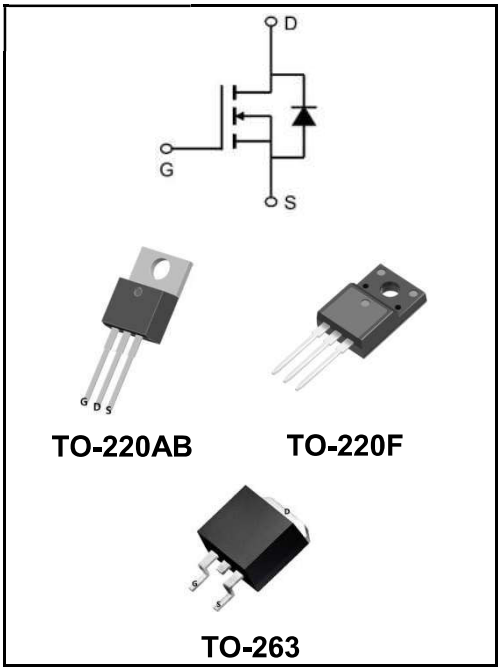
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	80A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 9.0mΩ(Type:7.2mΩ)



Features

♦YFW-SGT technology

Application

♦Isolated DC
♦Motor control
♦Synchronous-rectification

Product Specification Classification

Part Number	Package	Marking	Pack
YFWG80N10AT	TO-220AB	YFW 80N10AT XXXXX	1000PCS/Box
YFWG80N10AF	TO-220F	YFW 80N10AF XXXXX	1000PCS/Box
YFWG80N10AS	TO-263	YFW 80N10AS XXXXX	800PCS/Reel

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	107	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1] @T_A=25℃	I_D	80	A
Continuous Drain Current[1] @T_A=70℃	I_D	62	A
Pulsed drain current[2]	I_{DM}	210	A
Single Pulse Avalanche Energy[3]	E_{AS}	100	mJ
Avalanche Current	I_{AS}	15	A
Total Power dissipation[4] @T_A=25℃	P_D	100	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-Ambient [1]	$R_{\theta JA}$	62	°C/W
Thermal Resistance, Junction-case[1]	$R_{\theta JC}$	1.25	°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}	107	111	-	V
Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=30A	$R_{DS(ON)}$	-	7.2	9.0	mΩ
	V_{GS}=4.5V, I_D=12A		-	9.0	11	
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	1.2	1.8	2.5	V
Drain-Source Leakage Current	V_{DS}=100V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1	μA
	V_{DS}=100V , V_{GS}=0V , T_J=55℃		-	-	5	
Gate-Source Leakage Current	V_{GS}=±20V ,V_{DS}=0V	I_{GSS}	-	-	±100	nA
Total Gate Charge(10V)	V_{DS}=50V V_{GS}=10V I_D=25A	Q_g	-	49.9	-	nC
Total Gate Charge(4.5V)		Q_g	-	6.5		
Gate-Source Charge		Q_{gs}	-	12.4	-	
Gate-Drain Charge		Q_{gd}	-	3.4	-	
Turn-on delay time	V_{DD}=50V V_{GS}=10V R_G=2.2Ω I_D=25A	$t_{d(on)}$	-	20.6	-	ns
Rise Time		T_r	-	5	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	51.8	-	
Fall Time		t_f	-	9	-	
Input Capacitance	V_{DS}=50V V_{GS}=0V f=1MHz	C_{iss}	-	2640	-	pF
Output Capacitance		C_{oss}	-	361	-	
Reverse Transfer Capacitance		C_{rss}	-	6.5	-	
Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	I_S	-	-	5	A
Diode Forward Voltage [2]	V_{GS}=0V , I_S=30A , T_J=25℃	V_{SD}	-	-	1.3	V
Reverse Recovery Time	V_r=50V I_S=12A, dI/dt=100A/μs , T_J=25℃	t_{rr}	-	60.4	-	ns
Reverse Recovery Charge		Q_{rr}	-	106	-	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=30V,VGS=10V, L=0.3 mH, 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

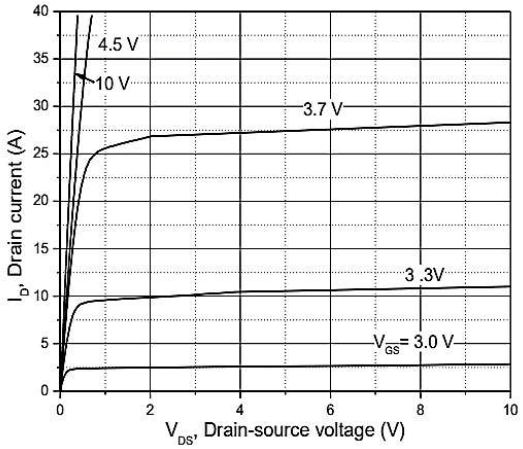


Figure 1. Typ. output characteristics

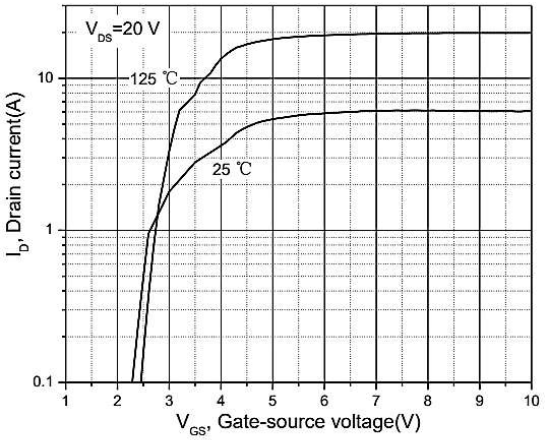


Figure 2. Typ. transfer characteristics

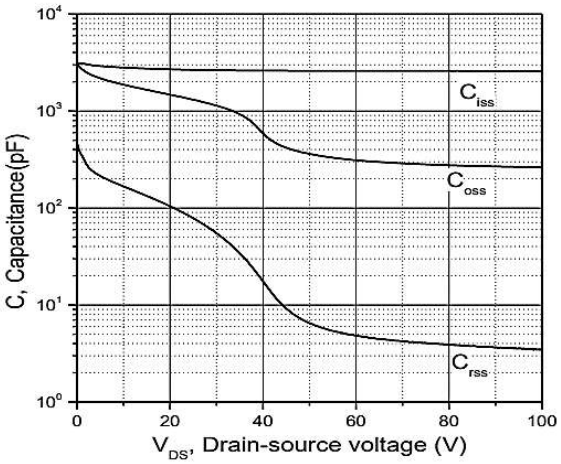


Figure 3. Typ. capacitances

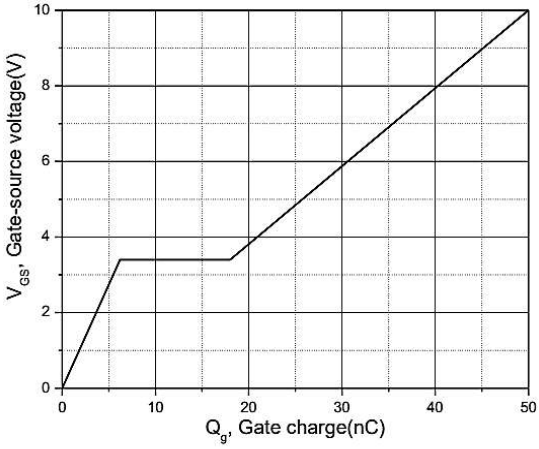


Figure 4. Typ. gate charge

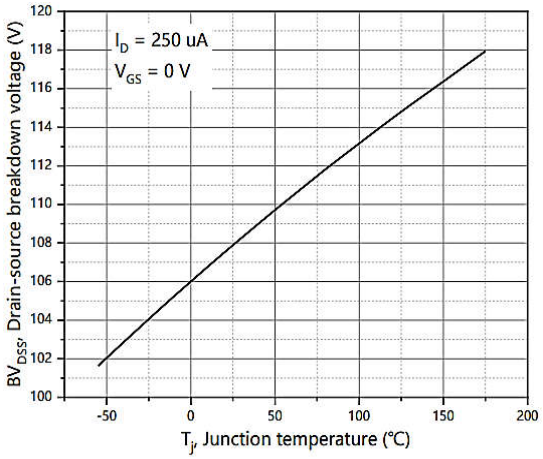


Figure 5. Drain-source breakdown voltage

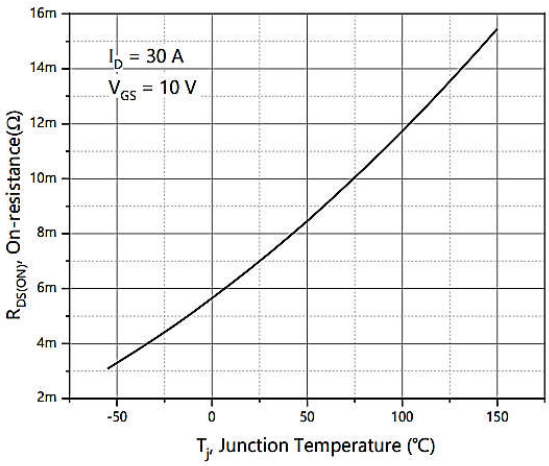


Figure 6. Drain-source on-state resistance

Ratings and Characteristic Curves

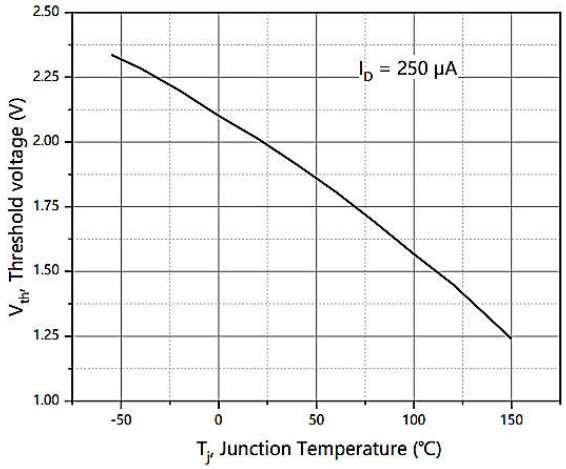


Figure 7. Threshold voltage

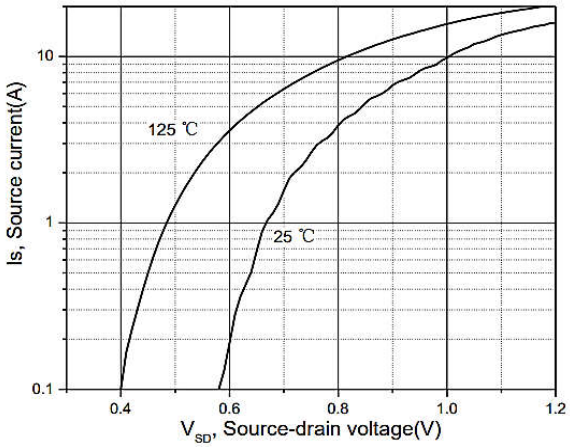


Figure 8. Forward characteristic of body diode

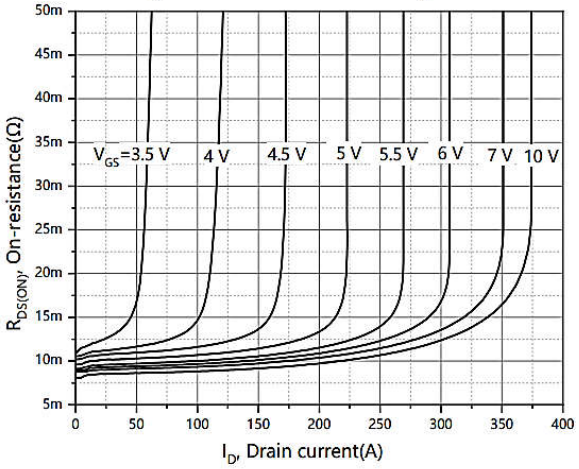


Figure 9. Drain-source on-state resistance

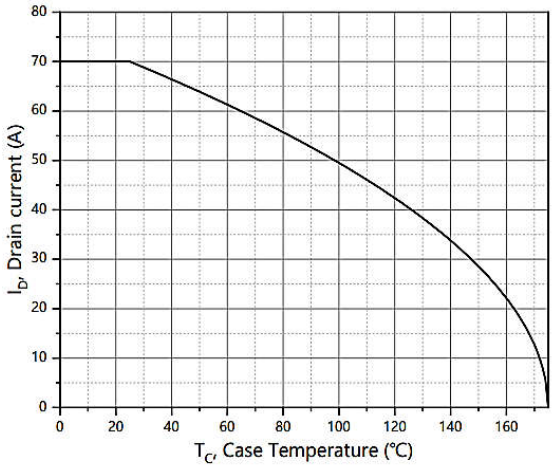


Figure 10. Drain current

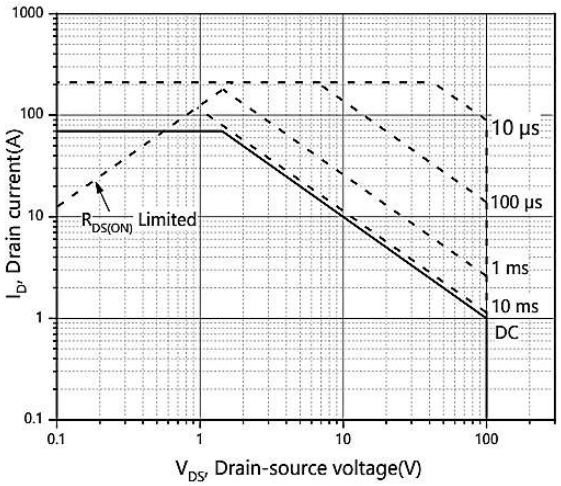


Figure 11. Safe operation area T_C=25 ℃

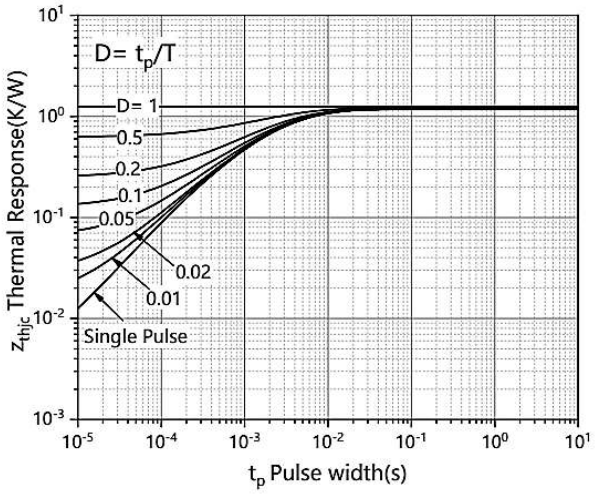
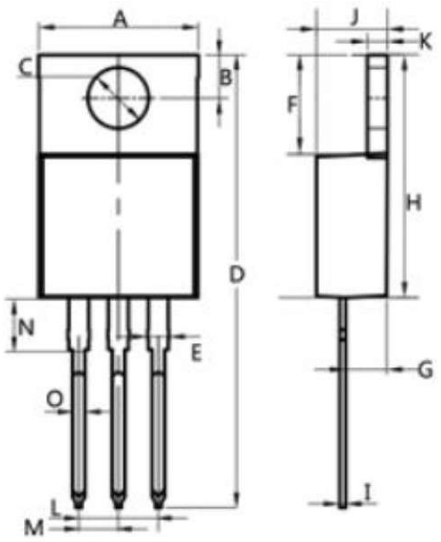


Figure 12. Max. transient thermal impedance

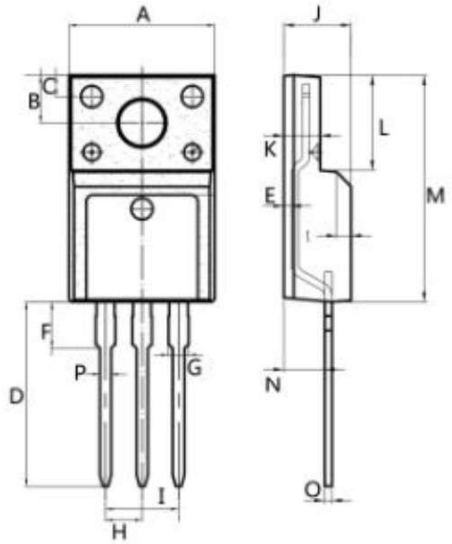
Package Outline Dimensions Millimeters

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		

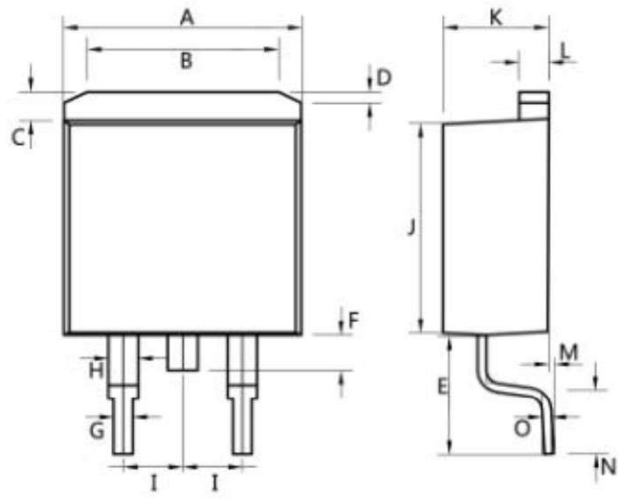
TO-220F



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		