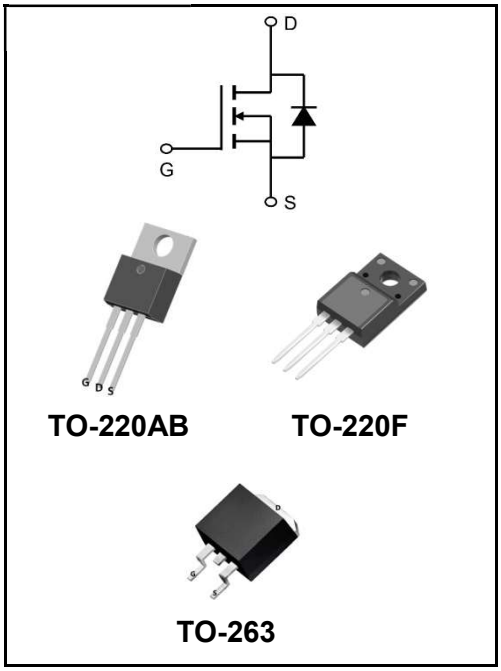
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	80A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 12mΩ(Type:8.0 mΩ)



Features

- YFW-SGT technology

lead-free ROHS

Application

- Isolated DC
- Motor control
- Synchronous-rectification

Product Specification Classification

Part Number	Package	Marking	Pack
YFW80N10AT	TO-220AB	YFW 80N10AT XXXXX	1000PCS/Tape
YFW80N10AF	TO-220F	YFW 80N10AF XXXXX	1000PCS/Tape
YFW80N10AS-R	TO-263	YFW 80N10AS XXXXX	800PCS/Tube

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous drain current, T_C=25 ℃	I_D	80	A
Pulsed drain current, T_C=25 ℃	I_{DM}	210	A
Power dissipation, TC=25 ℃	P_D	107	W
Single Pulse Avalanche Energy4)	E_{AS}	183.8	mJ
Operation and storage temperature	T_{STG}, T_J	-55 to +150	°C
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.17	°C/W
Thermal Resistance, Junction--Ambient 4）	$R_{\theta JA}$	62	°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}	100	111	-	V
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	2.0	3.0	4.0	V
Drain-source on-state resistance	V_{GS}=10V, I_D=20A	$R_{DS(ON)}$	-	8	12.0	mΩ
	V_{GS}=4.5V, I_D=12A		-	12	14.0	
Gate-Source Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Drain-Source Leakage Current	V_{DS}=100V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate resistance	f= 1 MHz, Open drain	R_G	-	5.5	-	Ω
Input Capacitance	V_{GS}=0V V_{DS}=50V f=100KHz	C_{iss}	-	1998.1	-	pF
Output Capacitance		C_{oss}	-	321.7	-	
Reverse Transfer Capacitance		C_{rss}	-	7.1	-	
Turn-on delay time	V_{GS}=10V V_{DS}=50V R_G=2Ω I_D=25A	$t_{d(on)}$	-	22.1	-	ns
Rise Time		T_r	-	5.2	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	44	-	
Fall Time		t_f	-	8.4	-	
Total Gate Charge	I_D=25A V_{DS}=50V V_{GS}=10V	Q_g	-	28.9	-	nC
Gate-Source Charge		Q_{gs}	-	6	-	
Gate-Drain Charge		Q_{gd}	-	6.8	-	
Gate plateau voltage		$V_{plateau}$	-	3.7	-	V
Diode forward current	VGS<Vth	I_S	-	-	60	
Pulsed Source Current		I_{SP}	-	-	180	A
Diode Forward Voltage	I_S=20A, V_{GS}=0 V	V_{SD}	-	-	1.3	V
Reverse Recovery Time	I_S=25A , dI/dt=100A/μs	t_{rr}	-	102.9	-	ns
Reverse Recovery Charge		Q_{rr}	-	379	-	nC
Peak reverse recovery current		I_{rrm}	-	6.4	-	A

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=30V,VGS=10V, L=0.3mH, starting Tj=25°C
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

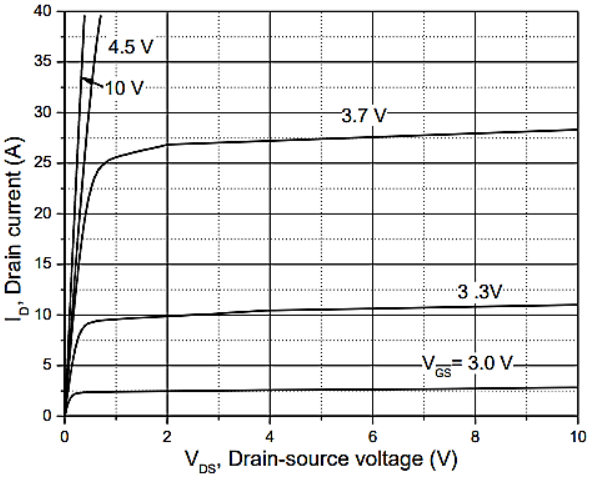


Figure 1. Typ. output characteristics

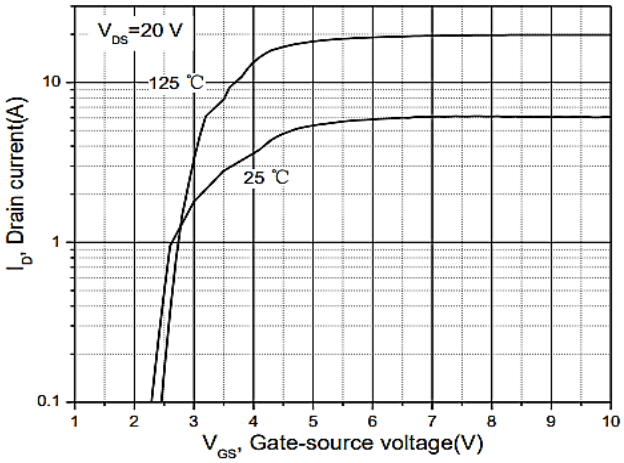


Figure 2. Typ. transfer characteristics

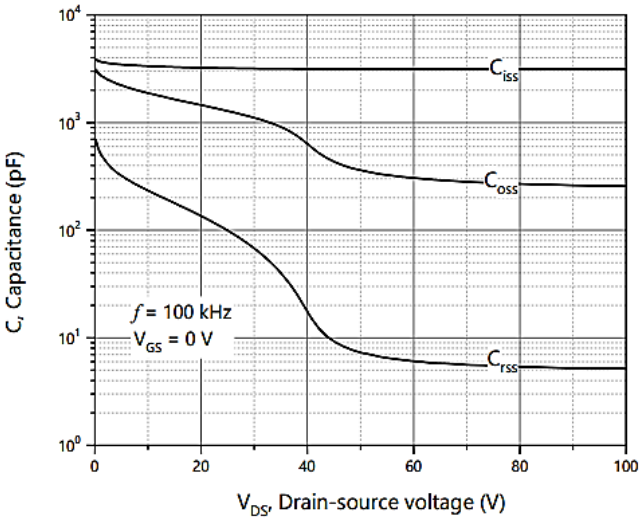


Figure 3. Typ. capacitances

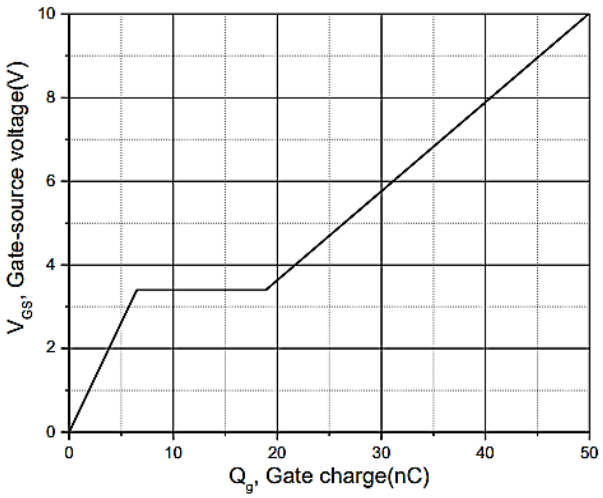


Figure 4. Typ. gate charge

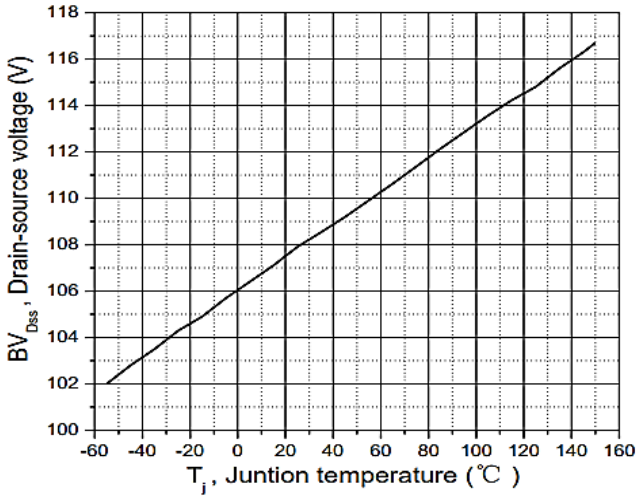


Figure 5. Drain-source breakdown voltage

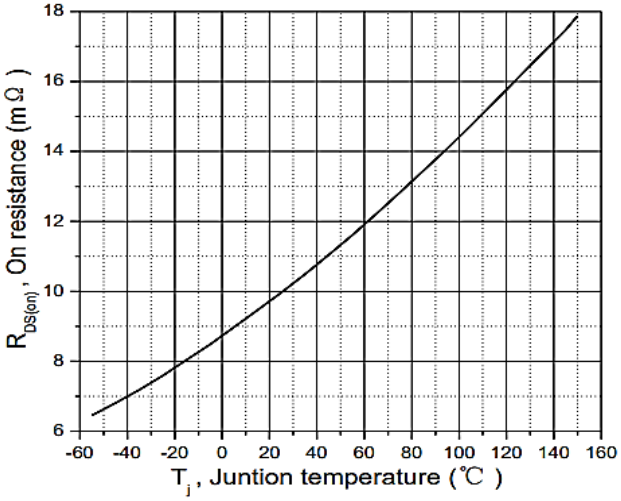


Figure 6. Drain-source on-state resistance

Ratings and Characteristic Curves

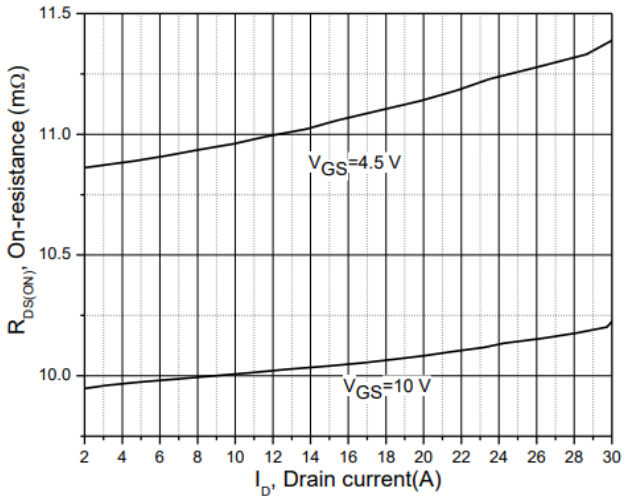


Figure 7. Drain-source on-state resistance

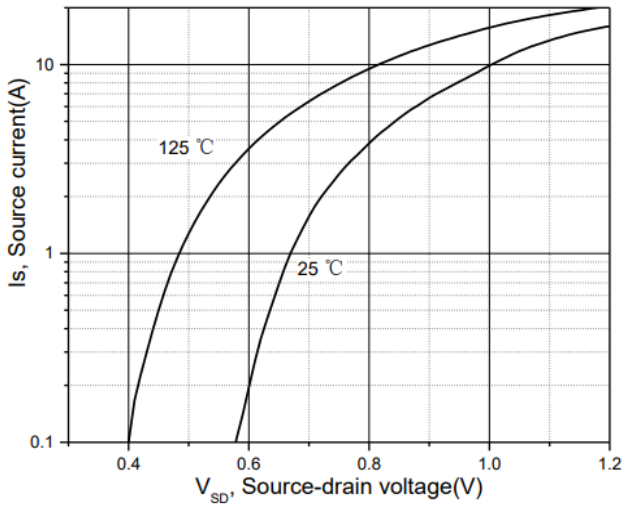


Figure 8. Forward characteristic of body diode

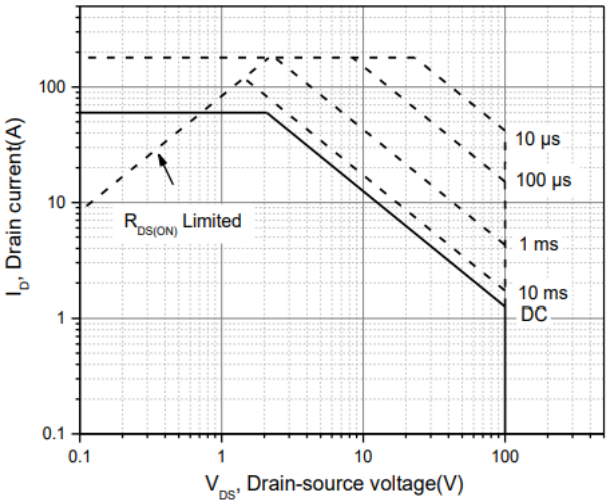
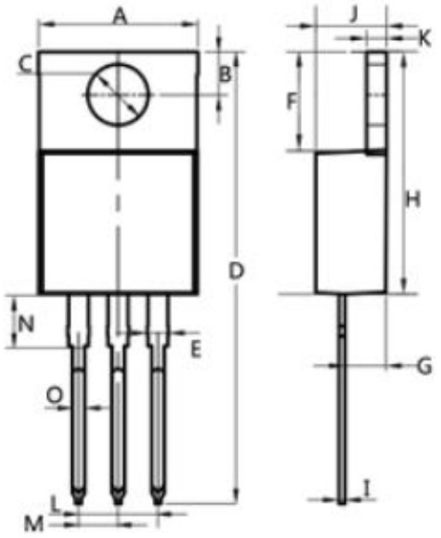


Figure 9. Safe operation area T_C=25 ℃

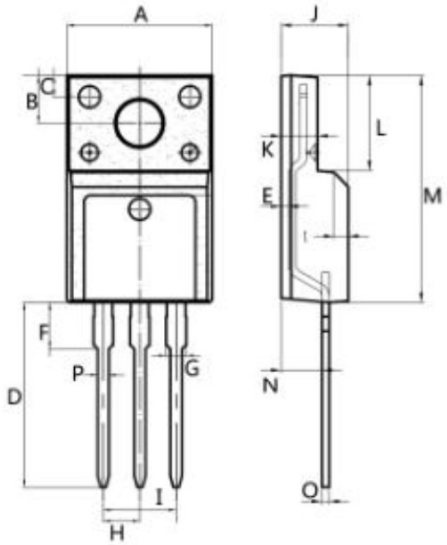
Package Outline Dimensions Millimeters

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		

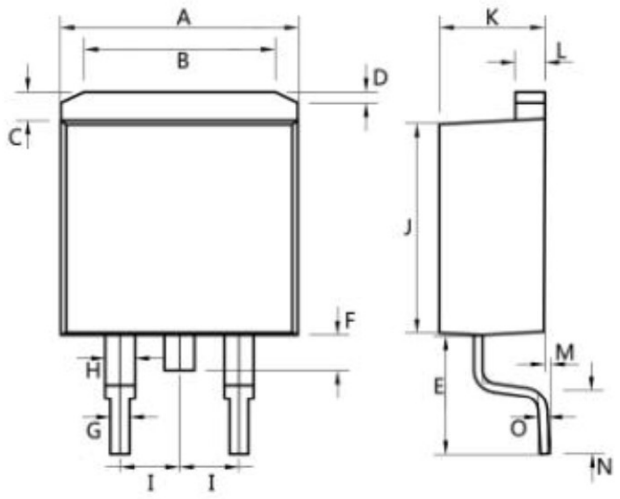
TO-220F



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		

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