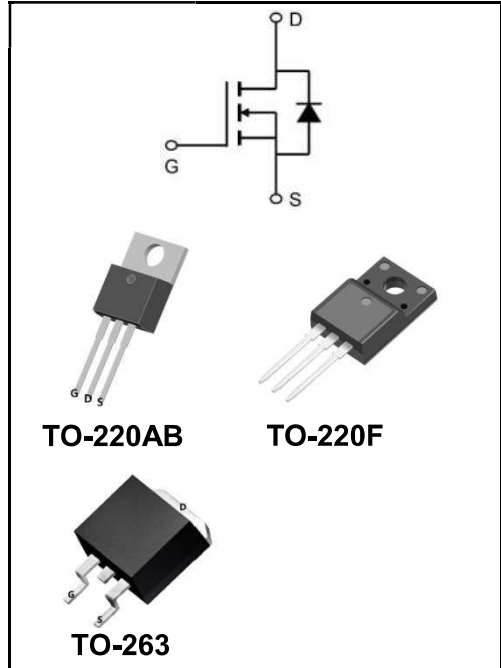


**68V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	80A
<b>V<sub>DSS</sub></b>	68V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 9.0mΩ ( <b>Type:7.2 mΩ</b> )



**Application**

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

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW80N07AT	TO-220AB	YFW 80N07AT XXXXX	1000PCS/Box
YFW80N07AF	TO-220F	YFW 80N07AF XXXXX	1000PCS/Box
YFW80N07AS	TO-263	YFW 80N07AS XXXXX	800PCS/Reel

**Maximum Ratings at T<sub>c</sub>=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	68	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Continuous Drain Current, V <sub>GS</sub> @ 10V <sup>1</sup> @T <sub>C</sub> =25°C	<b>I<sub>D</sub></b>	80	<b>A</b>
Continuous Drain Current, V <sub>GS</sub> @ 10V <sup>1</sup> @T <sub>C</sub> =100°C	<b>I<sub>D</sub></b>	52	<b>A</b>
Pulsed Drain Current <sup>2</sup>	<b>I<sub>DM</sub></b>	320	<b>A</b>
Single Pulse Avalanche Energy <sup>3</sup>	<b>E<sub>AS</sub></b>	110	<b>mJ</b>
Avalanche Current	<b>I<sub>AS</sub></b>	22	<b>A</b>
Total Power Dissipation <sup>4</sup> @T <sub>C</sub> =25°C	<b>P<sub>D</sub></b>	103	<b>W</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>
Operating Junction Temperature Range	<b>T<sub>J</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance Junction-Ambient <sup>1</sup>	<b>R<sub>θJA</sub></b>	63	<b>°C/W</b>
Thermal Resistance Junction-Case <sup>1</sup>	<b>R<sub>θJC</sub></b>	1.46	<b>°C/W</b>

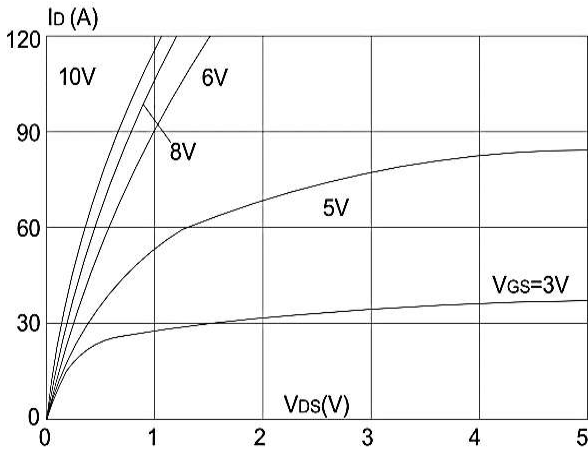
**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	68	72	-	V
BVDSS Temperature Coefficient	Reference to 25°C, $I_D=1mA$	$\Delta BV_{DSS}/\Delta T_J$	-	0.023	-	V/°C
Static Drain-Source On-Resistance <sup>2</sup>	$V_{GS}=10V, I_D=10A$	$R_{DS(ON)}$	-	7.2	9.0	mΩ
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	2.0	3.0	4.0	V
$V_{GS(th)}$ Temperature Coefficient		$\Delta V_{GS(th)}$	-	-4.2	-	mV/°C
Drain -Source Leakage Current	$V_{DS}=68V, V_{GS}=0V, T_J=25^\circ C$	$I_{DSS}$	-	-	1	μA
	$V_{DS}=68V, V_{GS}=0V, T_J=55^\circ C$		-	-	5	
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	$I_{GSS}$	-	-	±100	nA
Total Gate Charge(4.5V)	$V_{DS}=30V$ $V_{GS}=10V$ $I_D=30A$	$Q_g$	-	35		nC
Gate-Source Charge		$Q_{gs}$	-	11		
Gate-Drain Charge		$Q_{gd}$	-	9		
Turn-on delay time	$V_{DS}=30V$ $I_D=30A$ $R_{GEN}=3\Omega$ $V_{GS}=10V$	$t_{d(on)}$	-	15		ns
Rise Time		$T_r$	-	90	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	45	-	
Fall Time		$t_f$	-	30	-	
Input Capacitance	$V_{DS}=15V$ $V_{GS}=0V$ $f=1MHz$	$C_{iss}$	-	400	-	pF
Output Capacitance		$C_{oss}$	-	267	-	
Reverse Transfer Capacitance		$C_{rss}$	-	250	-	
Continuous Source Current <sup>1,5</sup>	$V_G=V_D=0V, \text{ Force Current}$	$I_S$	-	-	80	A
Pulsed Source Current <sup>2,5</sup>		$I_{SM}$	-	-	320	A
Diode Forward Voltage <sup>2</sup>	$V_{GS}=0V, I_S=80A$	$V_{SD}$	-	-	1.2	V
Reverse Recovery Time	$I_F=20A, dI/dt=100A/\mu s,$ $T_J=25^\circ C$	$t_{rr}$	-	78	-	ns
Reverse Recovery Charge		$Q_{rr}$	-	51	-	nC

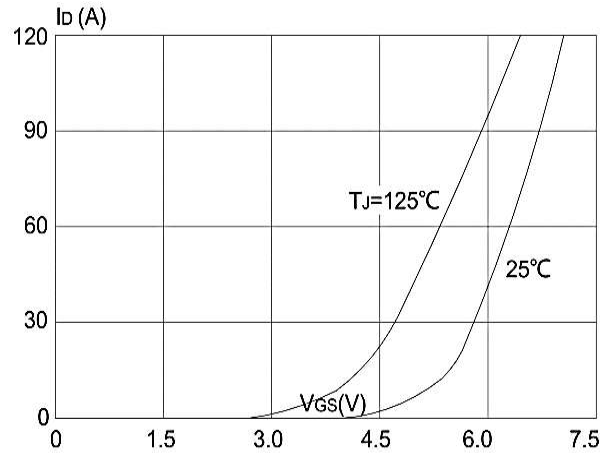
Note :

- 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  $T_J=25^\circ C, V_{DD}=35V, V_G=10V, R_G=25\Omega, L=0.5mH, I_{AS}=21A$
- 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.

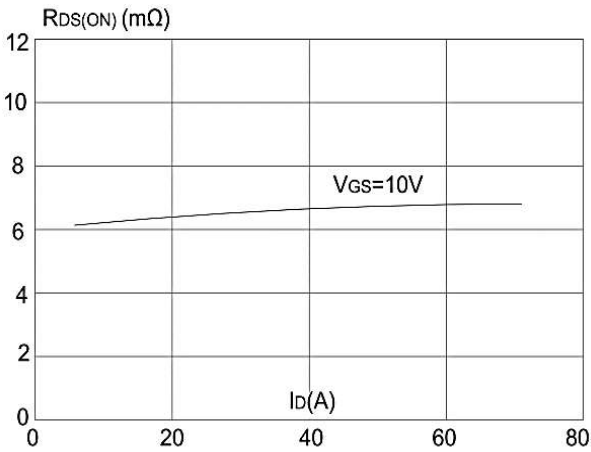
**Typical Characteristics**



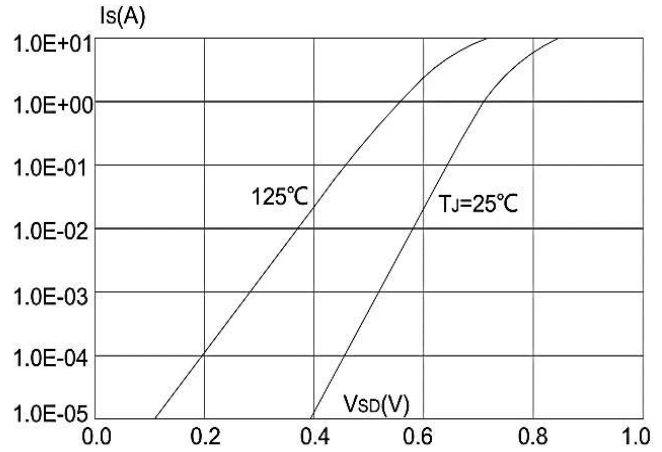
**Figure 1: Output Characteristics**



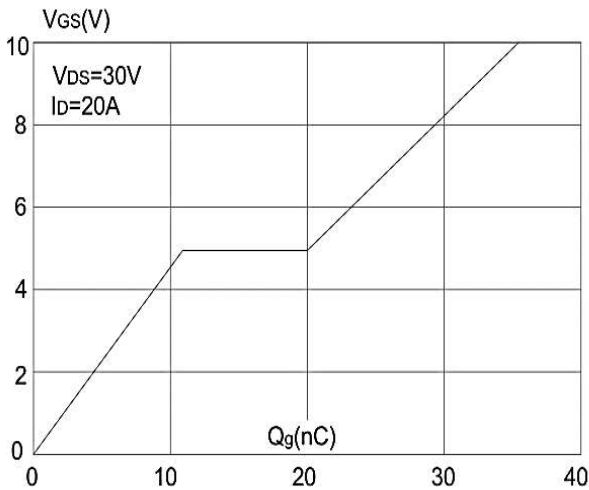
**Figure 2: Typical Transfer Characteristics**



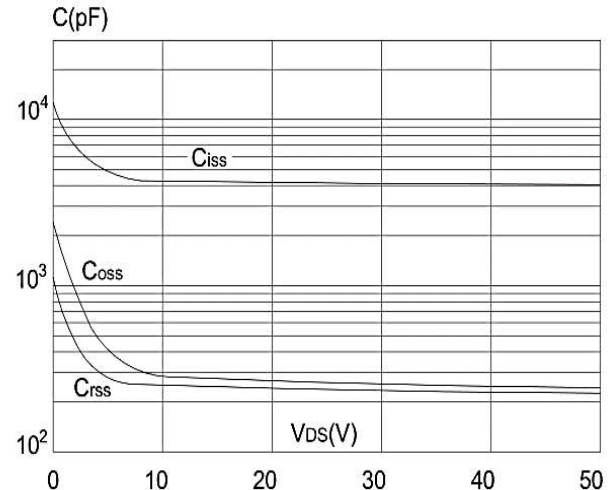
**Figure 3: On-resistance vs. Drain Current**



**Figure 4: Body Diode Characteristics**



**Figure 5: Gate Charge Characteristics**



**Figure 6: Capacitance Characteristics**

Ratings and Characteristic Curves

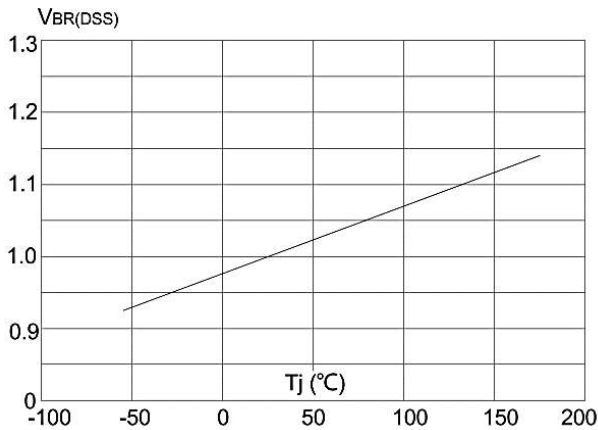


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

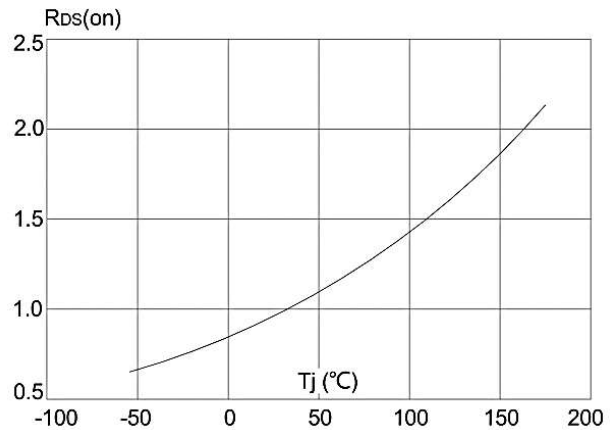


Figure 8: Normalized on Resistance vs. Junction Temperature

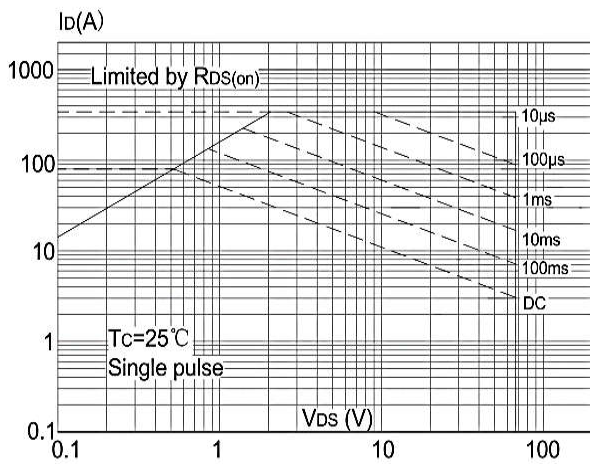


Figure 9: Maximum Safe Operating Area

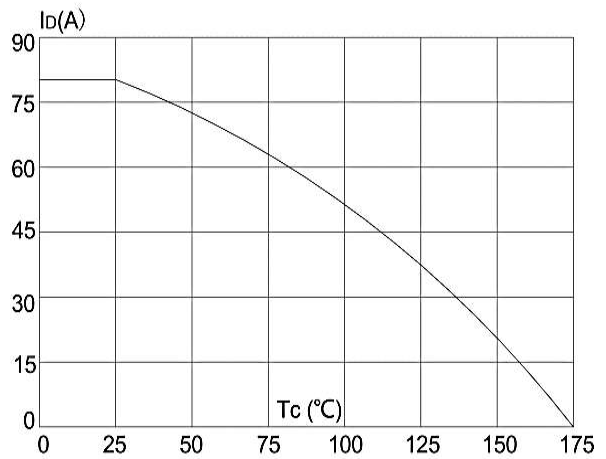


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

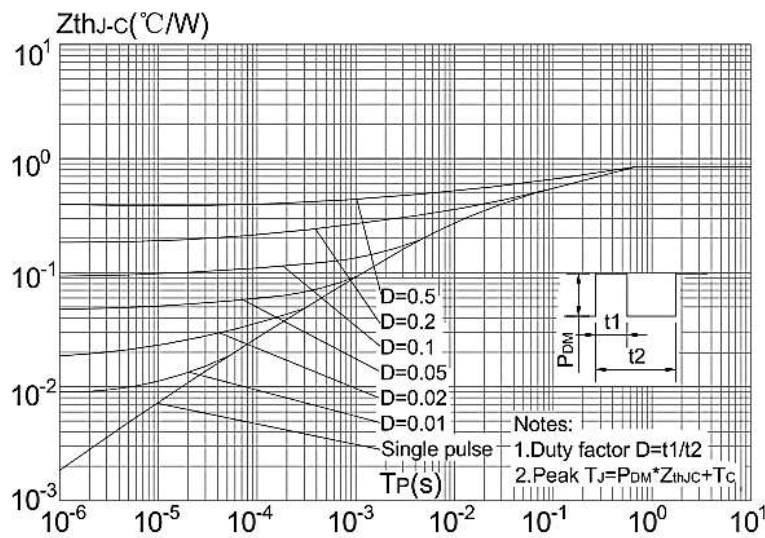


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

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			