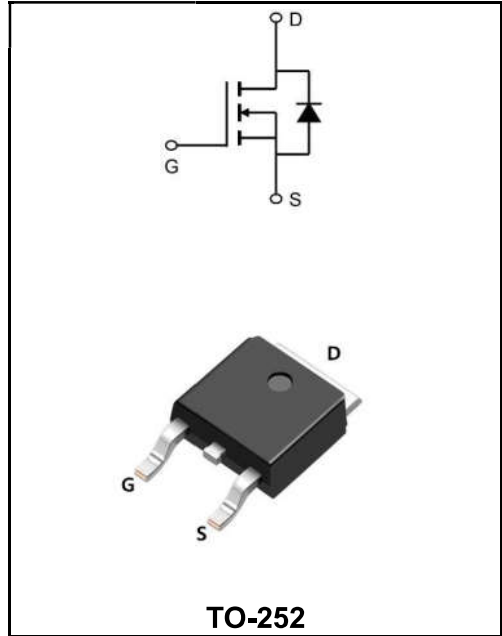


**80V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	100A
<b>V<sub>DSS</sub></b>	80V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 6.8mΩ ( <b>Type:5.5 mΩ</b> )



**Applications**

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

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW100N08AD	TO-252	YFW 100N08AD XXXXX	2500PCS/Tape

**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>	80	<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>1,6</sup> @T <sub>C</sub> =25°C	<b>I<sub>D</sub></b>	100	<b>A</b>
Continuous Drain Current, V <sub>GS</sub> @ 10V <sup>1,6</sup> @T <sub>C</sub> =100°C	<b>I<sub>D</sub></b>	60	<b>A</b>
Pulsed Drain Current <sup>2</sup>	<b>I<sub>DM</sub></b>	400	<b>A</b>
Single Pulse Avalanche Energy <sup>3</sup>	<b>E<sub>AS</sub></b>	506	<b>mJ</b>
Total Power Dissipation <sup>4</sup> @T <sub>C</sub> =25°C	<b>P<sub>D</sub></b>	158	<b>W</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>
Operating and Storage 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>	92	<b>°C/W</b>
Thermal Resistance Junction-Case <sup>1</sup>	<b>R<sub>θJC</sub></b>	1.22	<b>°C/W</b>

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

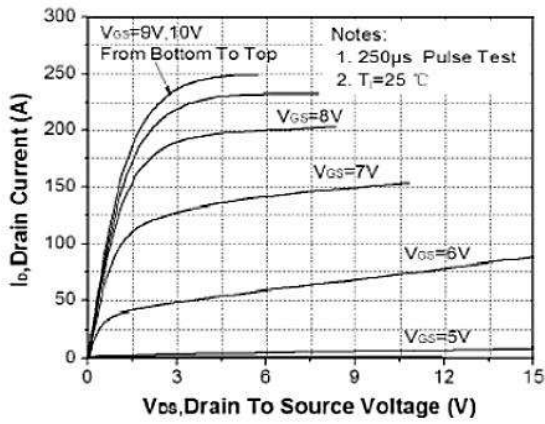
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	80	92	-	V
Static Drain-Source On-Resistance <sup>2</sup>	$V_{GS}=10V, I_D=50A$	$R_{DS(ON)}$	-	5.5	6.8	mΩ
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	2.0	3.0	4.0	V
Drain-Source Leakage Current	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ C$	$I_{DSS}$	-	-	1	μA
	$V_{DS}=80V, V_{GS}=0V, T_J=55^\circ C$		-	-	5	
Gate- Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	$I_{GSS}$	-	-	±100	nA
Forward Transconductance	$V_{DS}=5V, I_D=20A$	$g_{fs}$	-	75	-	S
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	$R_g$	-	2.0	-	Ω
Total Gate Charge(10V)	$V_{DS}=40V$ $V_{GS}=10V$ $I_D=20A$	$Q_g$	-	56.6	-	nC
Gate-Source Charge		$Q_{gs}$	-	21.4	-	
Gate-Drain Charge		$Q_{gd}$	-	12.5	-	
Turn-on delay time	$V_{DD}=40V$ $V_{GS}=10V$ $R_G=3\Omega$ $I_D=20A$	$t_{d(on)}$	-	17.3	-	ns
Rise Time		$T_r$	-	33	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	38.9	-	
Fall Time		$t_f$	-	18.1	-	
Input Capacitance	$V_{DS}=40V$ $V_{GS}=0V$ $f=1MHz$	$C_{iss}$	-	3475	-	pF
Output Capacitance		$C_{oss}$	-	770	-	
Reverse Transfer Capacitance		$C_{rss}$	-	25	-	
Continuous Source Current <sup>1,5</sup>	$V_G=V_D=0V, \text{Force Current}$	$I_S$	-	-	100	A
Diode Forward Voltage <sup>2</sup>	$V_{GS}=0V, I_S=A, T_J=25^\circ C$	$V_{SD}$	-	0.9	1.3	V
Reverse Recovery Time	$I_F=20A, di/dt=100A/\mu s, T_J=25^\circ C$	$t_{rr}$	-	68	-	ns
Reverse Recovery Charge		$Q_{rr}$	-	66	-	nC

Note :

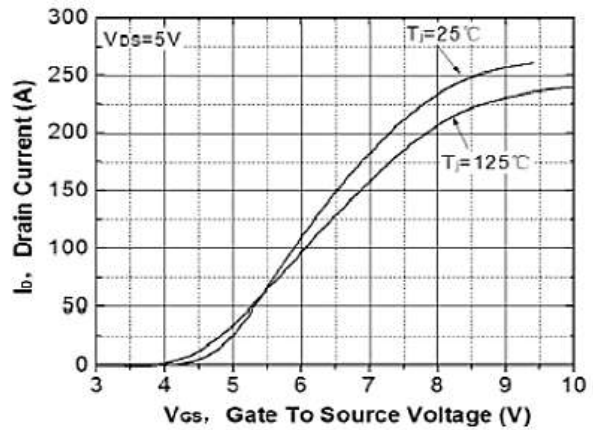
- 1、 The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width .The EAS data shows Max. rating .
- 3、 The test cond ≅ 300us duty cycle ≅ 2%, duty cycle ition is  $V_{DD}=64V, V_{GS}=10V, L=0.1mH, I_{AS}=40A$
- 4、 The power dissipation is 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**

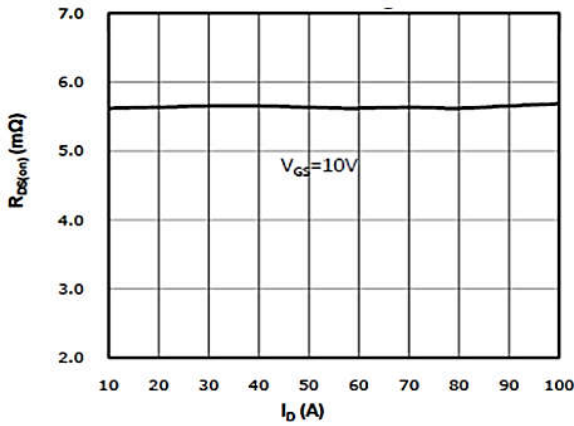
**Typical Characteristics**



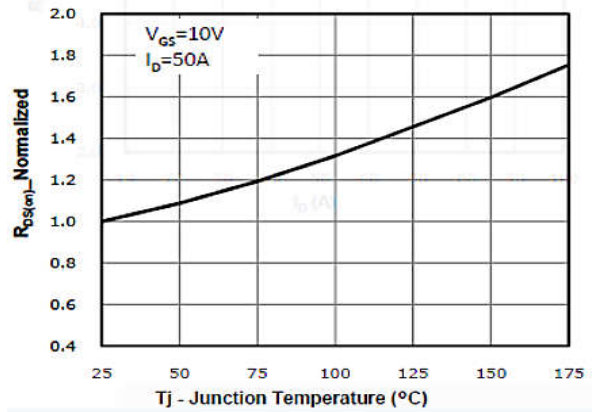
**Figure 1. Typ. Output Characteristics (Tj=25 °C)**



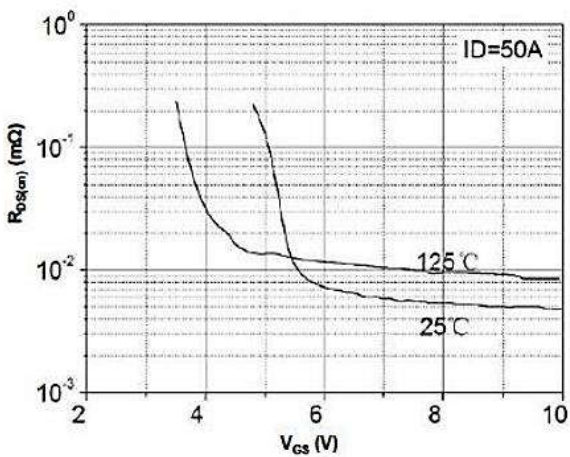
**Figure 2. Transfer Characteristics**



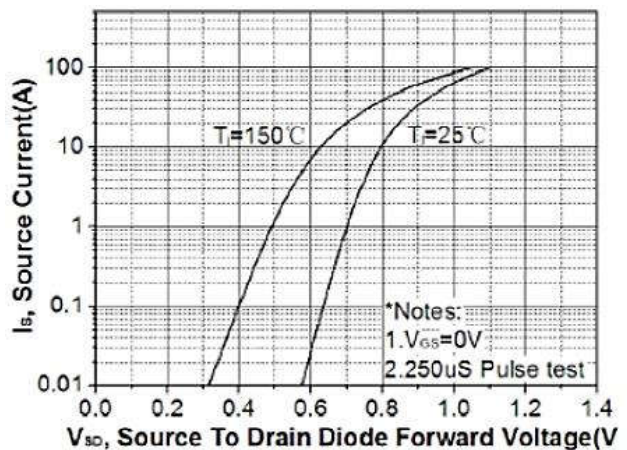
**Figure 3. On-Resistance vs. Drain Current and Gate Voltage Figure**



**Figure 4. On-Resistance vs. Junction Temperature**



**Figure 5. On-Resistance vs. Gate-Source Voltage**



**Figure 6 . Body-Diode Characteristics**

Ratings and Characteristic Curves

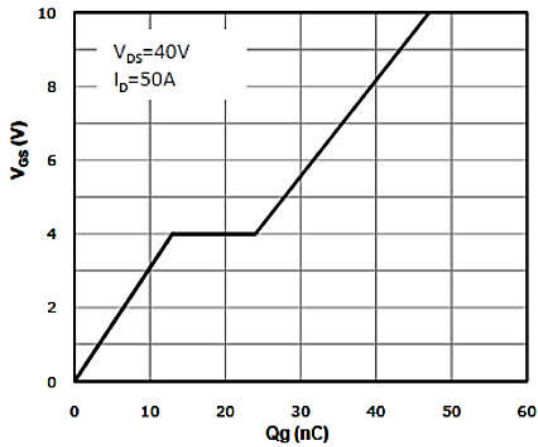


Figure 7. Gate-Charge Characteristics

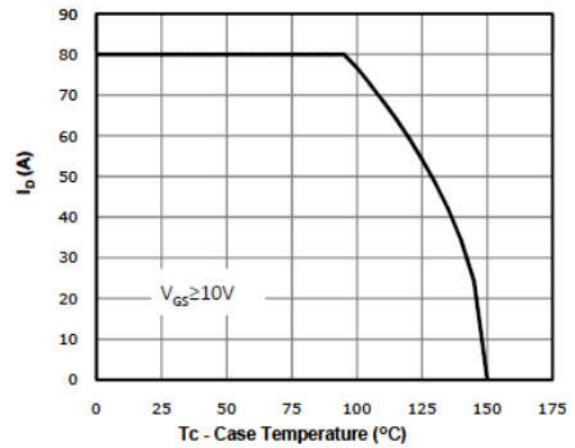


Figure 8. Drain Current Derating

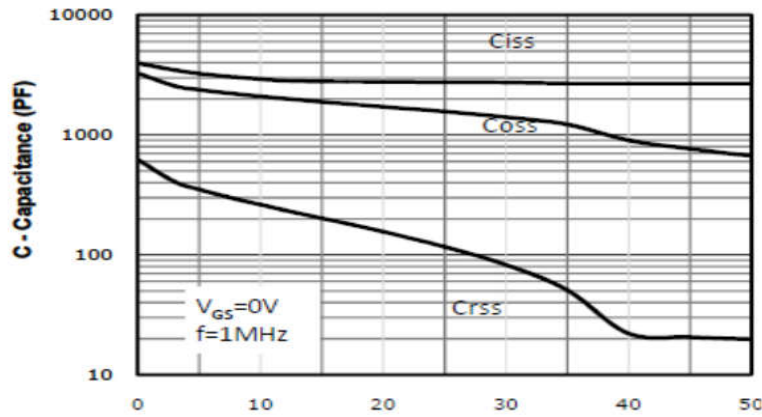


Figure 9: Normalized Maximum Transient Thermal Impedance

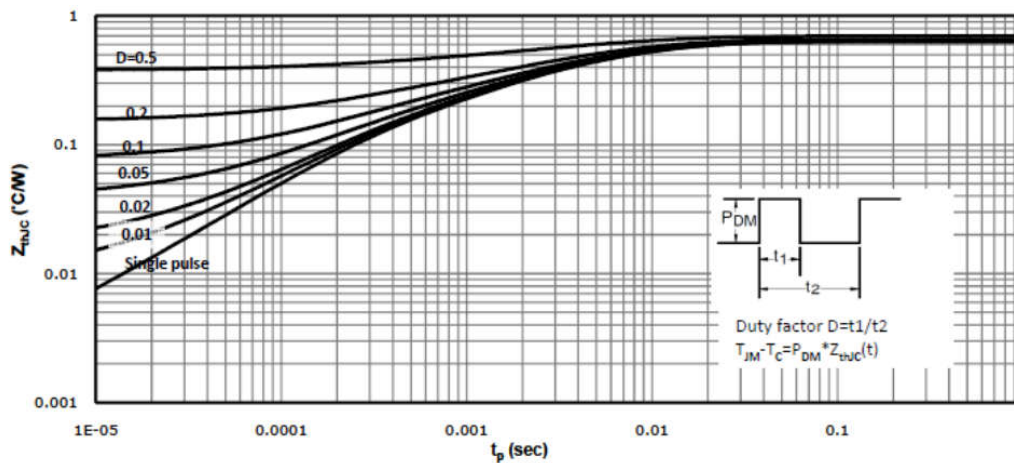


Figure 10. Capacitance Characteristics

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			

