

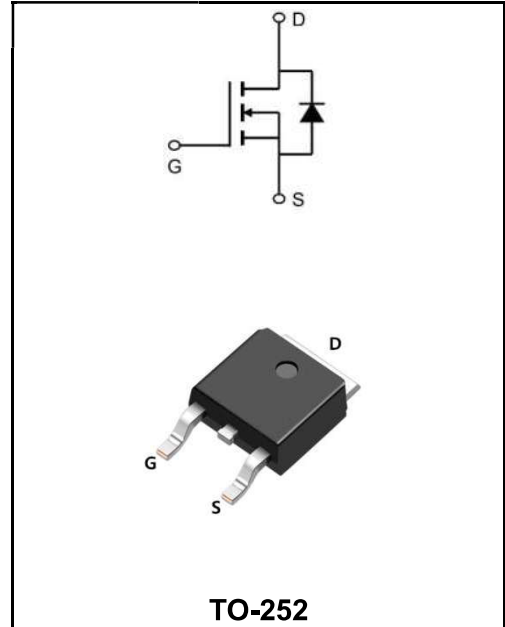
200V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	5A
V_{DSS}	200V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 600mΩ (Type:530 mΩ)

Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW5N20AD-H	TO-252	YFW 5N20AD-H XXXXX	2500PCS/Tape

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	5	A
Pulsed Drain Current	I_{DM}	20	A
Gate - Source Voltage	V_{GS}	±20	V
Single Pulse Avalanche Energy	E_{AS}	45	mJ
Avalanche Current	I_{AR}	3	A
Repetitive Avalanche Energy	E_{AR}	3.2	mJ
Power Dissipation ($T_c=25^\circ C$)	P_D	46	W
Thermal Resistance, Junction-case	$R_{\theta JC}$	2.7	°C/W
Thermal Resistance, Junction ambient	$R_{\theta JA}$	60	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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	221	-	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)}	2.5	3.1	4.0	V
Drain-Source On-Resistance (Note3)	$V_{GS}=10V, I_D=2.5A$	R_{DS(ON)}	-	530	600	mΩ
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	228	-	pF
Output Capacitance		C_{oss}	-	48	-	
Reverse Transfer Capacitance		C_{rss}	-	17	-	
Total Gate Charge	$V_{DD}=160V$ $I_D=5A$ $V_{GS}=10V$	Q_g	-	18	-	nC
Gate-Source Charge		Q_{gs}	-	1.5	-	
Gate-Drain Charge		Q_{gd}	-	9.5	-	
Turn-on delay time	$V_{DD}=100V$ $I_D=5A$ $R_G=25\Omega$	t_{d(on)}	-	10	-	ns
Turn-on Rise Time		T_r	-	19	-	
Turn-Off Delay Time		t_{d(OFF)}	-	43	-	
Turn-on Fall Time		t_f	-	32	-	
Continuous Body Diode Current	$T_C=25^\circ C$	I_S	-	-	5	A
Pulsed Diode Forward Current		I_{SM}	-	-	20	A
Body Diode Voltage	$V_{GS}=0V, I_{SD}=5A, T_J=25^\circ C$	V_{SD}	-	-	1.4	V
Reverse Recovery Time	$V_{GS}=0V, I_S=5A, di_{SD}/dt=100A/\mu s$	t_{rr}	-	160	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.5	-	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 = 3A, 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

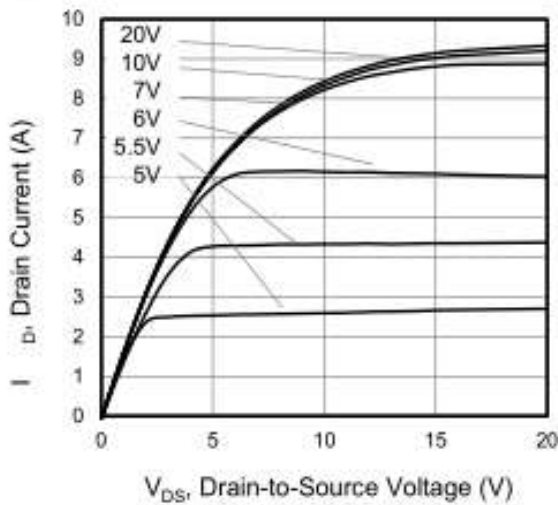


Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)

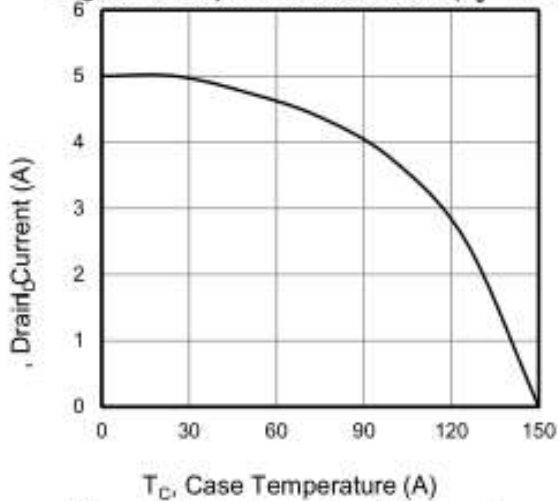


Figure 3. Drain Current vs. Temperature

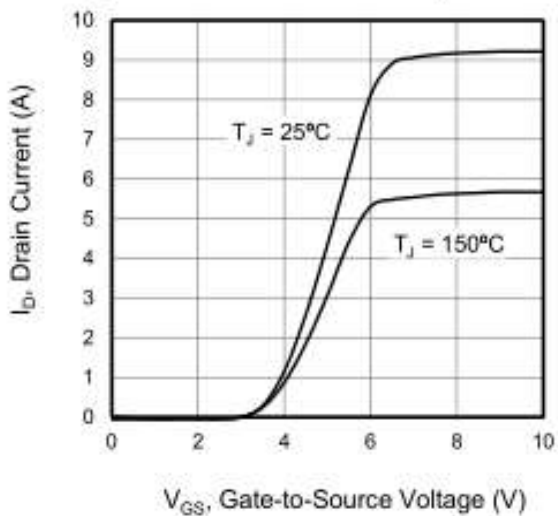


Figure 5. Transfer Characteristics

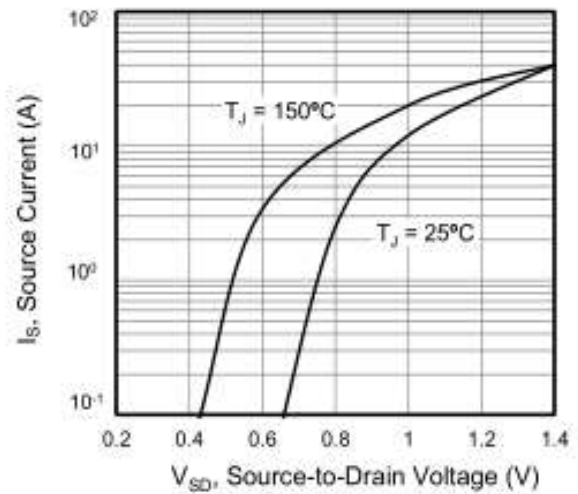


Figure 2. Body Diode Forward Voltage

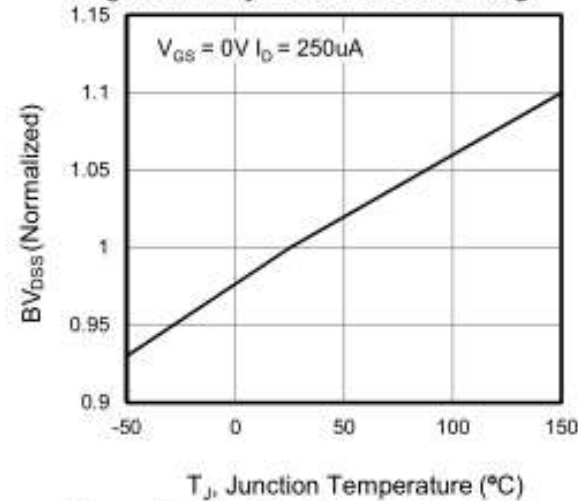


Figure 4. BV_{DSS} Variation vs. Temperature

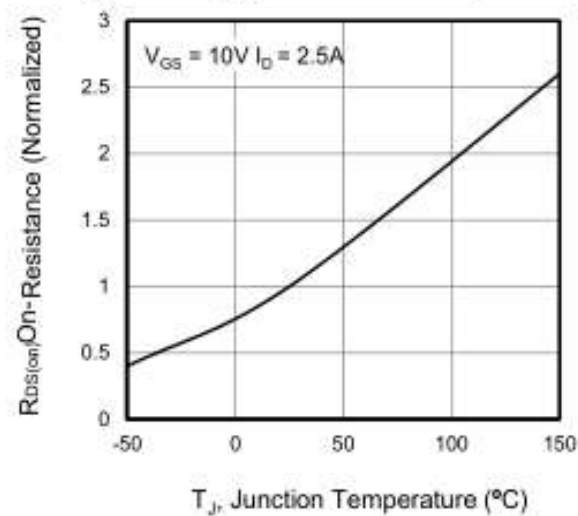


Figure 6. On-Resistance vs. Temperature

Ratings and Characteristic Curves

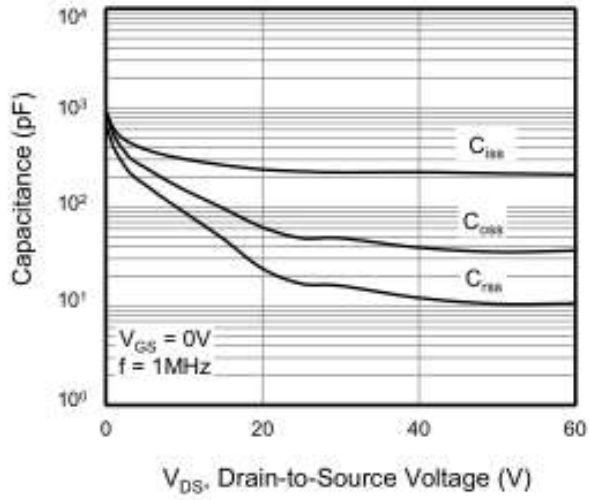


Figure 7. Capacitance

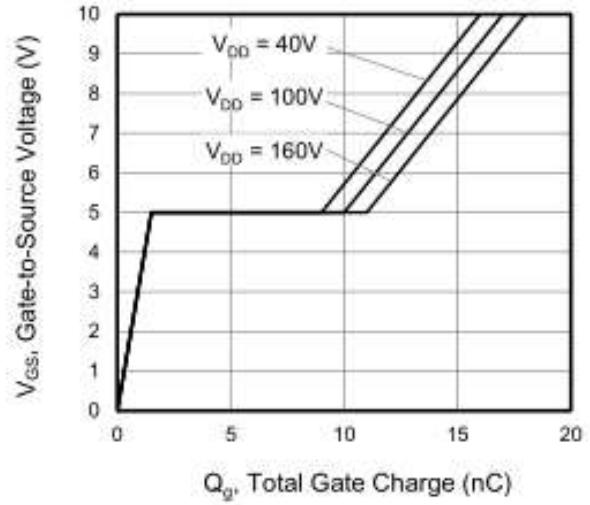


Figure 8. Gate Charge

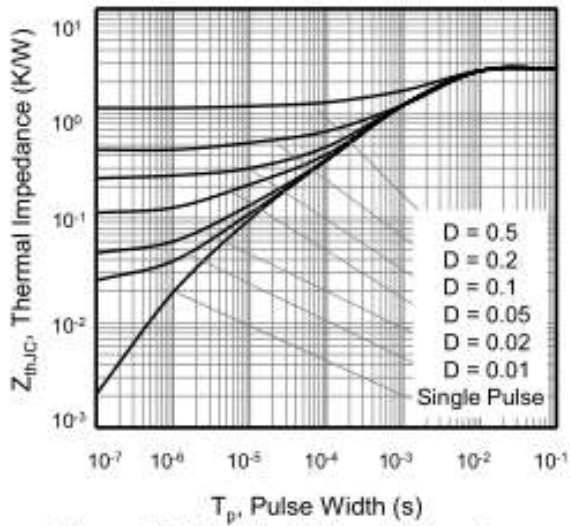


Figure 10. Transient Thermal Impedance

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			

