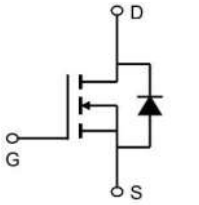
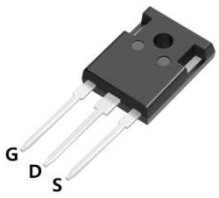
200V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	70A
V_{DSS}	200V
R_{DSON}-typ(@V_{GS}=10V)	< 38mΩ(Type:30mΩ)





TO-247

Application

- Uninterruptible Power Supply(UPS)
- Power Factor Correction (PFC)

Product Specification Classification

Part Number	Package	Marking	Pack
YFW70N20AP	TO-247	YFW 70N20AP XXXXX	600PCS/Tube

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage(V_{GS}=0V)	V_{DS}	200	V
Continuous Drain Current	I_D	70	A
Pulsed Drain Current (Note1)	I_{DM}	280	A
Gate - Source Voltage	V_{GS}	±20	V
Single Pulse Avalanche Energy (Note2)	E_{AS}	1800	mJ
Avalanche Current (Note1)	I_{AR}	25	A
Repetitive Avalanche Energy (Note1)	E_{AR}	20	mJ
Power Dissipation (T_C=25℃)	P_D	367	W
Operating Junction and Storage Temperature Range	T_J ,T_{STG}	-55 to +150	°C
Thermal Resistance, Junction-case	$R_{\theta JC}$	1.5	°C/W
Thermal Resistance, Junction ambient	$R_{\theta JA}$	40	°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**	200	220	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=200V , V_{GS}=0V , T_J= 25℃	**I_{DSS}**	-	-	5	**μA**
	V_{DS}=160V, V_{GS}=0V , T_J= 125℃		-	-	100	
Gate- Source Leakage	V_{GS}=±20V	**I_{GSS}**	-	-	±100	**nA**
Gate Source Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	**$V_{GS(th)}$**	2.0	3.0	4.0	**V**
Drain-Source On-Resistance (Note3)	V_{GS}=10V, I_D=9A	**$R_{DS(ON)}$**	-	30	38	**mΩ**
Input Capacitance	V_{DS}=25V V_{GS}=0V f=1MHz	**C_{iss}**	-	3538	-	**pF**
Output Capacitance		**C_{oss}**	-	657	-	
Reverse Transfer Capacitance		**C_{rss}**	-	280	-	
Total Gate Charge	V_{DD}=160V I_D=50A V_{GS}=10V	**Q_g**	-	244	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	16	-	
Gate-Drain Charge		**Q_{gd}**	-	144	-	
Turn-on delay time	V_{DD}=100V I_D=50A R_G=25Ω	**$t_{d(on)}$**	-	53	-	**ns**
Turn-on Rise Time		**T_r**	-	65	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	689	-	
Turn-on Fall Time		**t_f**	-	230	-	
Continuous Body Diode Current	T_C= 25℃	**I_S**	-	-	50	**A**
Pulsed Diode Forward Current		**I_{SM}**	-	-	200	**A**
Body Diode Voltage	V_{GS}=0V , I_{SD}=50A , T_J= 25℃	**V_{SD}**	-	-	1.4	**V**
Reverse Recovery Time	V_{GS}=0V, I_S=50A, dI_{SD}/dt=100A/μs	**t_{rr}**	-	208	-	**ns**
Reverse Recovery Charge		**Q_{rr}**	-	2.04	-	**nC**

Note :
1、The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2、The EAS data shows Max. rating . IAS = 25A, VDD = 50V, RG = 25 Ω, Starting TJ = 25 ºC
3、The test condition is Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%
4、The power dissipation is limited by 150℃ 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

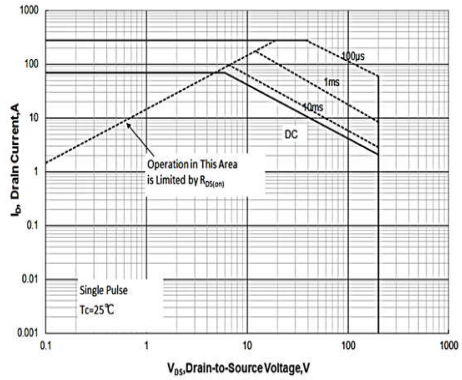


Figure 1 Maximum Forward Bias Safe Operating Area

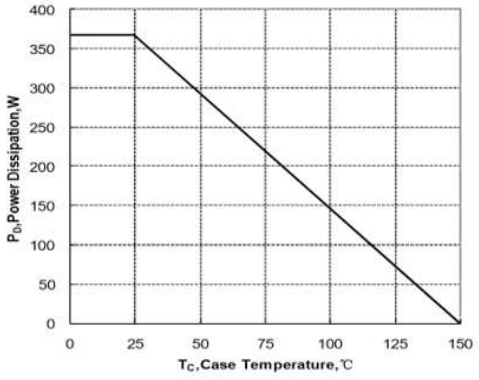


Figure 2 Maximum Power dissipation vs Case Temperature

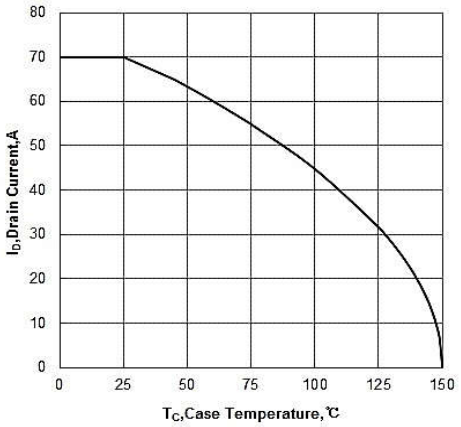


Figure 3 Maximum Continuous Drain Current vs Case Temperature

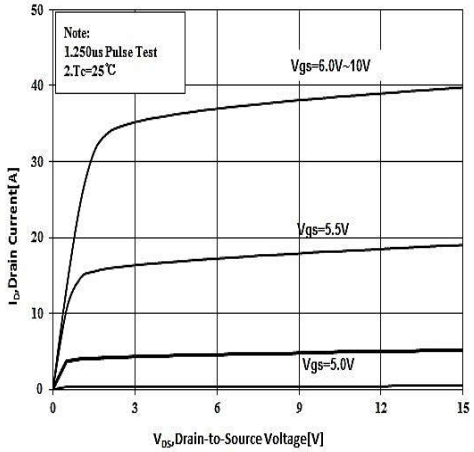


Figure 4 Typical Output Characteristics

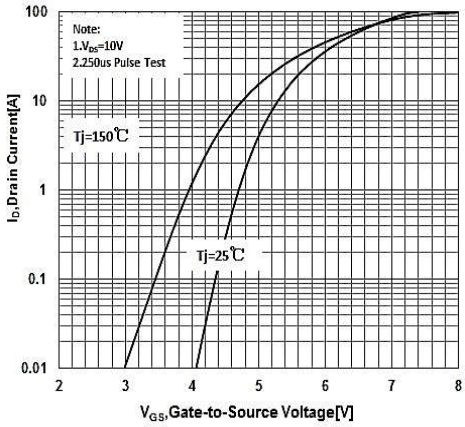


Figure5:Typical Transfer Characteristics

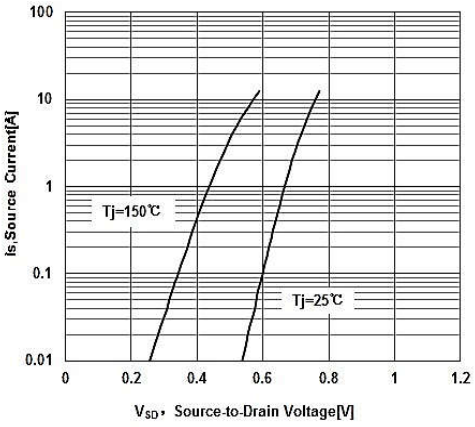


Figure6:Typical Body Diode Transfer Characteristics

Ratings and Characteristic Curves

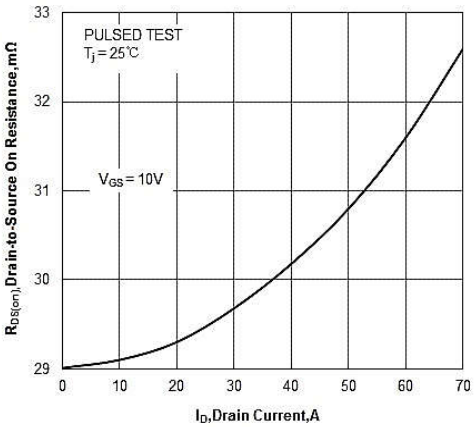


Figure7:Source ON Resistance vs Drain Current

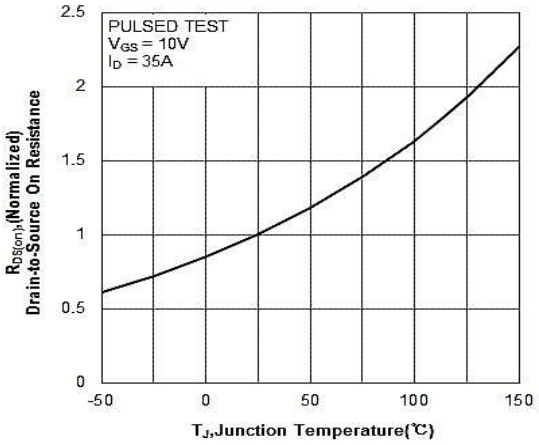


Figure8:Source on Resistance vs Junction Temperature

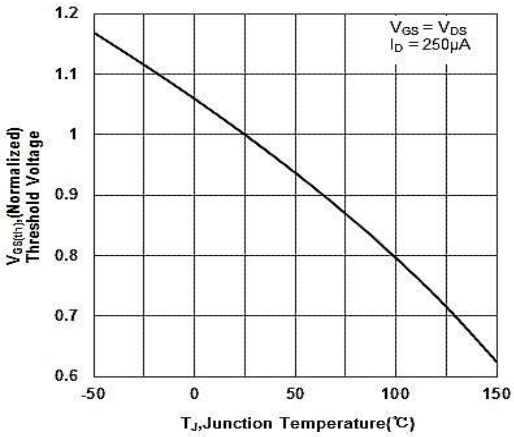


Figure 9 Typical Theshold Voltage vs Junction Temperature

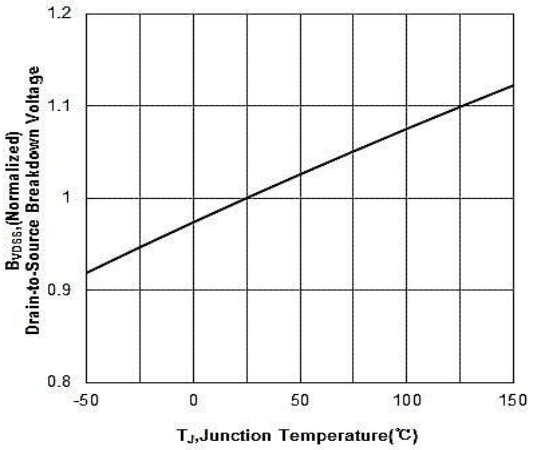


Figure 10 Typical Breakdown Voltage vs Junction Temperature

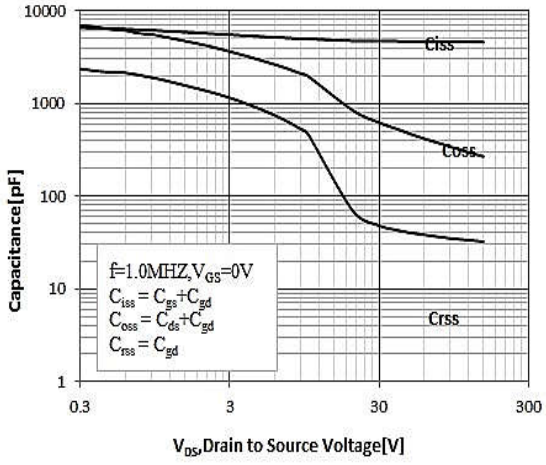


Figure 11 Typical Capacitance vs Drain to Source Voltag

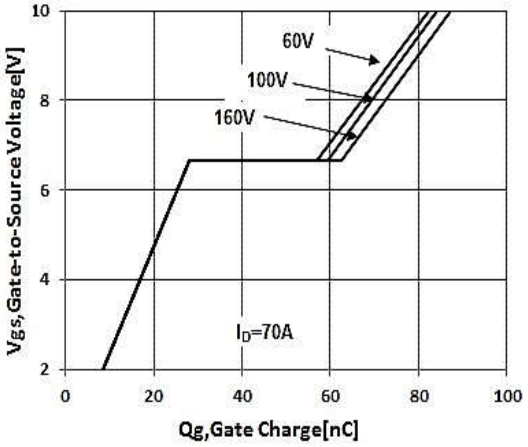


Figure 12 Typical Gate Charge vs Gate to Source Voltage

Package Outline Dimensions Millimeters

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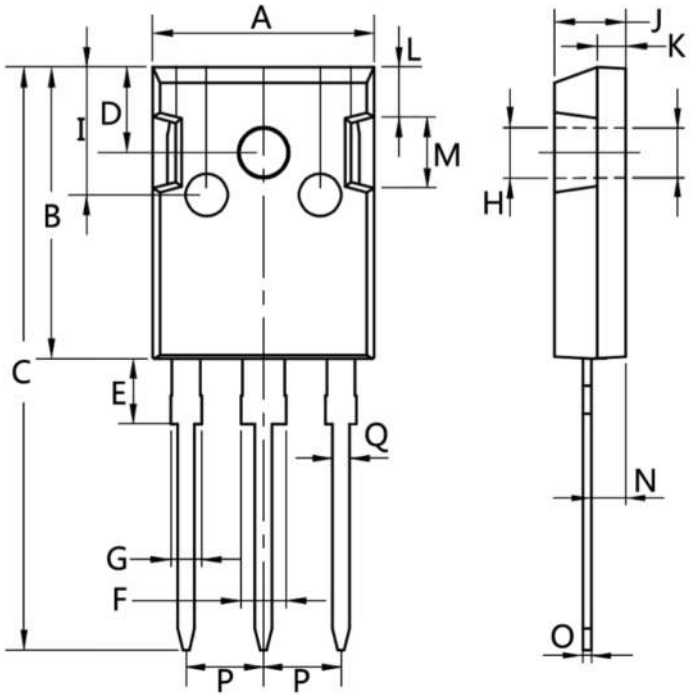

Dim.	Min.	Max.
A	15.0	16. 0
B	20.0	21.0
C	41.0	42.0
D	5.0	6.0
E	4.0	5.0
F	2.5	3.5
G	1.75	2.5
H	3.0	3.5
I	8.0	10.0
J	4.9	5.1
K	1.9	2.1
L	3.5	4.0
M	4.75	5.25
N	2.0	3.0
O	0.55	0.75
P	Typ 5.08	
Q	1.2	1.3