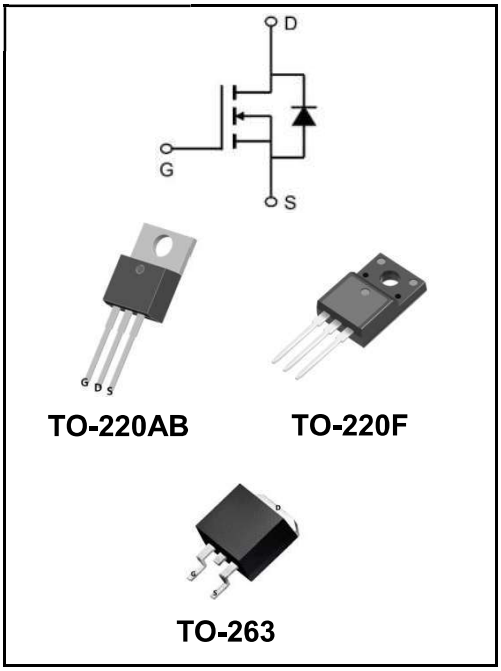
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	150A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 5.5mΩ(Type:4.2 mΩ)



Features

♦YFW-SGT technology

Application

♦DC/DC Converter
♦LED Backlighting
♦Power Management Switches

Product Specification Classification

Part Number	Package	Marking	Pack
YFWG150N10AT	TO-220AB	YFW 150N10AT XXXXX	1000PCS/Box
YFWG150N10AF	TO-220F	YFW 150N10AF XXXXX	1000PCS/Box
YFWG150N10AS	TO-263	YFW 150N10AS XXXXX	800PCS/Reel

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, V_{GS} @ 10V @T_C=25℃	I_D	150	A
Continuous Drain Current, V_{GS} @ 10V @T_C=100℃	I_D	110	A
Pulsed Drain Current	I_{DM}	420	A
Single Pulse Avalanche Energy	E_{AS}	250	mJ
Avalanche Current	I_{AS}	53.4	A
Total Power Dissipation[4] @T_C=25℃	P_D	148	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance, Junction-ambient	$R_{\theta JA}$	0.84	°C/W
Thermal Resistance, Junction-case	$R_{\theta JC}$	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	**VDSS**	100	-	-	**V**
Gate -Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	**nA**
Zero Gate Voltage Drain Current	V_{DS} =100V, V_{GS} = 0V, T_J=25°C	I_{DSS}	-	-	1	**μA**
	V_{DS} =100V, V_{GS} = 0V,T_J=100°C		-	-	100	
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	$V_{GS(th)}$	2.0	2.9	4.0	**V**
Drain-Source on-Resistance [2]	V_{GS}=10V, I_D=20A	$R_{DS(ON)}$	-	4.2	5.5	**mΩ**
Input Capacitance	V_{DS}=50V V_{GS}=0V f=1MHz	C_{iss}	-	4400	-	**pF**
Output Capacitance		C_{oss}	-	645	-	
Reverse Transfer Capacitance		C_{rss}	-	20	-	
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	R_g	-	1.7	-	**Ω**
Total Gate Charge	V_{DS}=50V V_{GS}=10V I_D=20A	Q_g	-	75	-	**nC**
Gate-Source Charge		Q_{gs}	-	17	-	
Gate-Drain Charge		Q_{gd}	-	13	-	
Turn-on delay time	V_{GS}=10V V_{DS}=50V R_G=3Ω I_D=20A	$t_{d(on)}$	-	15.4	-	**ns**
Rise Time		T_r	-	13	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	34	-	
Fall Time		t_f	-	6.2	-	
Diode Forward Voltage [2]	V_{GS}=0V , I_F=20A	V_{SD}	-	-	1.2	**V**
Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	I_S	-	-	95	**A**
Body Diode Reverse Recovery Time	I_F=20A, dI_{SD}/dt=100A/μs	t_{rr}	-	55	-	**ns**
Body Diode Reverse Recovery Charge		Q_{rr}	-	101	-	**nC**

Notes:
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 ≤ 300us , duty cycle ≤ 2%
3、The EAS data shows Max. rating . The test condition is VDD=50V, VGS=10V, L=0.4mH, IAS=32A
4、The power dissipation is limited by 150°C 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

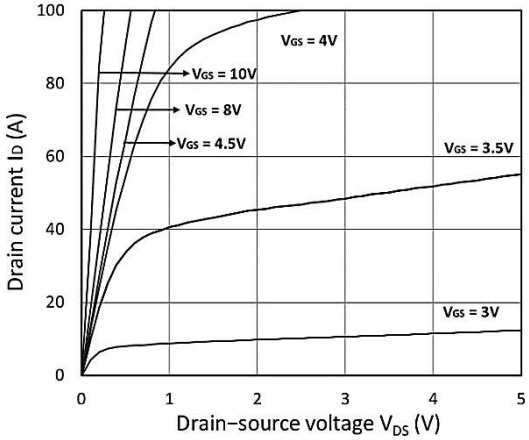


Figure 1. Output Characteristics

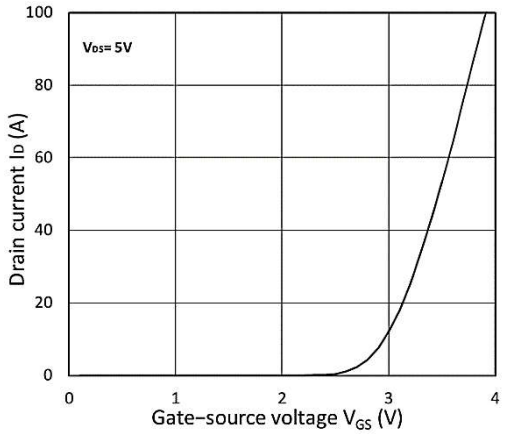


Figure 2. Transfer Characteristics

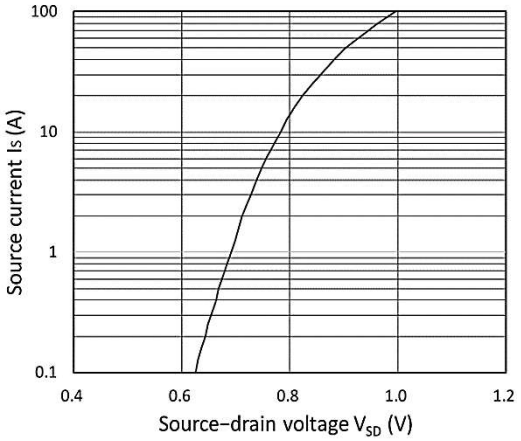


Figure 3. Forward Characteristics of Reverse

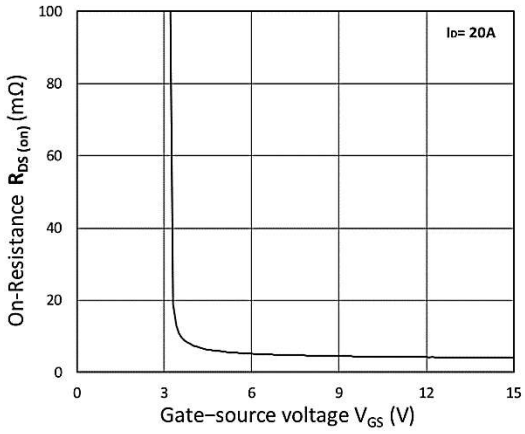


Figure 4. RDS(ON) vs. VGS

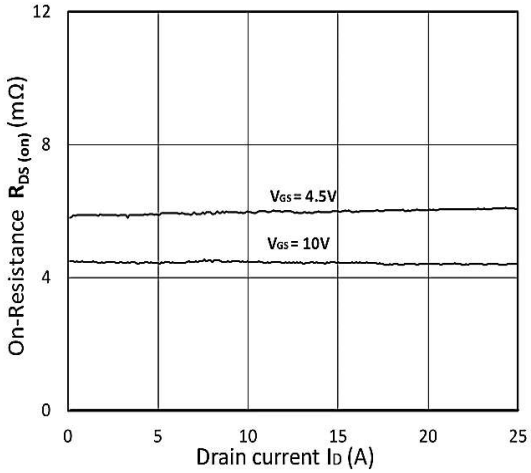


Figure 5. R DS(ON) vs. I D

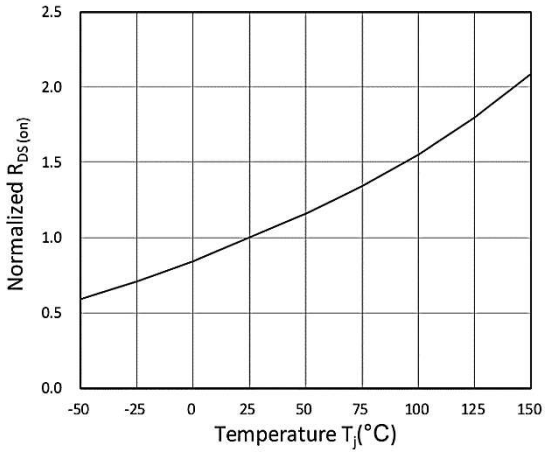


Figure 6. Normalized R DS(on) vs. Temperature

Ratings and Characteristic Curves

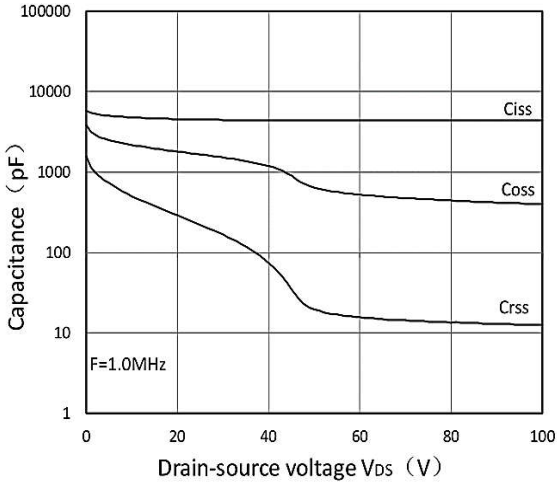


Figure 7. Capacitance Characteristics

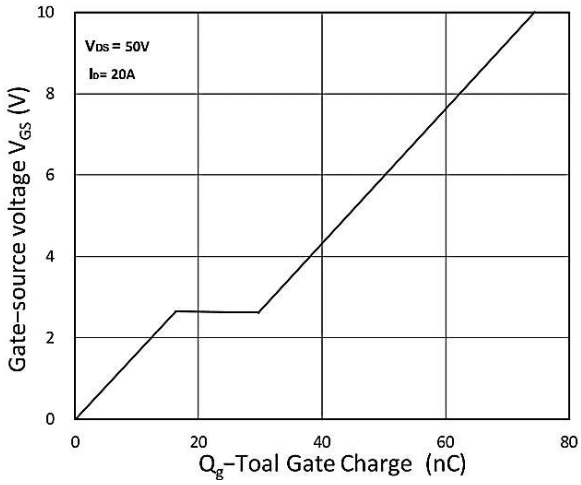


Figure 8. Gate Charge Characteristics

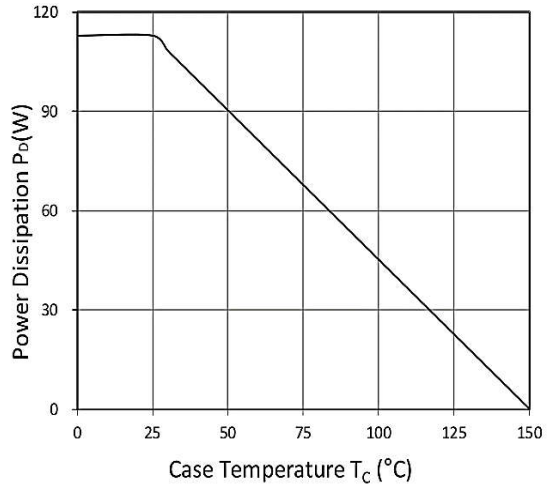


Figure 9. Power Dissipation

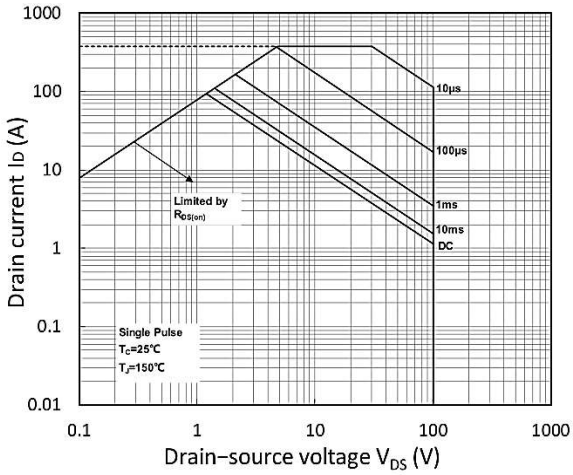


Figure10. Safe Operating Area

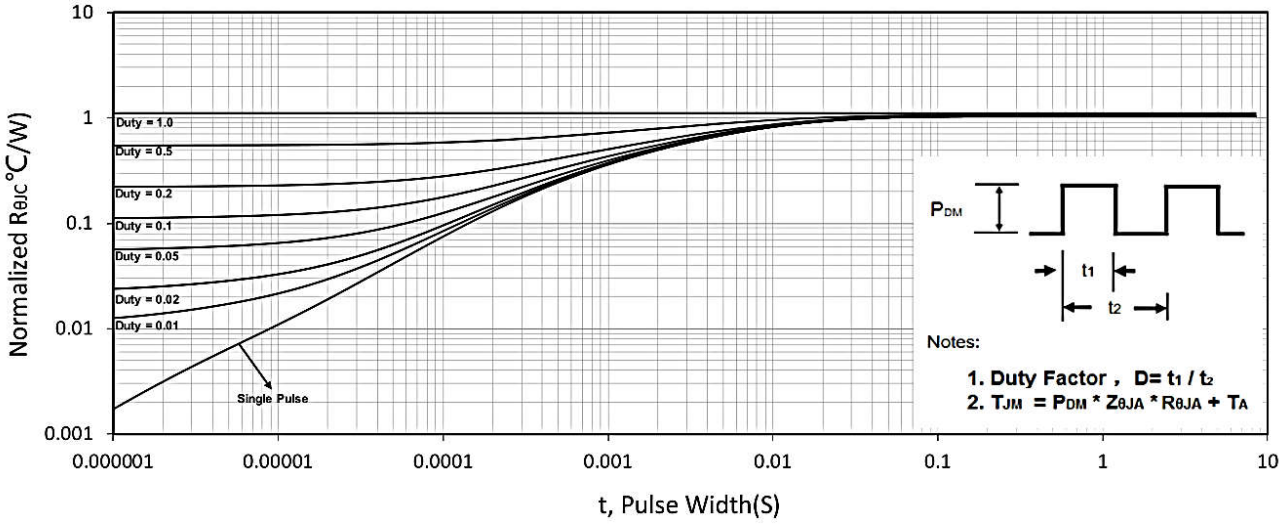
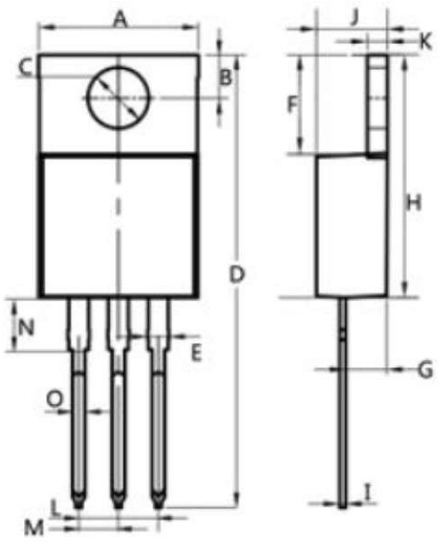


Figure 11. Normalized Maximum Transient Thermal Impedance

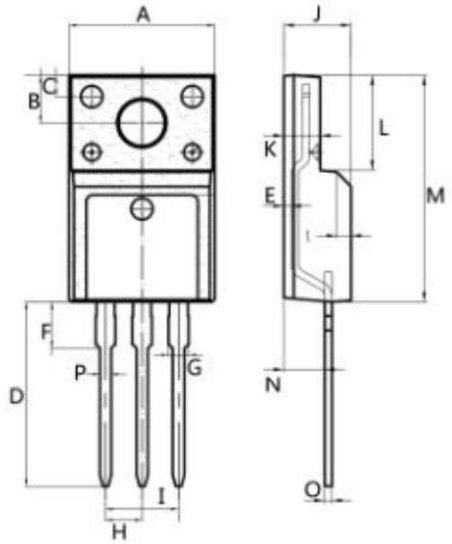
Package Outline Dimensions Millimeters

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		

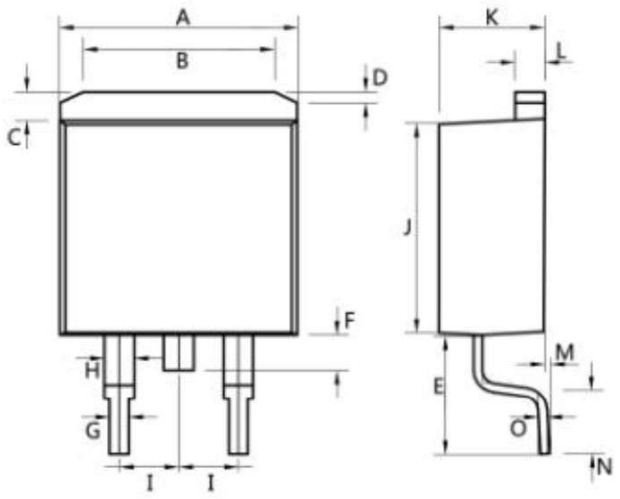
TO-220F



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		