

**60V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

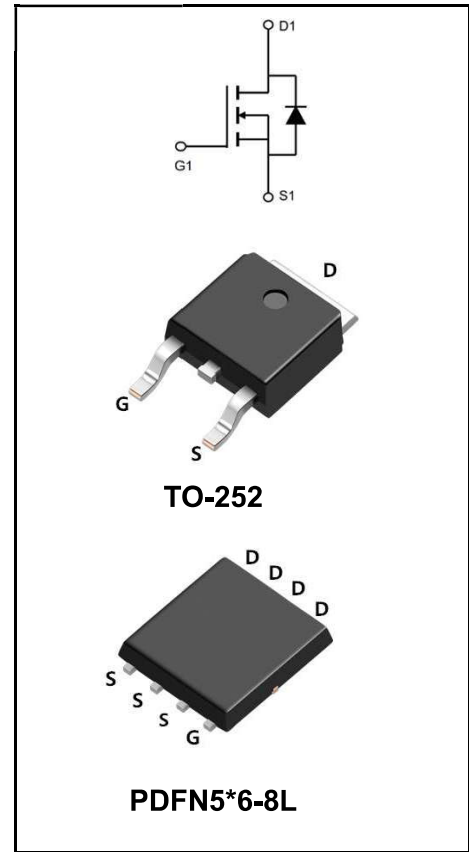
<b>I<sub>D</sub></b>	30A
<b>V<sub>DSS</sub></b>	60V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 28mΩ ( <b>Type: 18 mΩ</b> )

**Features**

- ◆Fast Switching
- ◆Low ON Resistance
- ◆Low Gate Charge
- ◆100% Single Pulse avalanche energy Test
- ◆LeadfreeincomplywithEURoHS2011/65/EUdirectives

**Mechanical Data**

- ◆Case: Molded plastic
- ◆Mounting Position: Any
- ◆Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆Solder bath temperature275°C maximum,10s per JESD22-106



**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW30N06AD	TO-252	YFW 30N06AD XXXXX	2500PCS/Tape
YFW30N06NF	PDFN5*6-8L	YFW 30N06NF XXXXX	5000PCS/Tape

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

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	60	<b>V</b>
Gate-Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Continue Drain Current	<b>I<sub>D</sub></b>	30	<b>A</b>
Pulsed Drain Current (Note1)	<b>I<sub>DM</sub></b>	90	<b>A</b>
Power Dissipation	<b>P<sub>D</sub></b>	35	<b>W</b>
Single Pulse Avalanche Energy (Note5)	<b>E<sub>AS</sub></b>	50	<b>mJ</b>
Operating Temperature Range	<b>T<sub>J</sub></b>	150	<b>°C</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance, Junction to Case	<b>R<sub>θJC</sub></b>	3	<b>°C/W</b>
Thermal Resistance, Junction to Ambient	<b>R<sub>θJA</sub></b>	62	<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 <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA	<b>BV<sub>DSS</sub></b>	60	-	-	<b>V</b>
Drain-Source Leakage Current	V <sub>DS</sub> = 60 V, V <sub>GS</sub> = 0 V	<b>I<sub>BSS</sub></b>	-	-	1	<b>UA</b>
	V <sub>DS</sub> =60V, T <sub>C</sub> =125°C		-	-	10	<b>UA</b>
Gate Leakage Current	V <sub>GS</sub> = ± 20 V, V <sub>DS</sub> = 0 V	<b>I<sub>GSS</sub></b>	-	-	±100	<b>nA</b>
Gate-Source Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	<b>V<sub>GS(th)</sub></b>	1	-	2.5	<b>V</b>
Drain-Source On-State Resistance(Note3)	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 25 A	<b>R<sub>DS(on)</sub></b>	-	18	28	<b>mΩ</b>
	V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 10 A		-	26	40	<b>mΩ</b>
Forward Transconductance	V <sub>DS</sub> = 50 V, I <sub>D</sub> = 25A	<b>g<sub>fs</sub></b>	-	20	-	<b>S</b>
Input Capacitance	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = 25 V, f = 1MHz	<b>C<sub>iss</sub></b>	-	1750	-	<b>pF</b>
Output Capacitance		<b>C<sub>oss</sub></b>	-	85	-	
Reverse Transfer Capacitance		<b>C<sub>rss</sub></b>	-	62	-	
Turn-on Delay Time	V <sub>DS</sub> = 30V, RL=1.5Ω V <sub>GS</sub> = 10 V, RG = 3Ω, (Note3,4)	<b>td(ON)</b>	-	6	-	<b>nS</b>
Rise Time		<b>tr</b>	-	3.1	-	
Turn-Off Delay Time		<b>td(OFF)</b>	-	18	-	
Fall Time		<b>tf</b>	-	3.1	-	
Total Gate Charge	V <sub>DS</sub> = 30V, I <sub>D</sub> = 20 A, V <sub>GS</sub> = 10 V(Note3,4)	<b>Q<sub>G</sub></b>	-	30	-	<b>nC</b>
Gate to Source Charge		<b>Q<sub>GS</sub></b>	-	5.5	-	
Gate to Drain Charge		<b>Q<sub>GD</sub></b>	-	8.6	-	

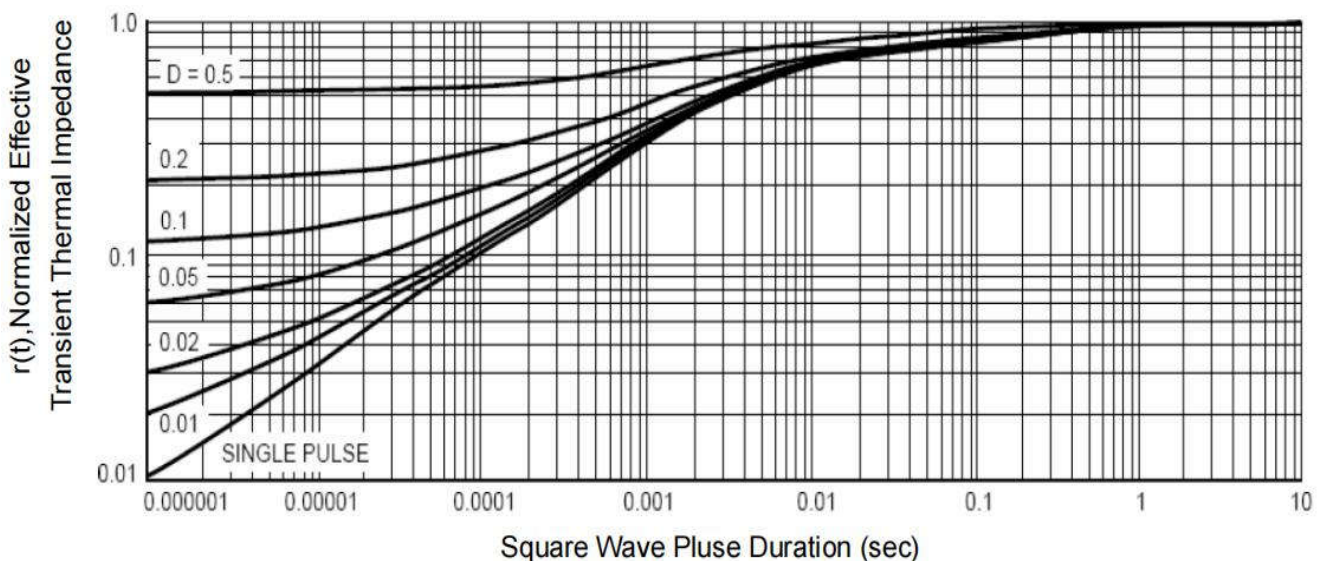
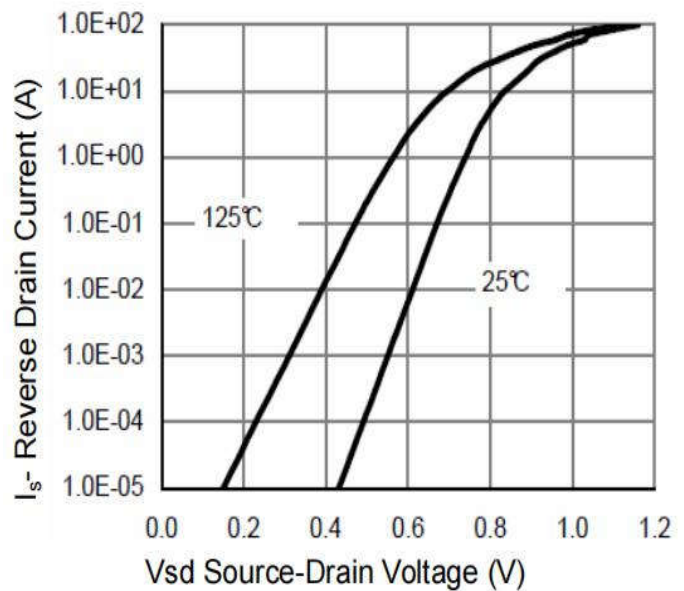
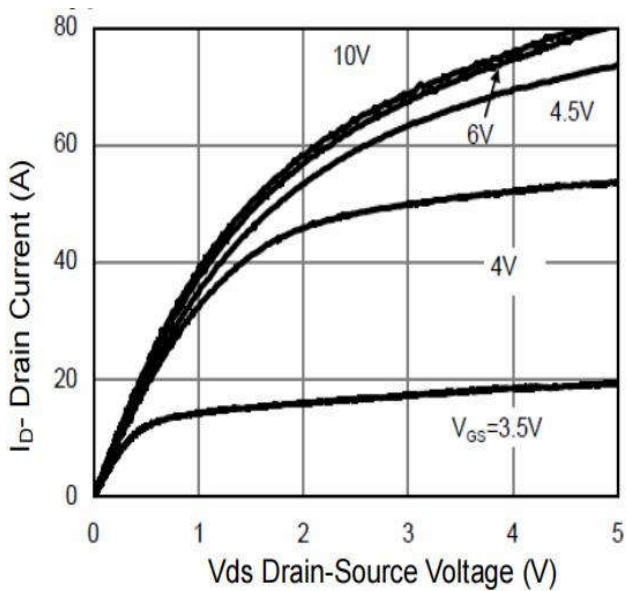
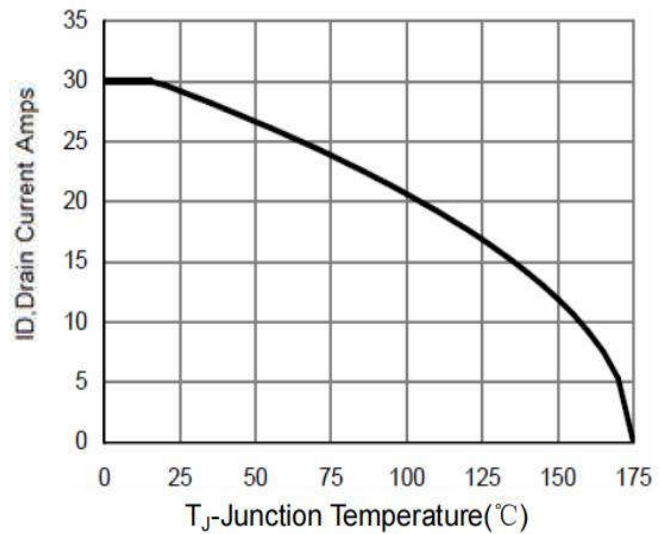
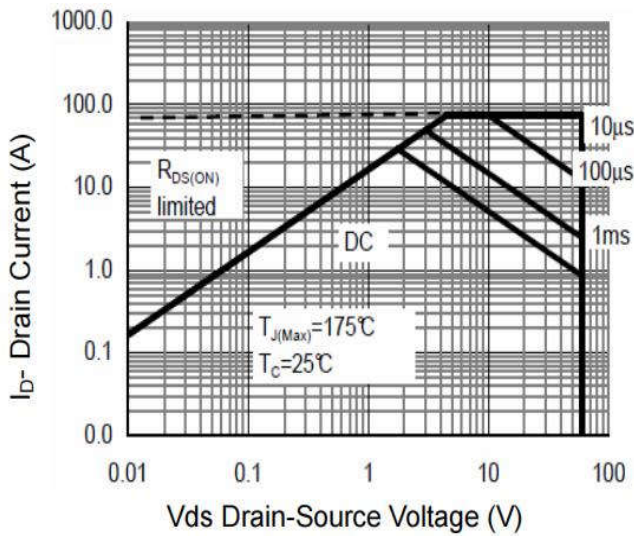
**Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Maximun Body-Diode Continuous Current(Note2)		<b>I<sub>S</sub></b>	-	-	30	<b>A</b>
Maximun Body-Diode Pulsed Current		<b>I<sub>SM</sub></b>	-	-	90	<b>A</b>
Drain-Source Diode Forward Voltage(Note3)	<b>I<sub>SD</sub> = 30 A</b>	<b>V<sub>SD</sub></b>	-	-	1.2	<b>V</b>
Reverse Recovery Time	<b>I<sub>S</sub> = I<sub>F</sub></b> <b>I<sub>SD</sub> = 20 A, V<sub>GS</sub> = 0 V,</b> <b>dI<sub>F</sub> / dt = 100 A/μs(Note3)</b>	<b>trr</b>	-	40	-	<b>nS</b>
Reverse Recovery Charge		<b>Qrr</b>	-	65	-	<b>uC</b>

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAS condition: Tj=25 , VDD= °C 30V, VG=10V, L=0.1mH, Rg

Ratings and Characteristic Curves



Package Outline Dimensions millimeters

TO-252

	Dim.	Min.	Max.
	A	2.1	2.5
	B	0.95	1.55
	C	0.4	0.6
	D	6.4	6.7
	D1	5.1	5.8
	E	5.8	6.4
	E1	Typ 2.3	
	E2	Typ 4.6	
	B1	0.6	0.8
	B2	0.75	0.95
	O	--	0.15
	L1	9.0	11.0
L2	1.3	1.7	
L3	0.70	0.95	
All Dimensions in millimeter			

PDFN5\*6-8L

	Dim.	Min.	Max.
	A	4.8	5.2
	B	0.25	0.35
	C	1	1.2
	C1	Typ 0.254	
	C2	Typ 0.254	
	E	Typ 1.27	
	L	6	6.3
	L1	5.7	6
	L2	Max 0.2	
	R	Typ 13°	
All Dimensions in millimeter			