

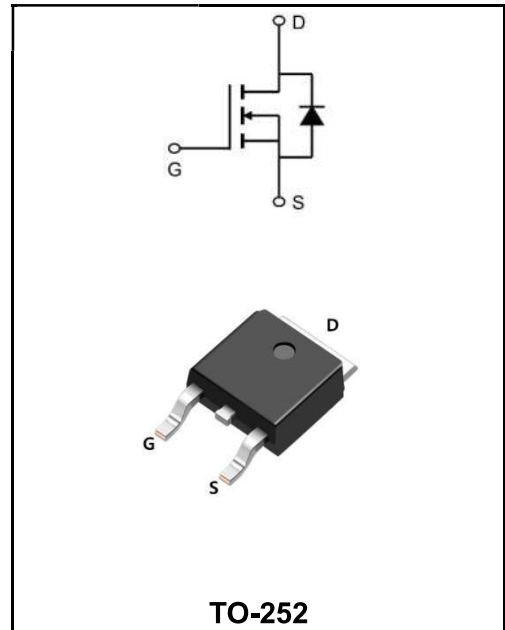
**300V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	5A
<b>V<sub>DSS</sub></b>	300V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 1.5Ω( <b>Type:1.2Ω</b> )

**Application**

- ◆Eliminate stroboscopic
- ◆Brush motor



**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW5N30AD	TO-252	YFW 5N30AD XXXXX	2500PCS/Tape

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

Characteristics	Symbols	Value	Units
Drain-Source Voltage (V <sub>GS</sub> = 0V)	V <sub>DS</sub>	300	V
Continuous Drain Current	I <sub>D</sub>	5	A
Pulsed Drain Current	I <sub>DM</sub>	20	A
Gate - Source Voltage	V <sub>GS</sub>	±25	V
Single Pulse Avalanche Energy	E <sub>AS</sub>	50	mJ
Avalanche Current	I <sub>AR</sub>	3.2	A
Repetitive Avalanche Energy	E <sub>AR</sub>	1.5	mJ
Power Dissipation(T <sub>A</sub> =25°C)	P <sub>D</sub>	58.7	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C
Thermal Resistance, Junction-to-case	R <sub>θJC</sub>	2.13	°C/W
Thermal Resistance, Junction ambient	R <sub>θJA</sub>	60	°C/W

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

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	<b>V(BR)DSS</b>	300	330	-	<b>V</b>
Zero Gate Voltage Drain Current	$V_{DS}=300V, V_{GS}=0V, T_J=25^\circ C$	<b>I<sub>DSS</sub></b>	-	-	1	<b>μA</b>
	$V_{DS}=240V, V_{GS}=0V, T_J=125^\circ C$		-	-	100	
Gate-Source Leakage	$V_{GS}=\pm 25V$	<b>I<sub>GSS</sub></b>	-	-	±100	<b>nA</b>
Gate- Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	<b>V<sub>GS(th)</sub></b>	2.0	3.5	4.0	<b>V</b>
Drain-Source On-Resistance	$V_{GS}=10V, I_D=2.5A$	<b>R<sub>DS(ON)</sub></b>	-	1.2	1.5	<b>Ω</b>
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	<b>C<sub>iss</sub></b>	-	291	-	<b>pF</b>
Output Capacitance		<b>C<sub>oss</sub></b>	-	43	-	
Reverse Transfer Capacitance		<b>C<sub>rss</sub></b>	-	7	-	
Total Gate Charge	$V_{DD}=240V$ $I_D=5A$ $V_{GS}=10V$	<b>Q<sub>g</sub></b>	-	8.4	-	<b>nC</b>
Gate-Source Charge		<b>Q<sub>gs</sub></b>	-	1.2	-	
Gate-Drain Charge		<b>Q<sub>gd</sub></b>	-	3.3	-	
Turn-on delay time	$V_{DD}=150V$ $I_D=5A$ $R_G=25\Omega$	<b>t<sub>d(on)</sub></b>	-	20	-	<b>nS</b>
Turn-on Rise Time		<b>T<sub>r</sub></b>	-	50	-	
Turn-Off Delay Time		<b>t<sub>d(OFF)</sub></b>	-	70	-	
Turn-Off Fall Time		<b>t<sub>f</sub></b>	-	53	-	
Continuous Body Diode Current	$T_C=25^\circ C$	<b>I<sub>S</sub></b>	-	-	5	<b>A</b>
Pulsed Diode Forward Current		<b>I<sub>SM</sub></b>	-	-	20	
Body Diode Voltage	$T_J = 25^\circ C, I_{SD} = 5A, V_{GS} = 0V$	<b>V<sub>SD</sub></b>	-	-	1.4	<b>V</b>
Reverse Recovery Time	$V_{GS} = 0V, I_S = 5A$ $diF/dt = 100A/\mu s$	<b>t<sub>rr</sub></b>	-	263	-	<b>nS</b>
Reverse Recovery Charge		<b>Q<sub>rr</sub></b>	-	1.9	-	<b>uC</b>

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 = 3.2A, 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.

Ratings and Characteristic Curves

Typical Characteristics

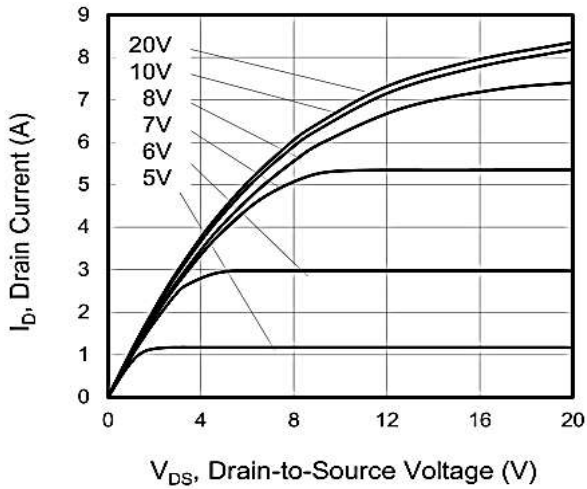


Figure 1. Output Characteristics ( $T_J = 25^\circ\text{C}$ )

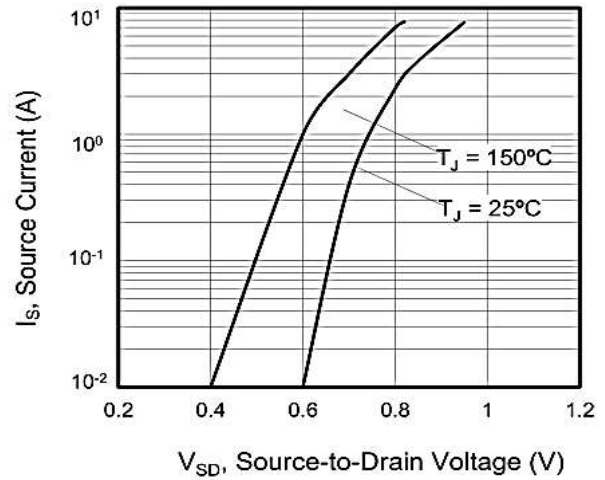


Figure 2. Body Diode Forward Voltage

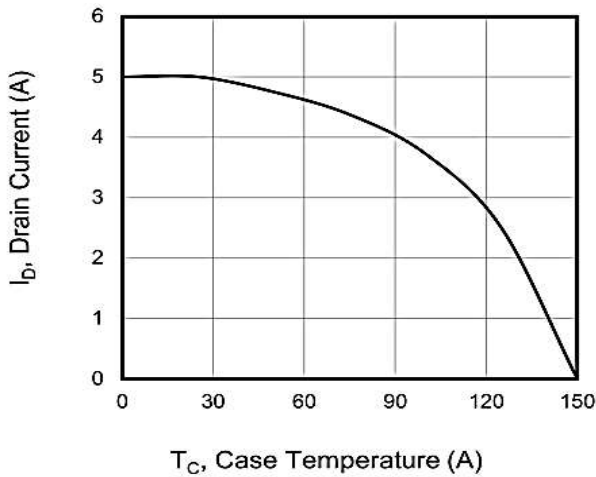


Figure 3. Drain Current vs. Temperature

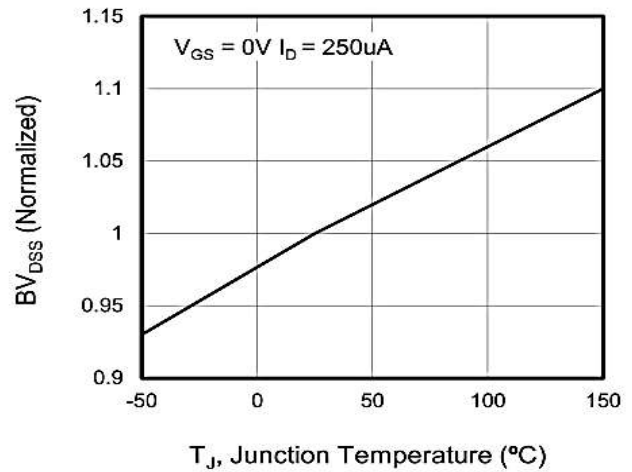


Figure 4.  $BV_{DSS}$  Variation vs. Temperature

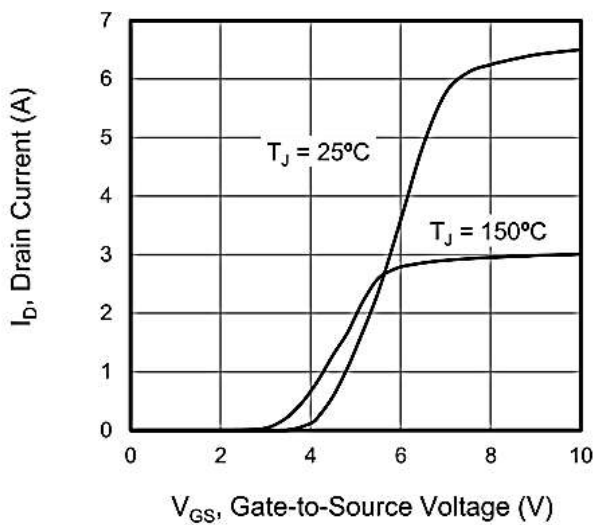


Figure 5. Transfer Characteristics

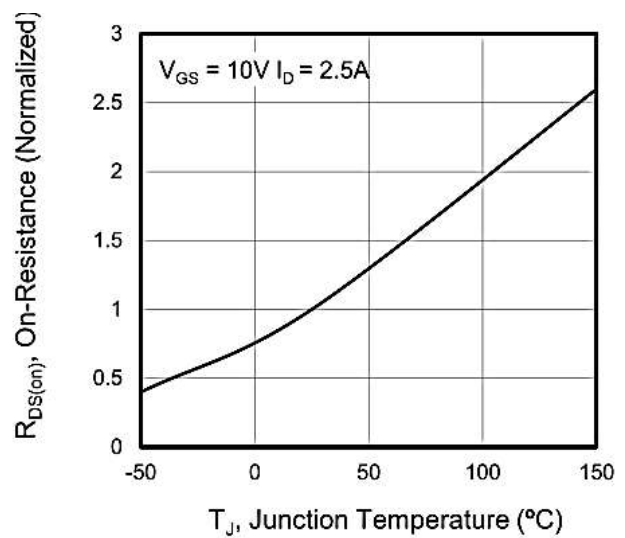
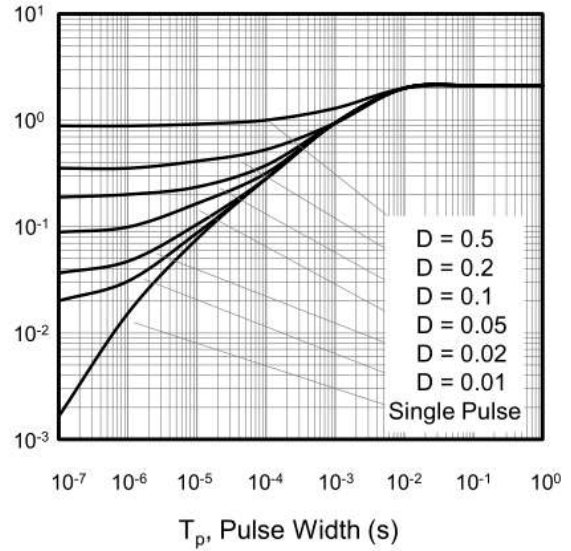
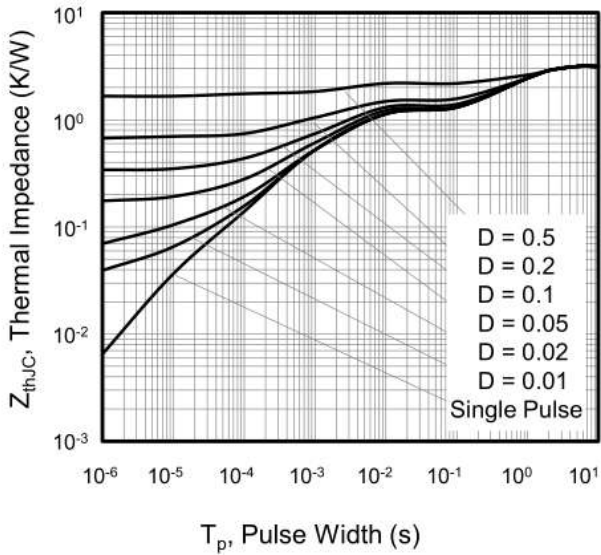
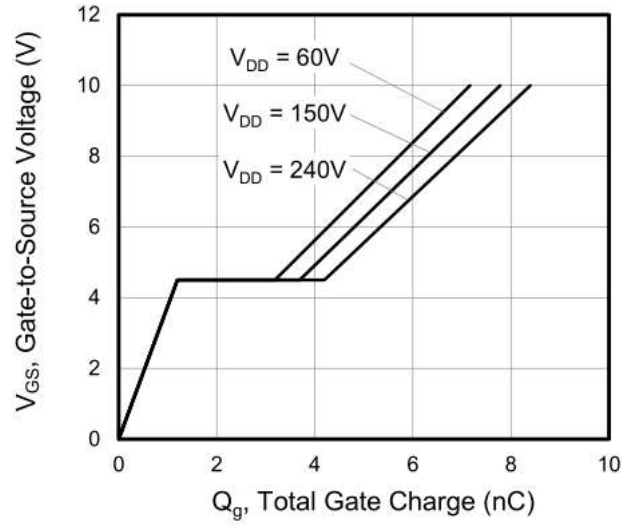
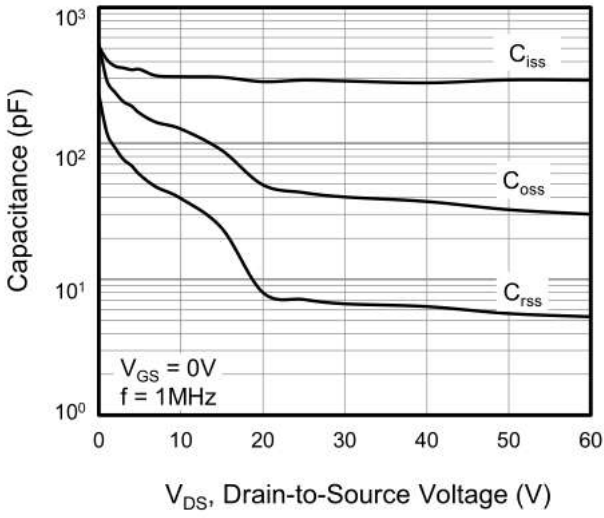


Figure 6. On-Resistance vs. Temperature

Ratings and Characteristic Curves



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			

