

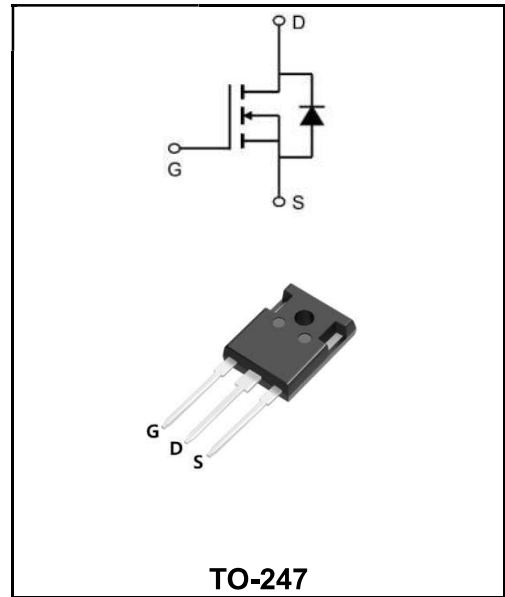
200V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	130A
V_{DSS}	200V
R_{DS(on)-typ(@V_{GS}=10V)}	< 23mΩ (Type: 18mΩ)

Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW130N20AP	TO-247	YFW 130N20AP XXXXX	600PCS/Tube

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage(V _{GS} =0V)	V_{DS}	200	V
Continuous Drain Current	I_D	130	A
Pulsed Drain Current (Note1)	I_{DM}	360	A
Gate - Source Voltage	V_{GS}	±20	V
Single Pulse Avalanche Energy (Note2)	E_{AS}	2000	mJ
Avalanche Current (Note1)	I_{AR}	30	A
Repetitive Avalanche Energy (Note1)	E_{AR}	25	mJ
Power Dissipation (T _c =25°C)	P_D	450	W
Operating Junction and Storage Temperature Range	T_J , T_{STG}	-55 to +150	°C
Thermal Resistance, Junction-case	R_{θJC}	1.2	°C/W
Thermal Resistance, Junction ambient	R_{θJA}	40	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V(BR)DSS	200	220	-	V
Zero Gate Voltage Drain Current	$V_{DS}=200V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	5	μA
	$V_{DS}=160V, V_{GS}=0V, T_J=125^\circ C$		-	-	100	
Gate- Source Leakage	$V_{GS}=\pm 20V$	I_{GSS}	-	-	±100	nA
Gate Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	2.0	3.0	4.0	V
Drain-Source On-Resistance (Note3)	$V_{GS}=10V, I_D=9A$	R_{DS(ON)}	-	18	23	mΩ
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	6500	-	pF
Output Capacitance		C_{oss}	-	980	-	
Reverse Transfer Capacitance		C_{rss}	-	370	-	
Total Gate Charge	$V_{DD}=160V$ $I_D=90A$ $V_{GS}=10V$	Q_g	-	200	-	nC
Gate-Source Charge		Q_{gs}	-	28	-	
Gate-Drain Charge		Q_{gd}	-	60	-	
Turn-on delay time	$V_{DD}=100V$ $I_D=90A$ $R_G=25\Omega$	t_{d(on)}	-	45	-	ns
Turn-on Rise Time		T_r	-	70	-	
Turn-Off Delay Time		t_{d(OFF)}	-	110	-	
Turn-on Fall Time		t_f	-	90	-	
Continuous Body Diode Current	$T_C=25^\circ C$	I_S	-	-	90	A
Pulsed Diode Forward Current		I_{SM}	-	-	360	A
Body Diode Voltage	$V_{GS}=0V, I_{SD}=90A, T_J=25^\circ C$	V_{SD}	-	-	1.4	V
Reverse Recovery Time	$V_{GS}=0V, I_S=90A,$ $di_{SD}/dt=100A/\mu s$	t_{rr}	-	280	-	ns
Reverse Recovery Charge		Q_{rr}	-	2.4	-	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 = 30A, VDD = 50V, RG = 25 Ω, Starting TJ = 25 °C
- 3、The test condition is Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%
- 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.

Typical Characteristics

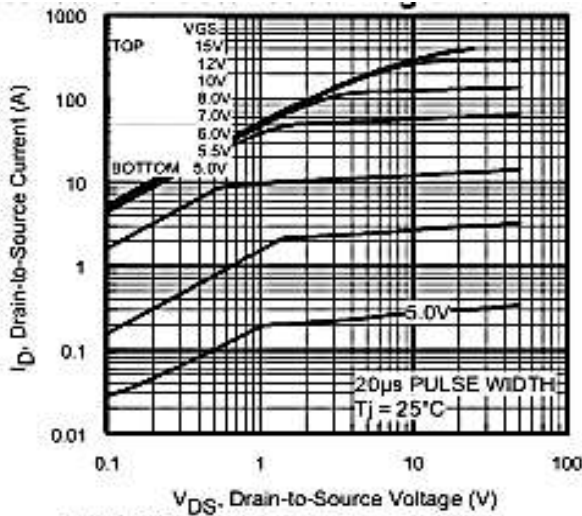


Fig 1. Typical Output Characteristics

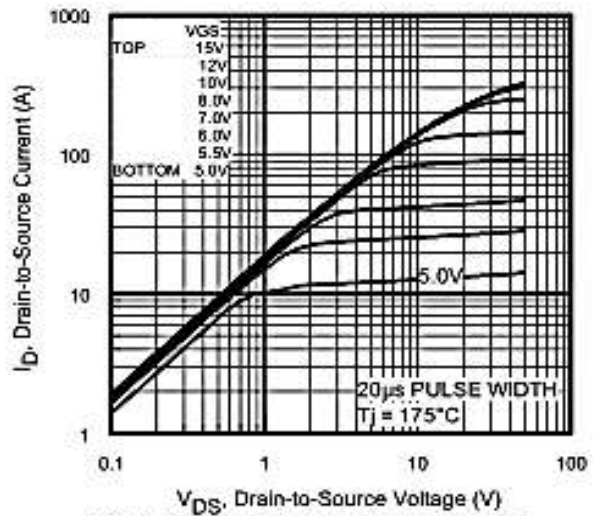


Fig 2. Typical Output Characteristics

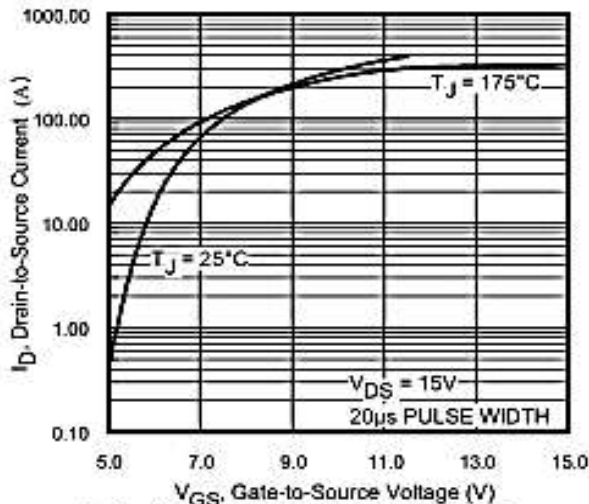


Fig 3. Typical Transfer Characteristics

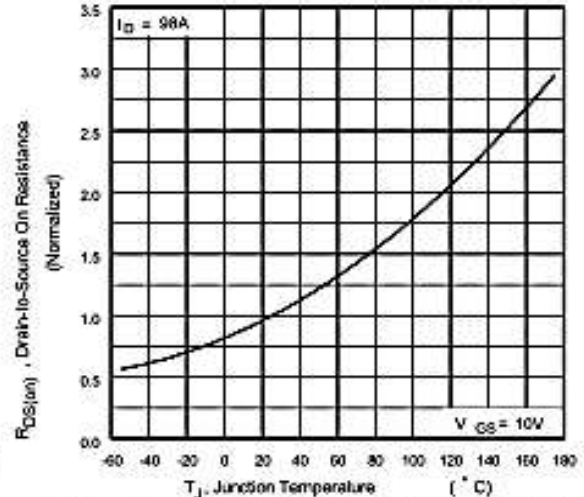


Fig 4. Normalized On-Resistance Vs. Temperature

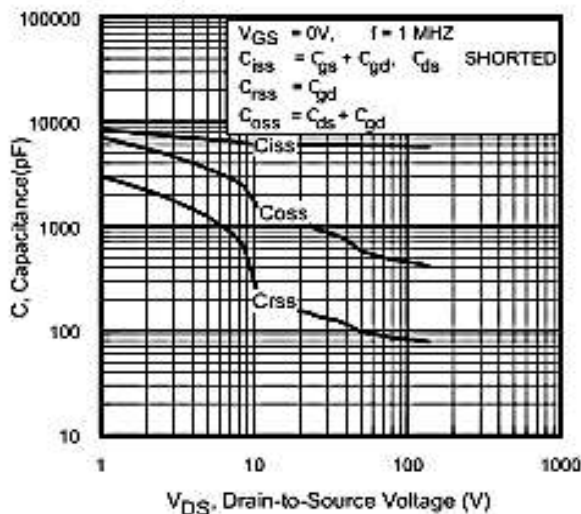


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

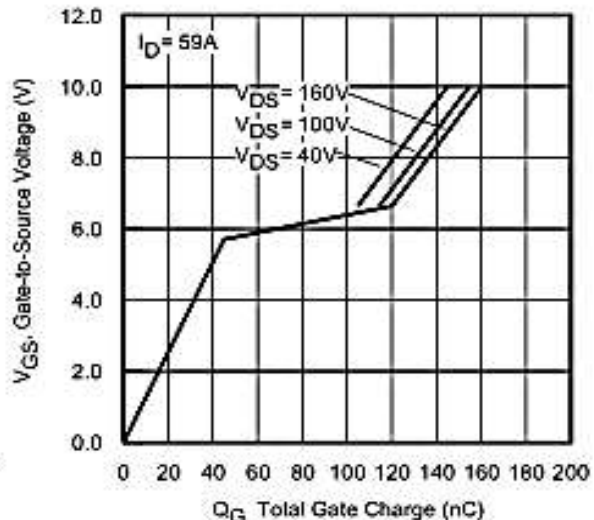


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

Ratings and Characteristic Curves

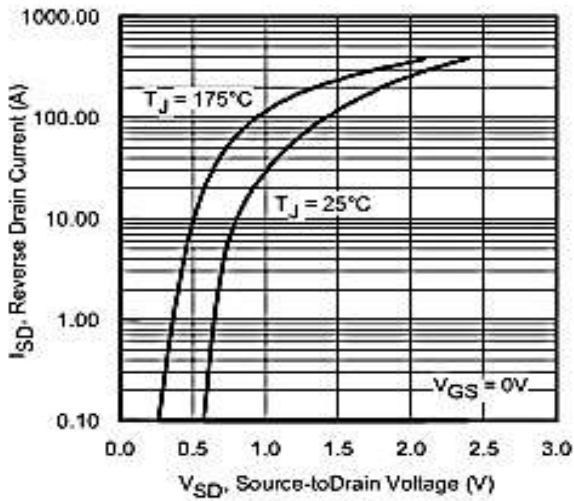


Fig 7. Typical Source-Drain Diode Forward Voltage

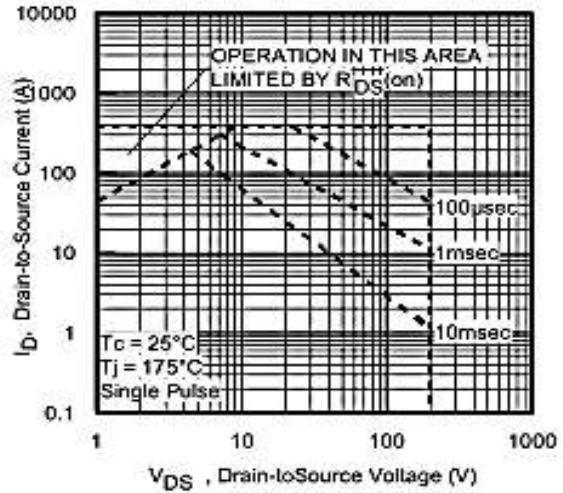


Fig 8. Maximum Safe Operating Area

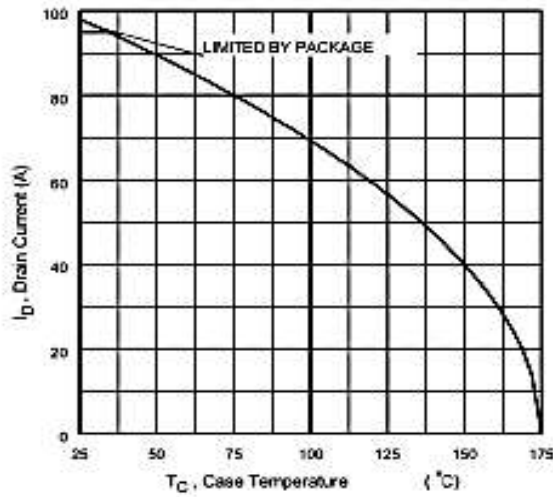


Fig 9. Maximum Drain Current Vs. Case Temperature

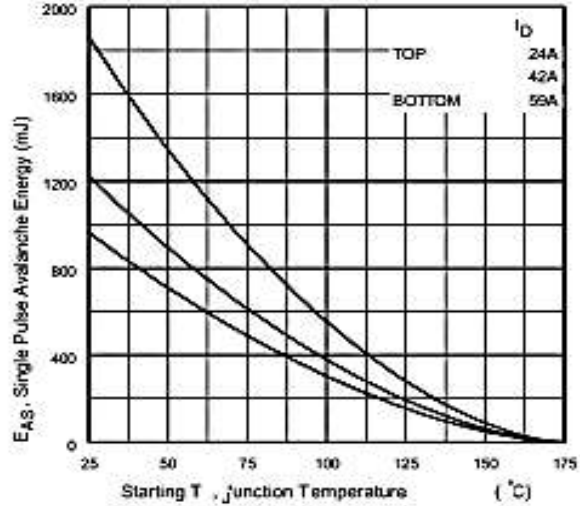


Fig 10. Maximum Avalanche Energy Vs. Drain Current

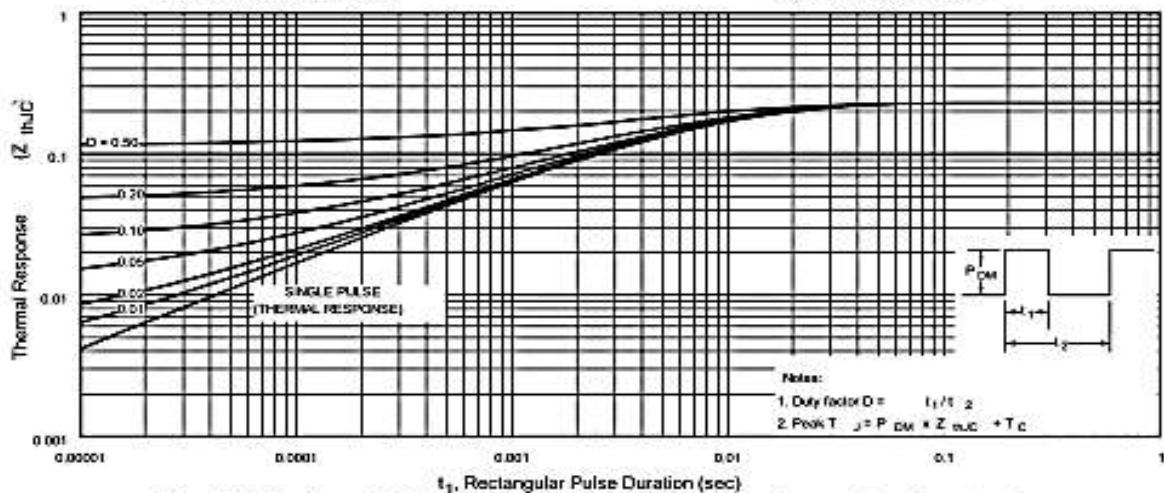
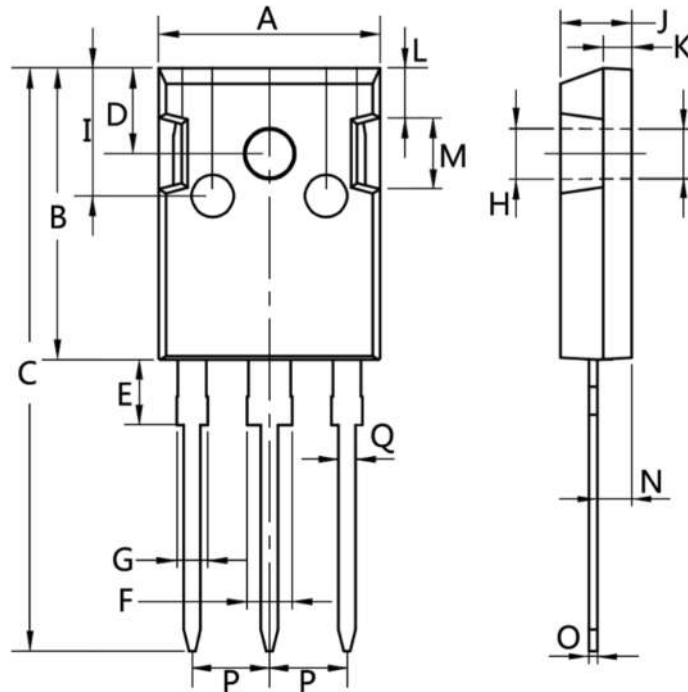


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Case

TO-247



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