

80V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

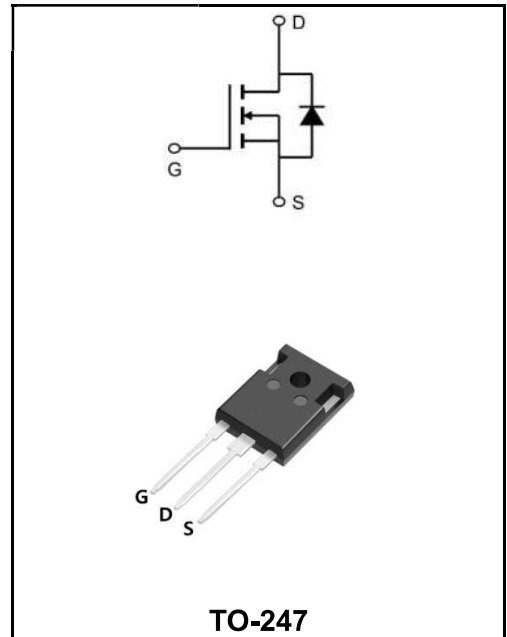
I_D	200A
V_{DSS}	80V
R_{DS(on)-typ(@V_{GS}=10V)}	< 3.2mΩ (Type:2.6 mΩ)

Features

◆YFW-SGT technology

Applications

- ◆Battery protection
- ◆Load switch
- ◆Uninterruptible power supply



Product Specification Classification

Part Number	Package	Marking	Pack
YFW200N08AP	TO-247	YFW 200N08AP XXXXX	600PCS/Tube

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	80	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current , V _{GS} @10V @T _C =25°C	I_D	200	A
Continuous Drain Current , V _{GS} @10V @T _C =100°C	I_D	100	A
Pulsed Drain Current	I_{DM}	480	A
Single Pulse Avalanche Energy	E_{AS}	858	mJ
Total Power Dissipation ⁴ @T _C =25°C	P_D	284	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_{θJA}	0.53	°C/W
Thermal Resistance Junction-Case	R_{θJC}	62.5	°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	80	92	-	V
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A, T_J=25^\circ C$	V_{GS(th)}	2.0	3.0	4.0	V
Zero gate voltage drain current	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ C$	I_{BSS}	-	-	1	μA
	$V_{DS}=80V, V_{GS}=0V, T_J=125^\circ C$		-	-5	-	
Gate- Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	100	nA
Drain-source on-state resistance	$V_{GS}=10V, I_D=50A, T_J=25^\circ C$	R_{DS(on)}	-	2.6	3.2	mΩ
Transconductance	$V_{DD}=5V, I_D=40A$	g_{fs}	-	106	-	S
Input Capacitance	$V_{GS}=0V$ $V_{DS}=40V$ $f=1MHz$	C_{iss}	-	6813	-	pF
Output Capacitance		C_{oss}	-	808	-	
Reverse Transfer Capacitance		C_{rss}	-	48	-	
Total Gate Charge	$V_{GS}=10V$ $V_{DS}=40V$ $I_D=25A$	Q_g	-	91	-	nC
Gate-Source Charge		Q_{gs}	-	37	-	
Gate-Drain Charge		Q_{gd}	-	25	-	
Turn-on delay time	$T_J=25^\circ C$ $V_{GS}=10V$ $V_{DS}=40V$ $R_L=3\Omega$	t_{d(on)}	-	38	-	ns
Rise Time		T_r	-	58	-	
Turn-Off Delay Time		t_{d(OFF)}	-	63	-	
Fall Time		t_f	-	32	-	
Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	R_G	-	2	-	Ω
Body Diode Forward Voltage	$I_{SD}=50A, V_{GS}=0V$	V_{SD}	-	0.85	1.2	V
Body Diode Reverse Recovery Time	$I_F=20A, di/dt=500A/\mu s$	t_{rr}	-	85	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	313	-	nC

Note :

- 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 .The EAS data shows Max. rating .
- 3、 The test cond \cong 300us duty cycle \cong 2%, duty cycle ition is $V_{DD}=64V, V_{GS}=10V, L=0.1mH, I_{AS}=53.8A$
- 4、 The power dissipation is limited by 175°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

Typical Characteristics

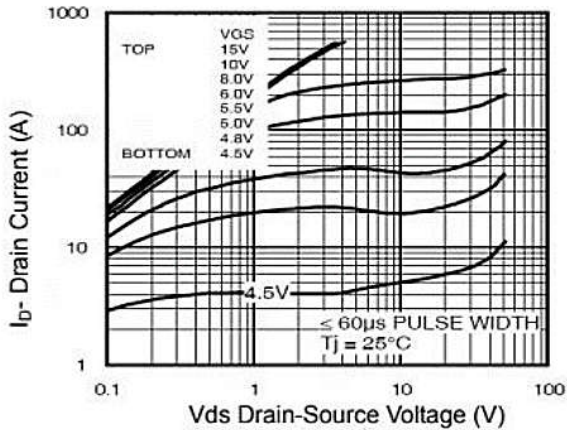


Figure 1 Output Characteristics

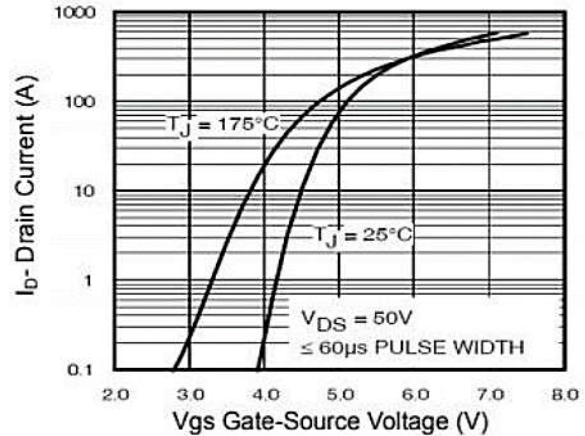


Figure 2 Transfer Characteristics

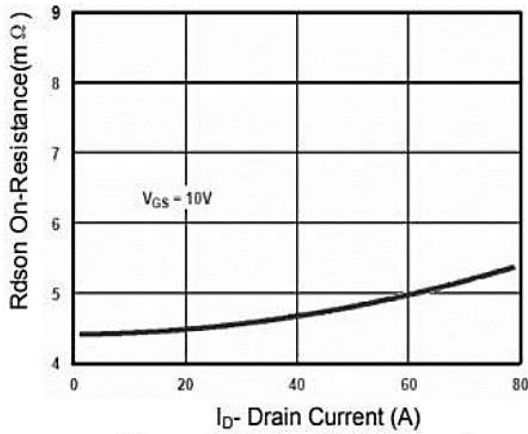


Figure 3 Rdson- Drain Current

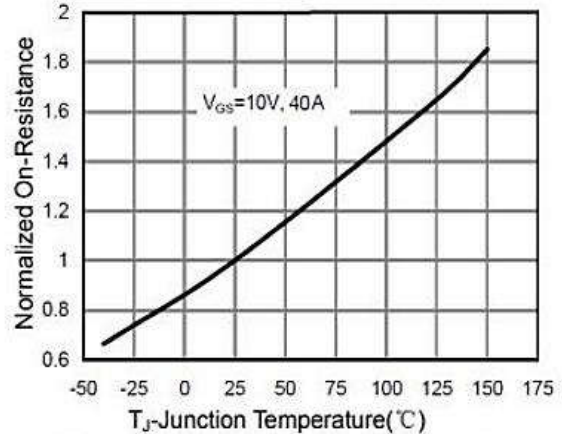


Figure 4 Rdson-Junction Temperature

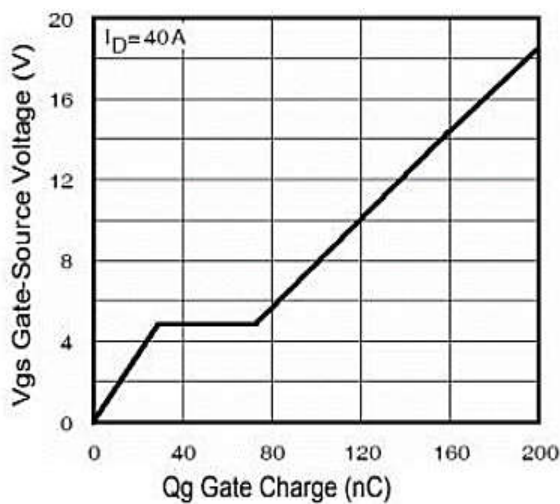


Figure 5 Gate Charge

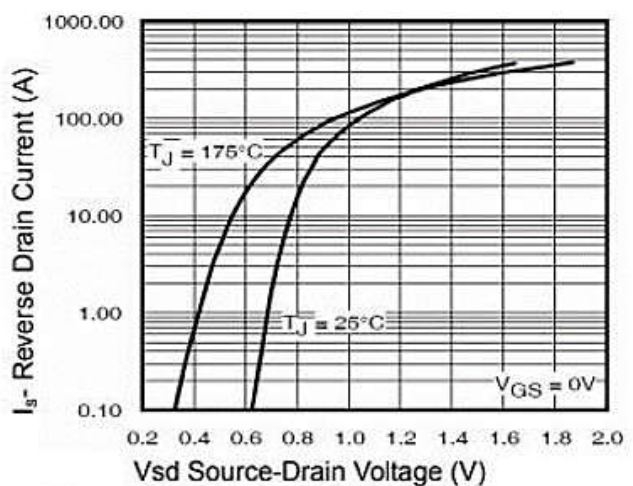


Figure 6 Source- Drain Diode Forward

Ratings and Characteristic Curves

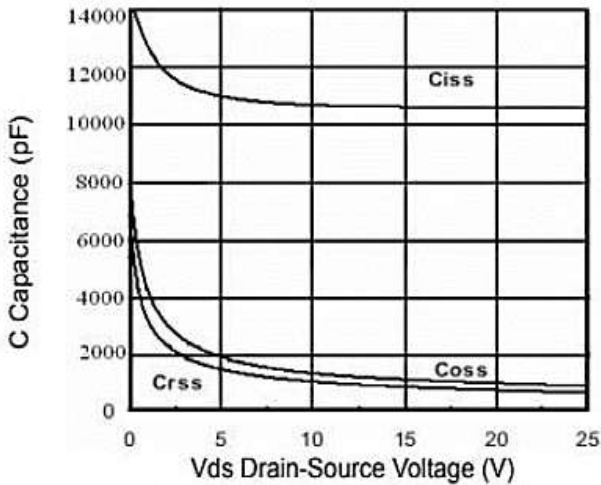


Figure 7 Capacitance vs Vds

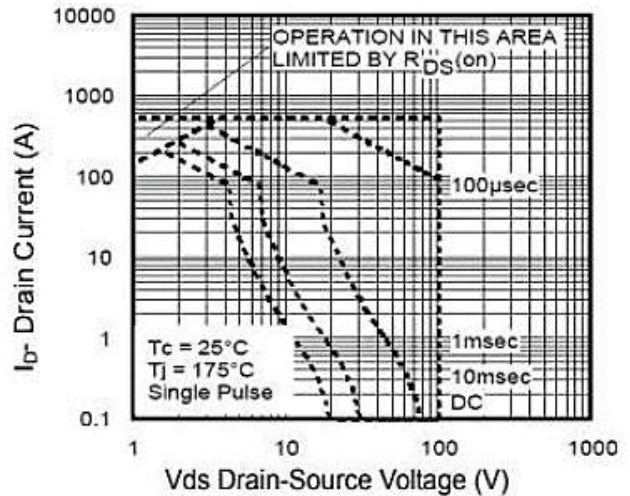


Figure 8 Safe Operation Area

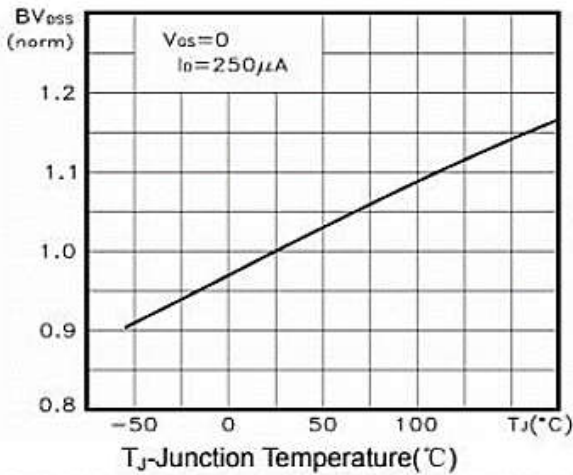


Figure 9 BV_{DSS} vs Junction Temperature

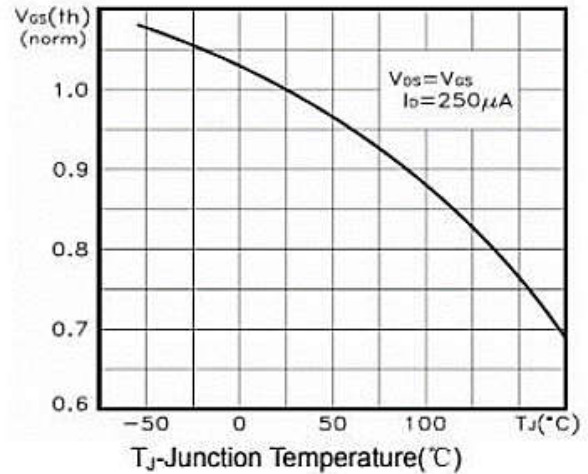


Figure 10 V_{GS(th)} vs Junction Temperature

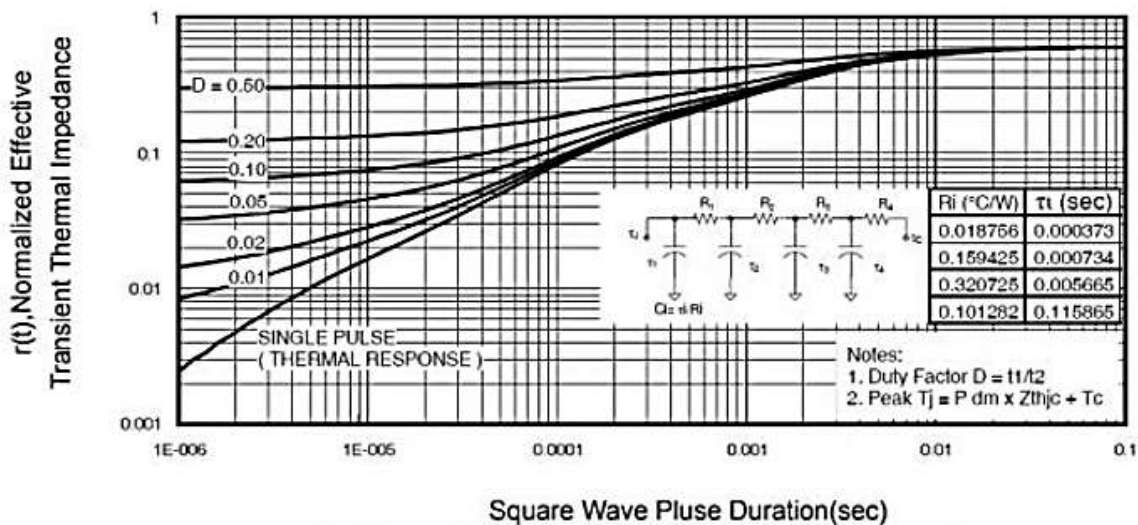
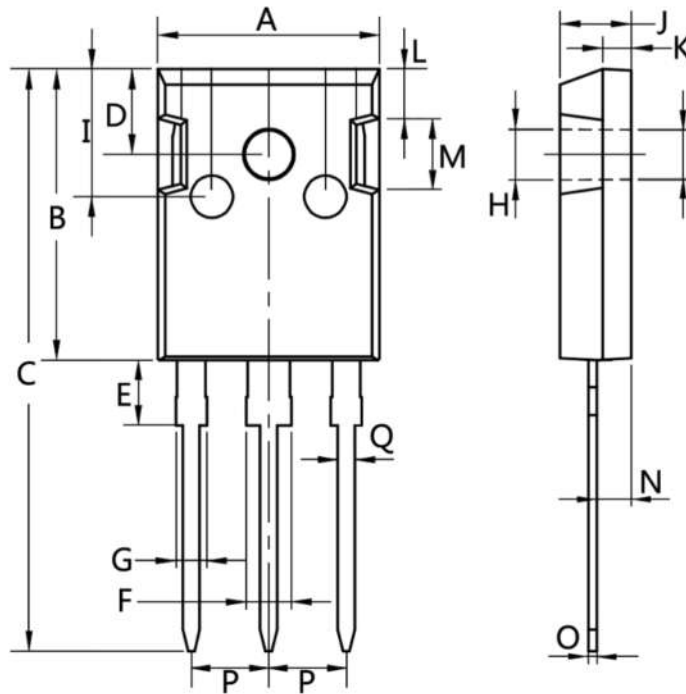


Figure 11 Normalized Maximum Transient Thermal Impedance

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