

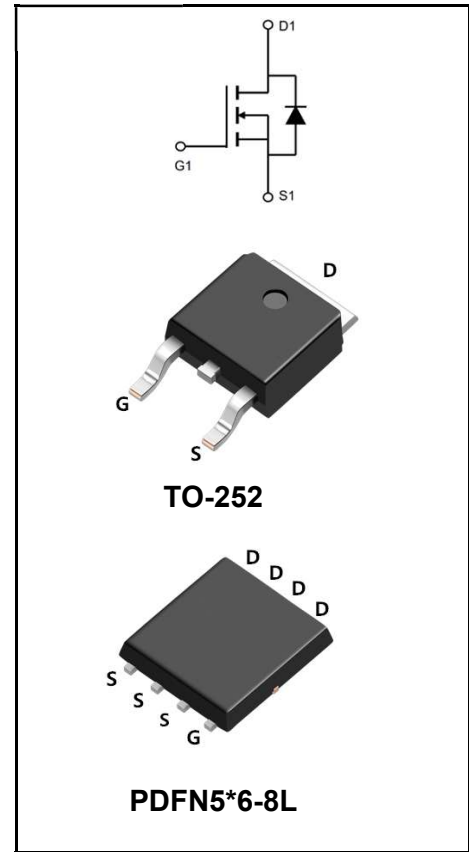
60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

| | |
|-------------------------------|------------------------------|
| I_D | 30A |
| V_{DSS} | 60V |
| $R_{DS(on)-typ}(@V_{GS}=10V)$ | < 28mΩ (Type:18 mΩ) |

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°Cmaximum,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 | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ±20 | V |
| Continue Drain Current | I_D | 30 | A |
| Pulsed Drain Current (Note1) | I_{DM} | 90 | A |
| Power Dissipation | P_D | 35 | W |
| Single Pulse Avalanche Energy (Note5) | E_{AS} | 50 | m_J |
| Operating Temperature Range | T_J | 150 | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | °C |
| Thermal Resistance, Junction to Case | R_{θJC} | 3 | °C/W |
| Thermal Resistance, Junction to Ambient | R_{θJA} | 62 | °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} = 0 V, I _D = 250 μA | BV_{DSS} | 60 | - | - | V |
| Drain-Source Leakage Current | V _{DS} = 60 V, V _{GS} = 0 V | I_{DSS} | - | - | 1 | UA |
| | V _{DS} =60V, Tc=125°C | | - | - | 10 | UA |
| Gate Leakage Current | V _{GS} = ± 20 V, V _{DS} = 0 V | I_{GSS} | - | - | ±100 | nA |
| Gate-Source Threshold Voltage | V _{DS} = V _{GS} , I _D = 250 μA | V_{GS(th)} | 1 | - | 2.5 | V |
| Drain-Source On-State Resistance(Note3) | V _{GS} = 10 V, I _D = 25 A | R_{DS(on)} | - | 18 | 28 | mΩ |
| | V _{GS} = 4.5 V, I _D = 10 A | | - | 26 | 40 | mΩ |
| Forward Transconductance | V _{DS} = 50 V, I _D = 25A | g_{fs} | - | 20 | - | S |
| Input Capacitance | V _{GS} = 0 V, V _{DS} = 25 V, f = 1MHz | C_{iss} | - | 1750 | - | pF |
| Output Capacitance | | C_{oss} | - | 85 | - | |
| Reverse Transfer Capacitance | | C_{rss} | - | 62 | - | |
| Turn-on Delay Time | V _{DS} = 30V, RL=1.5Ω V _{GS} = 10 V, RG = 3Ω, (Note3,4) | td(ON) | - | 6 | - | nS |
| Rise Time | | tr | - | 3.1 | - | |
| Turn-Off Delay Time | | td(OFF) | - | 18 | - | |
| Fall Time | | tf | - | 3.1 | - | |
| Total Gate Charge | V _{DS} = 30V, I _D = 20 A, V _{GS} = 10 V(Note3,4) | Q_G | - | 30 | - | nC |
| Gate to Source Charge | | Q_{GS} | - | 5.5 | - | |
| Gate to Drain Charge | | Q_{GD} | - | 8.6 | - | |

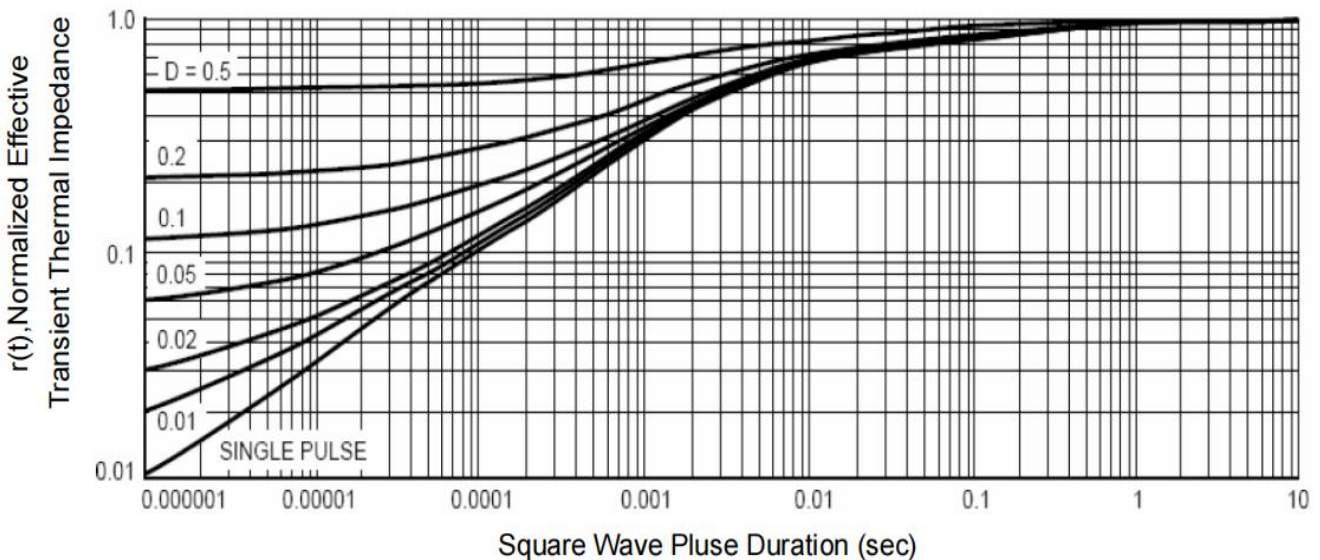
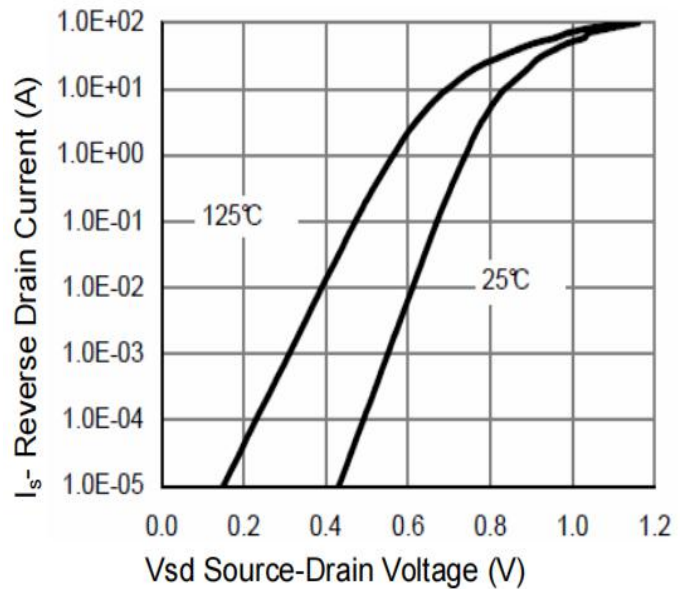
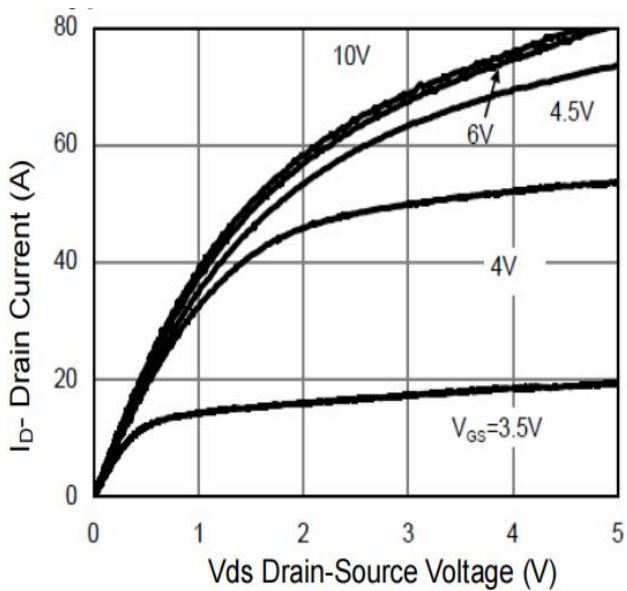
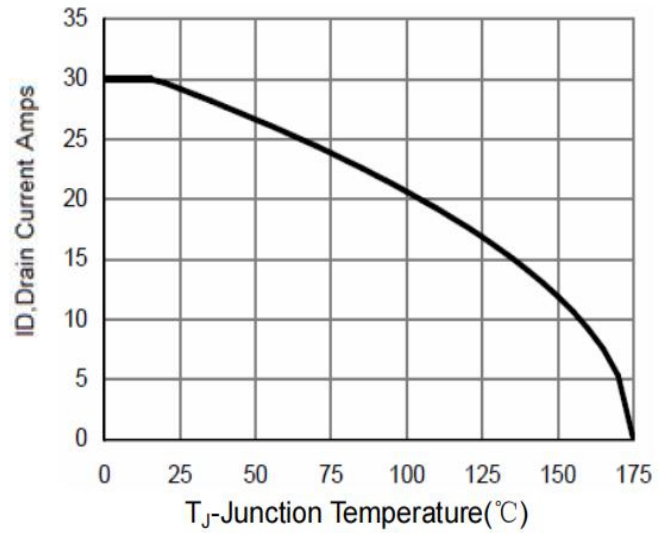
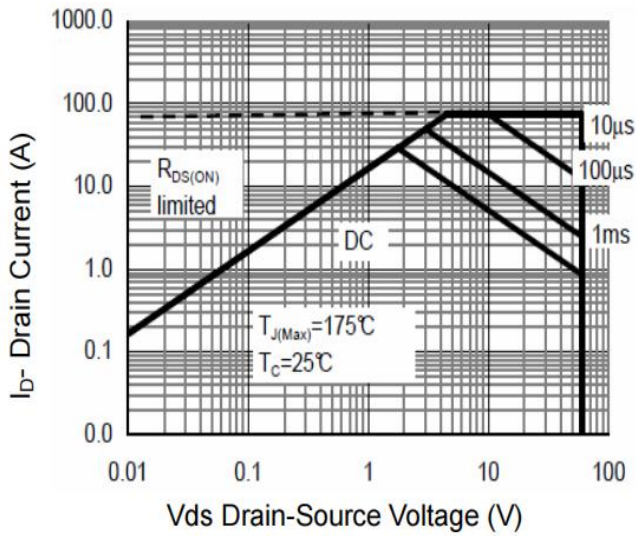
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

| Characteristics | Test Condition | Symbols | Min | Typ | Max | Units |
|--|--|-----------------------|-----|-----|-----|-----------|
| Maximun Body-Diode Continuous Current(Note2) | | I_S | - | - | 30 | A |
| Maximun Body-Diode Pulsed Current | | I_{SM} | - | - | 90 | A |
| Drain-Source Diode Forward Voltage(Note3) | $I_{SD} = 30\text{ A}$ | V_{SD} | - | - | 1.2 | V |
| Reverse Recovery Time | $I_S = I_F$ | trr | - | 40 | - | nS |
| Reverse Recovery Charge | $I_{SD} = 20\text{ A}, V_{GS} = 0\text{ V},$ $dI_F / dt = 100\text{ A}/\mu\text{s}(\text{Note3})$ | Qrr | - | 65 | - | uC |

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10\text{ sec}$.
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production
5. EAS condition: $T_j = 25^\circ\text{C}$, $V_{DD} = 30\text{V}$, $V_G = 10\text{V}$, $L = 0.1\text{mH}$, R_g

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 | | | |