

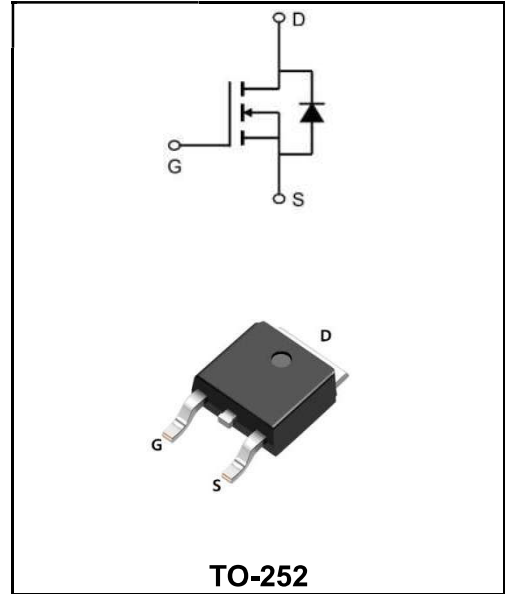
200V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	18A
V_{DSS}	200V
R_{DS(on)-typ(@V_{GS}=10V)}	< 150mΩ(Type:120mΩ)

Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW18N20AD	TO-252	YFW 18N20AD XXXXX	2500PCS/Tape

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	18	A
Pulsed Drain Current (Note1)	I_{DM}	72	A
Gate - Source Voltage	V_{GS}	±20	V
Single Pulse Avalanche Energy (Note2)	E_{AS}	340	mJ
Avalanche Current (Note1)	I_{AR}	15	A
Repetitive Avalanche Energy (Note1)	E_{AR}	8.3	mJ
Power Dissipation (T _c =25°C)	P_D	104	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}	62.5	°C/W

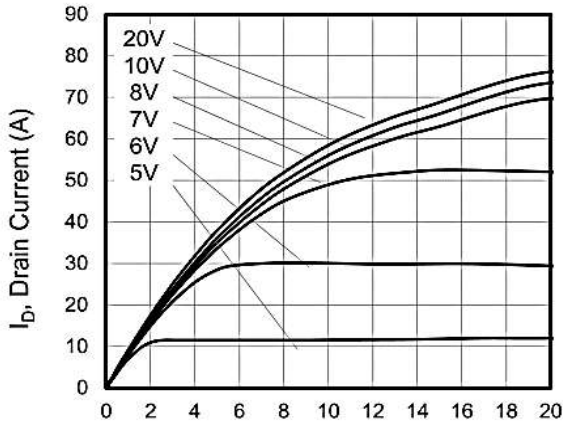
Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V(BR)DSS	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)}	1.0	1.6	3.0	V
Drain-Source On-Resistance (Note3)	$V_{GS}=10V, I_D=9A$	R_{DS(ON)}	-	120	150	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

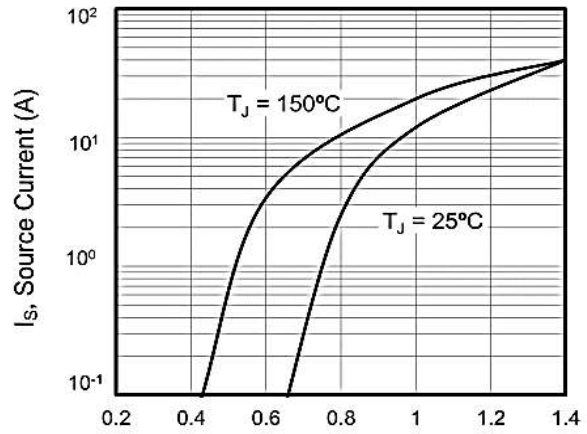
Note :

- 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 = 15A, 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.

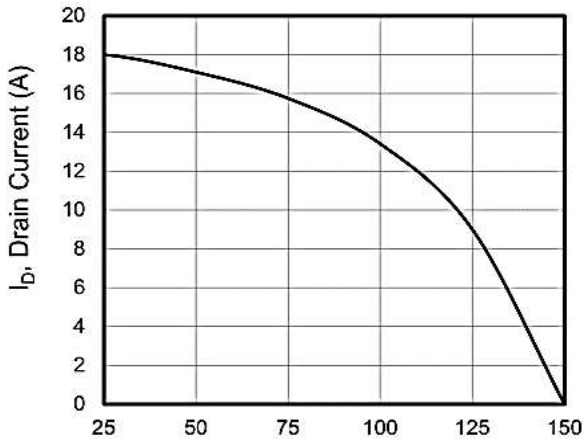
Typical Characteristics



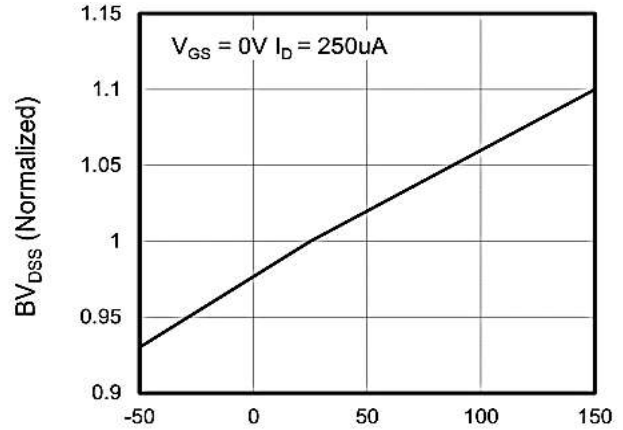
V_{DS} , Drain-to-Source Voltage (V)
Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)



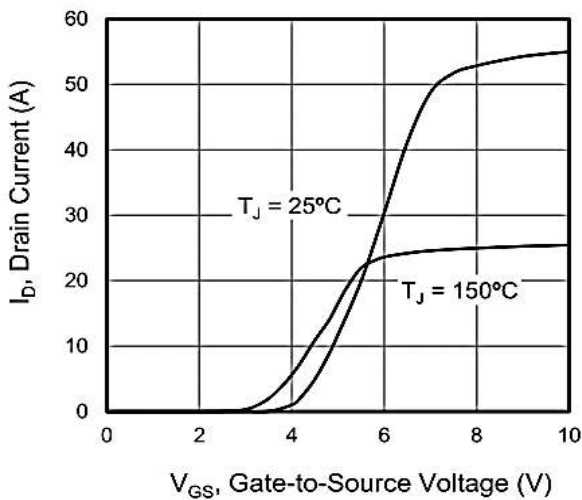
V_{SD} , Source-to-Drain Voltage (V)
Figure 2. Body Diode Forward Voltage



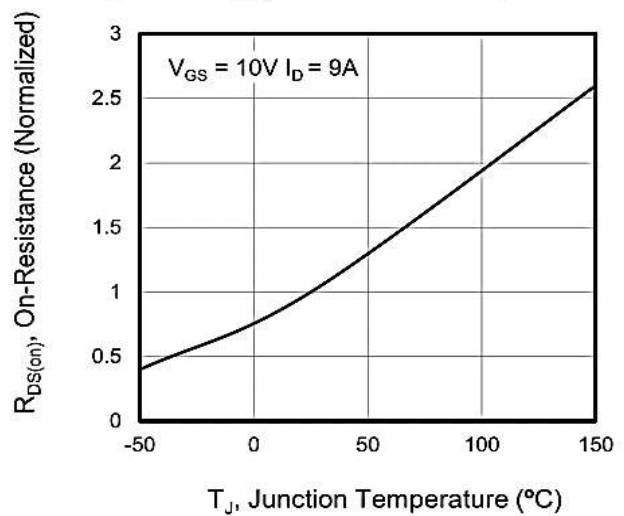
T_C , Case Temperature (A)
Figure 3. Drain Current vs. Temperature



T_J , Junction Temperature ($^\circ\text{C}$)
Figure 4. BV_{DSS} Variation vs. Temperature



V_{GS} , Gate-to-Source Voltage (V)
Figure 5. Transfer Characteristics



T_J , Junction Temperature ($^\circ\text{C}$)
Figure 6. On-Resistance vs. Temperature

Ratings and Characteristic Curves

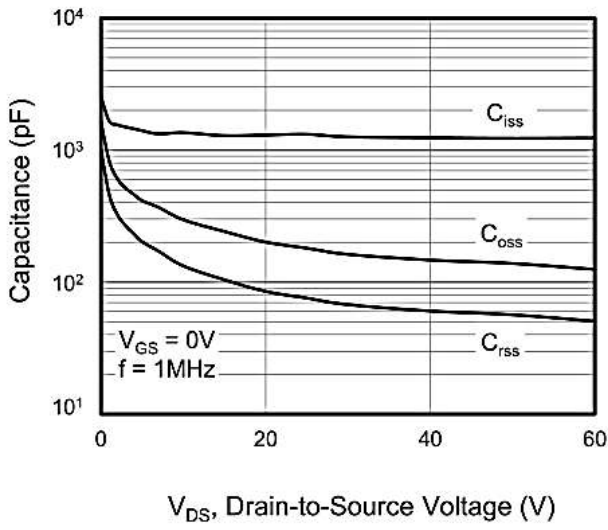


Figure 7. Capacitance

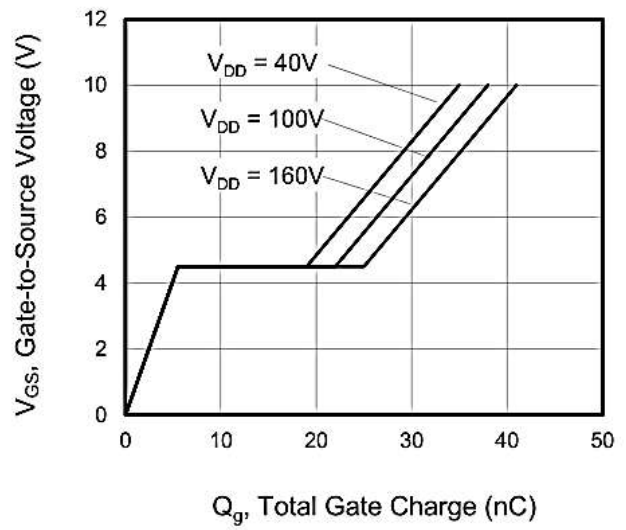


Figure 8. Gate Charge

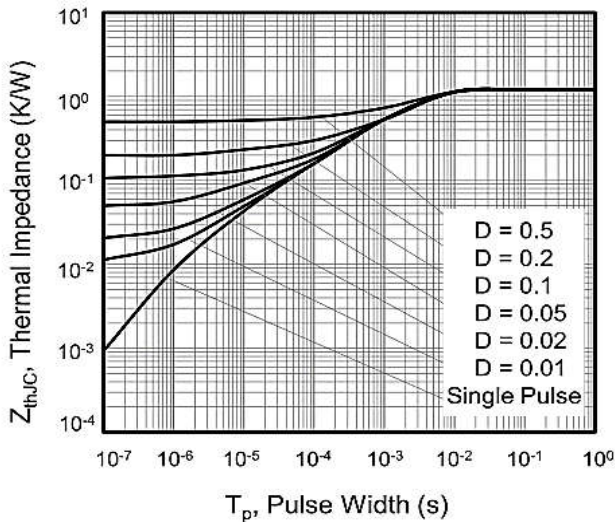


Figure 10. Transient Thermal Impedance

Package Outline Dimensions Millimeters

TO-252

Dim.	Min.	Typ.	Max.
A	2.10	-	2.50
A2	0	-	0.10
B	0.66	-	0.86
B2	5.18	-	5.48
C	0.40	-	0.60
C2	0.44	-	0.58
D	5.90	-	6.30
D1	5.30REF		
E	6.40	-	6.80
E1	4.63	-	-
G	4.47	-	4.67
H	9.50	-	10.70
L	1.09	-	1.21
L2	1.35	-	1.65
V1	-	7°	-
V2	0°	-	6°
All Dimensions in millimeter			

