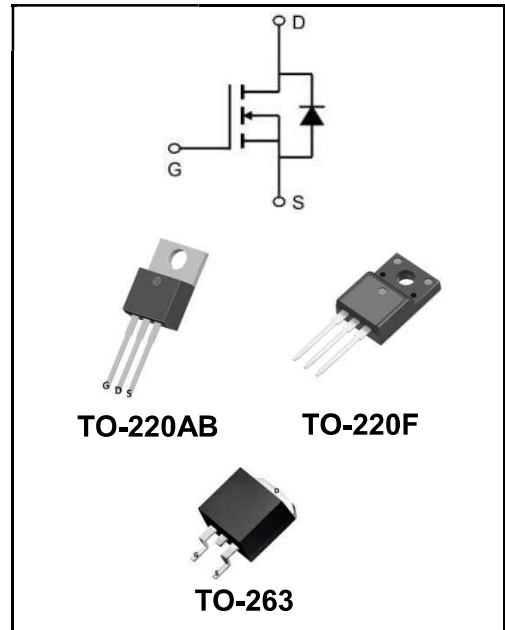


200V N-CHANNEL ENHANCEMENT MODE MOSFET
MAIN CHARACTERISTICS

I_D	30A
V_{DSS}	200V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 130mΩ (Type: 100mΩ)

Application

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


Product Specification Classification

Part Number	Package	Marking	Pack
YFW30N20AT	TO-220AB	YFW 30N20AT XXXXX	1000PCS/Box
YFW30N20AF	TO-220F	YFW 30N20AF XXXXX	1000PCS/Box
YFW30N20AS	TO-263	YFW 30N20AS XXXXX	800PCS/Reel

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	30	A
Pulsed Drain Current	I_{DM}	90	A
Gate - Source Voltage	V_{GS}	±20	V
Single Pulse Avalanche Energy	E_{AS}	340	mJ
Avalanche Current	I_{AR}	20	A
Repetitive Avalanche Energy	E_{AR}	8.3	mJ
Power Dissipation ($T_c=25^\circ C$)	P_D	104	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C
Thermal Resistance, Junction-case	$R_{\theta JC}$	1.2	°C/W
Thermal Resistance, Junction ambient	$R_{\theta JA}$	60	°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	225	-	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	$V_{GS}=10V, I_D=9A$	R_{DS(ON)}	-	100	130	mΩ
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	1318	-	pF
Output Capacitance		C_{oss}	-	180	-	
Reverse Transfer Capacitance		C_{rss}	-	75	-	
Total Gate Charge	$V_{DD}=160V$ $I_D=18A$ $V_{GS}=10V$	Q_g	-	41	-	nC
Gate-Source Charge		Q_{gs}	-	5.5	-	
Gate-Drain Charge		Q_{gd}	-	19.5	-	
Turn-on delay time	$V_{DD}=100V$ $I_D=18A$ $R_G=25\Omega$	t_{d(on)}	-	24	-	ns
Turn-on Rise Time		T_r	-	45	-	
Turn-Off Delay Time		t_{d(OFF)}	-	101	-	
Turn-on Fall Time		t_f	-	95	-	
Continuous Body Diode Current	$T_C=25^\circ C$	I_S	-	-	18	A
Pulsed Diode Forward Current		I_{SM}	-	-	72	A
Body Diode Voltage	$V_{GS}=0V, I_{SD}=18A, T_J=25^\circ C$	V_{SD}	-	-	1.4	V
Reverse Recovery Time	$V_{GS}=0V, I_S=18A,$ $di_{SD}/dt=100A/\mu s$	t_{rr}	-	230	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.8	-	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 =20A, VDD = 50V, RG = 25 Ω, Starting T_J = 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.

Ratings and Characteristic Curves

Typical Characteristics

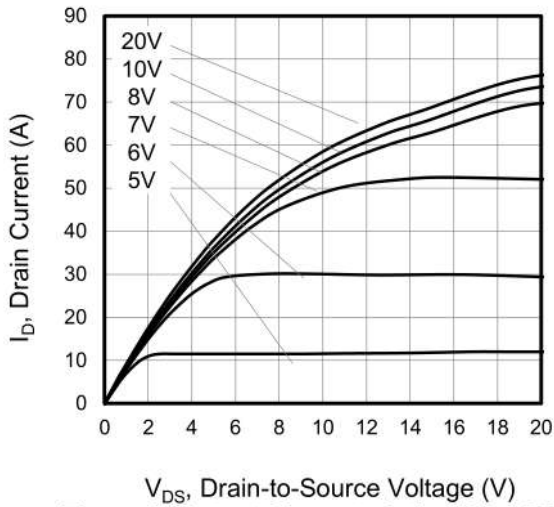


Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)

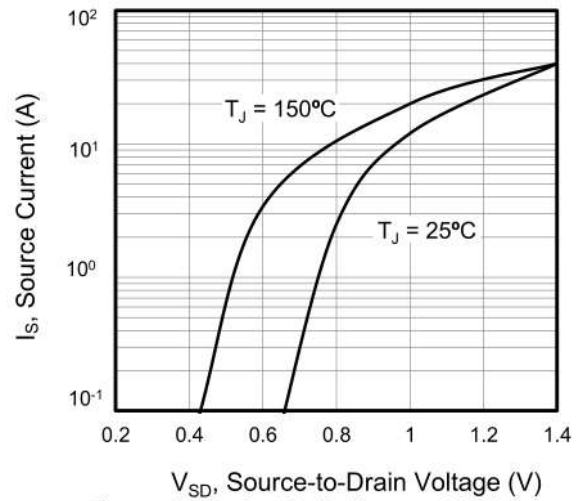


Figure 2. Body Diode Forward Voltage

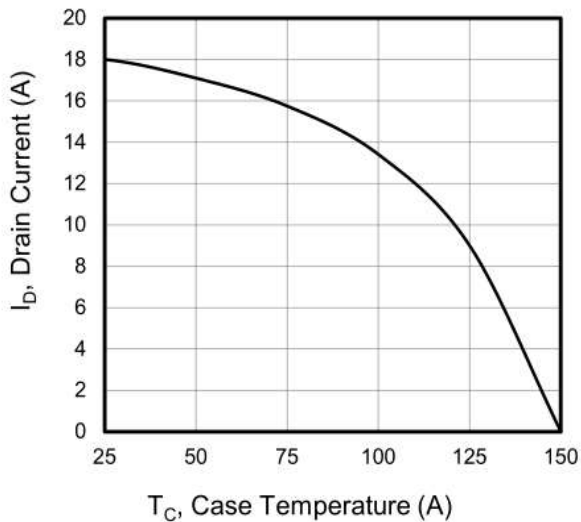


Figure 3. Drain Current vs. Temperature

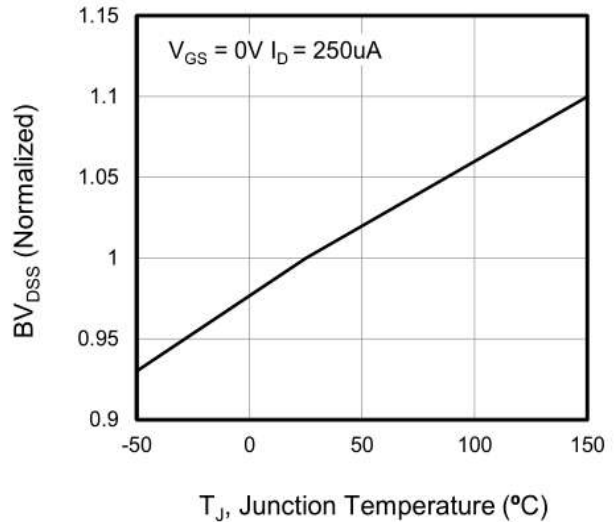


Figure 4. BV_{DSS} Variation vs. Temperature

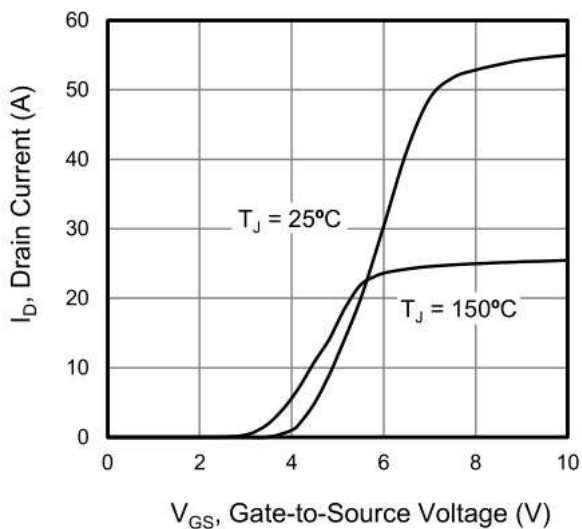


Figure 5. Transfer Characteristics

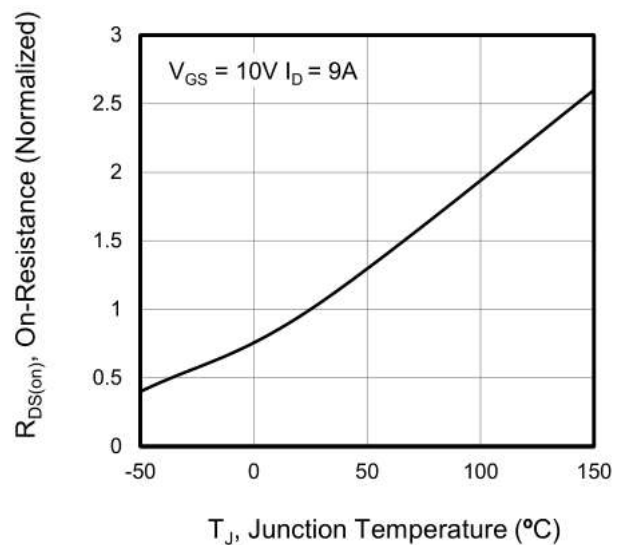
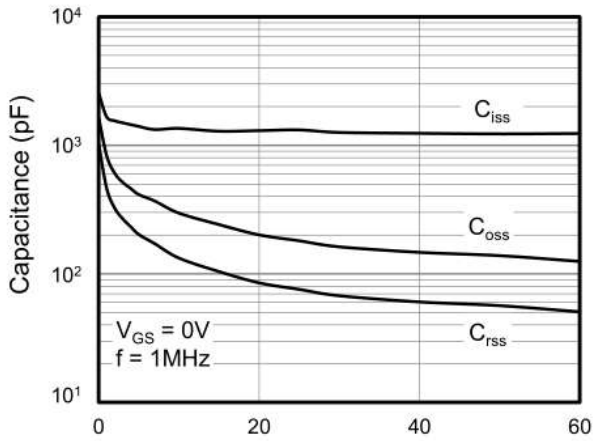


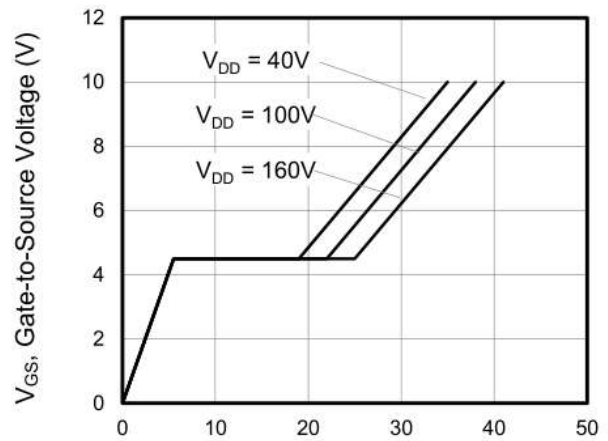
Figure 6. On-Resistance vs. Temperature

Ratings and Characteristic Curves



V_{DS} , Drain-to-Source Voltage (V)

Figure 7. Capacitance



Q_g , Total Gate Charge (nC)

Figure 8. Gate Charge

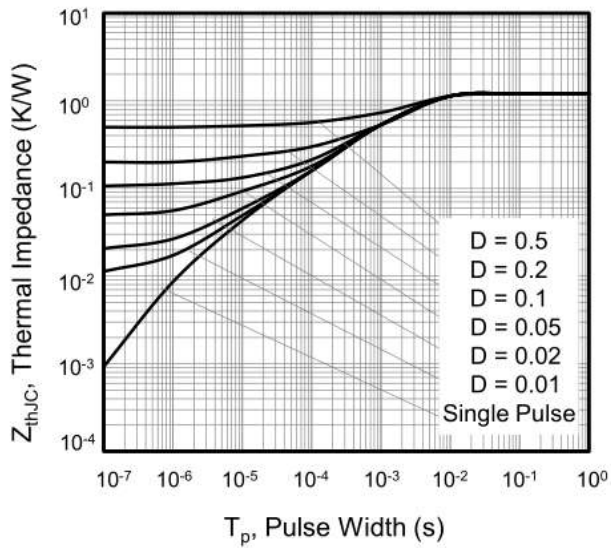


Figure 10. Transient Thermal Impedance

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			