65.6	nC
Gate-Source Charge		Q_{gs}	-	7	-	
Gate-Drain ("Miller") Charge		Q_{gd}	-	23	-	
Turn-on delay time	V_{DD}=400V I_D=6A R_G=25Ω V_{GS}=10V	$t_{d(on)}$	-	21	-	ns
Rise Time		T_r	-	41	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	110	-	
Fall Time		t_f	-	48	-	
Input Capacitance	V_{DS}=100V V_{GS}=0V f=1MHz	C_{iss}	-	1130	1808	pF
Output Capacitance		C_{oss}	-	56	-	
Reverse Transfer Capacitance		C_{rss}	-	12	-	
Gate Resistance	f=1MHz	R_G	-	2.8	5.6	Ω
Forward voltage[2]	V_{GS}=0V , I_S=6A	V_{SD}	-	-	1.5	V
Reverse Recovery Time	I_S=7A, V_{GS}=0V dI_{SD}/dt=100A/μs,	t_{rr}	-	500	-	ns
Reverse Recovery Charge		Q_{rr}	-	3.3	-	nC

Notes:
1.Pulse width limited by max. junction temperature.
2.Pulse test
3.Ensure that the junction temperature does not exceed TJmax..
4.Starting Tj=25oC , VDD=90V , L=1mH , RG=25Ω, VGS=10V

Ratings and Characteristic Curves

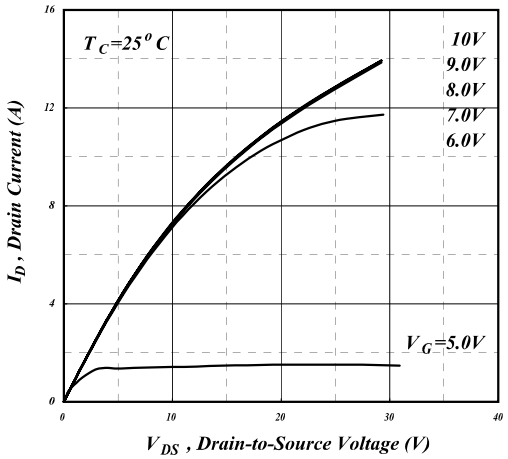


Fig 1. Typical Output Characteristics

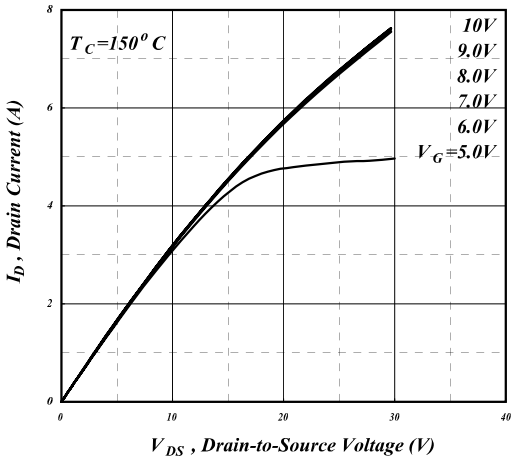


Fig 2. Typical Output Characteristics

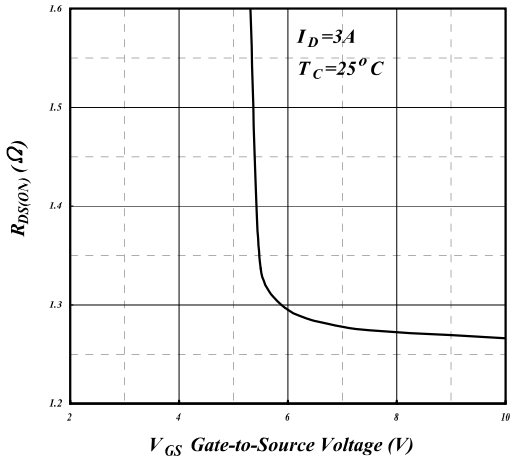


Fig 3. On-Resistance v.s. Gate Voltage

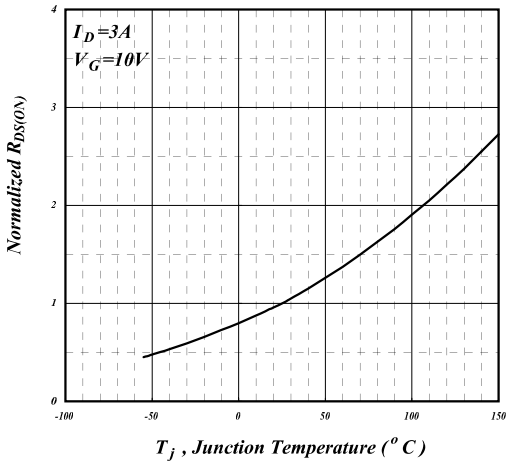


Fig 4. Normalized On-Resistance v.s. Junction Temperature

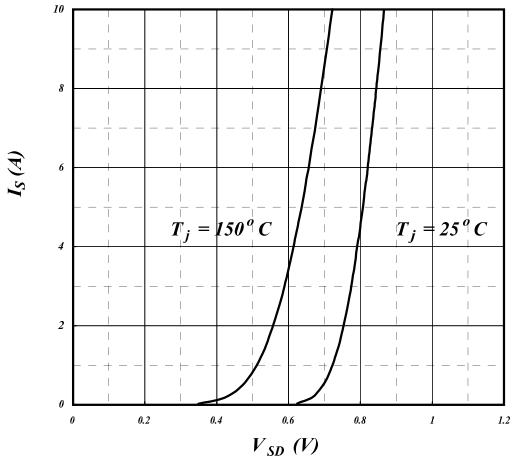


Fig 5. Forward Characteristic of Reverse Diode

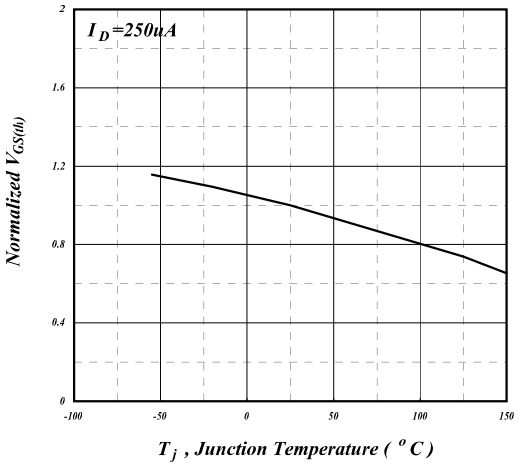


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

Ratings and Characteristic Curves

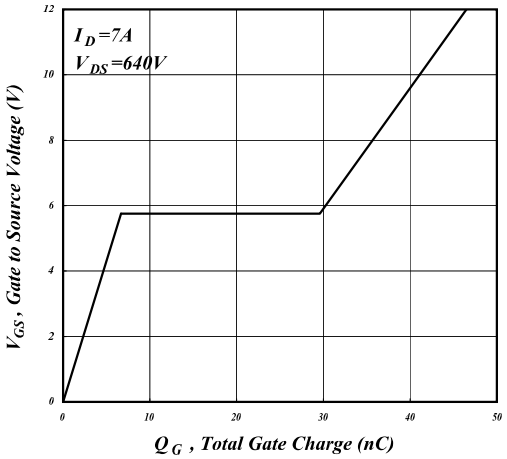


Fig 7. Gate Charge Characteristics

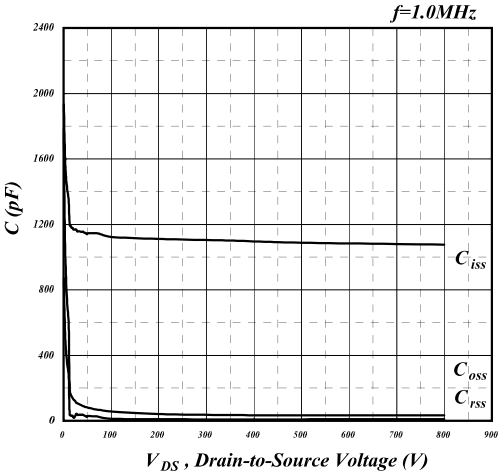


Fig 8. Typical Capacitance Characteristics

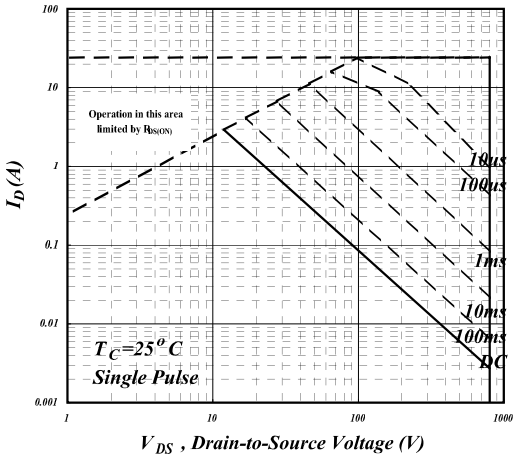


Fig 9. Maximum Safe Operating Area

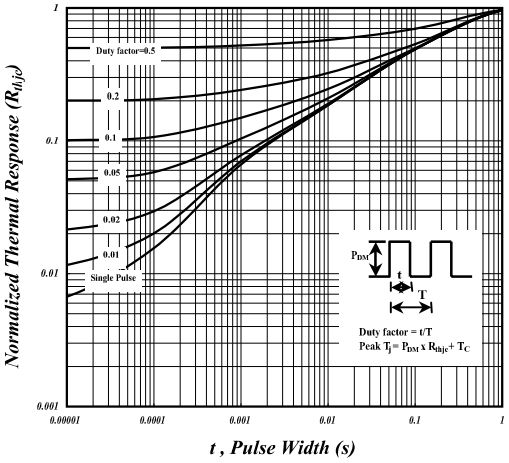


Fig10. Effective Transient Thermal Impedance

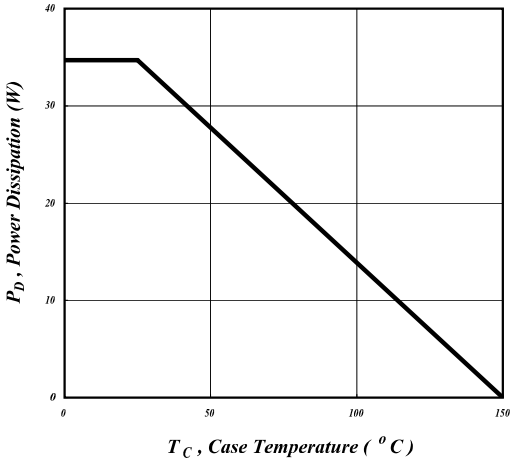


Fig 11. Total Power Dissipation

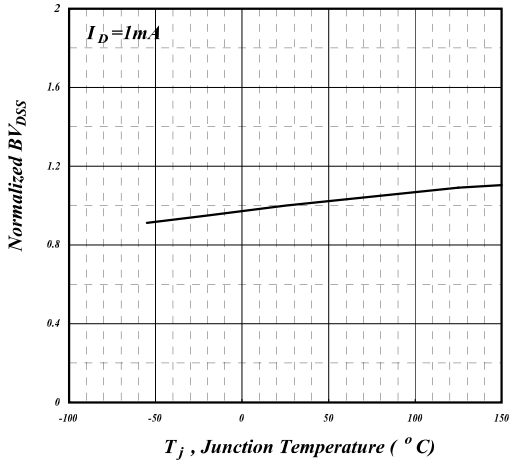
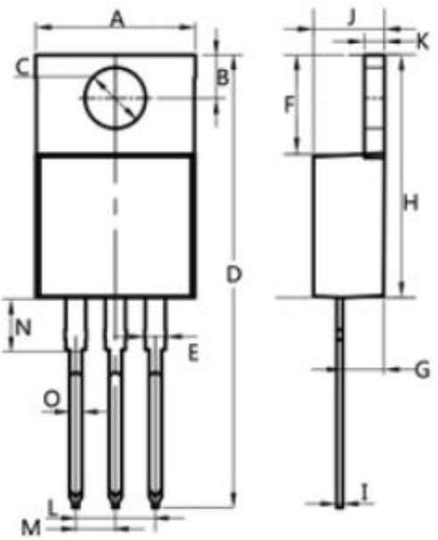


Fig 12. Normalized BV_{DSS} v.s. Junction Temperature

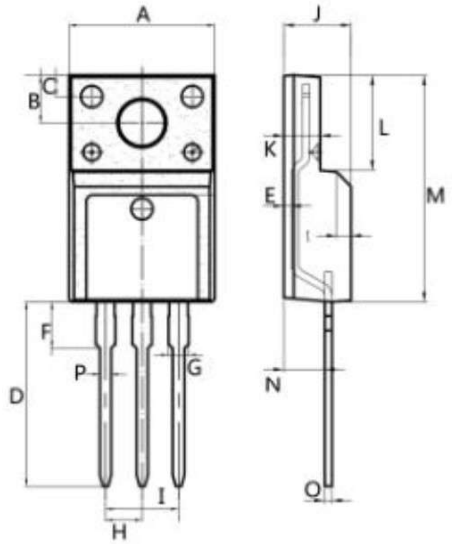
Package Outline Dimensions Millimeters

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		

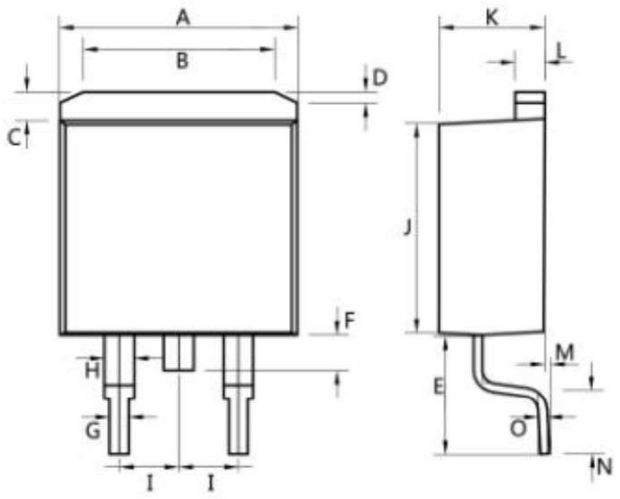
TO-220F



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		