



**UT30P03**

Preliminary

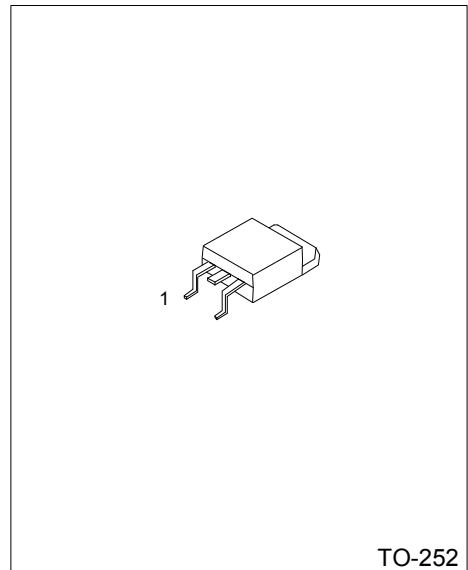
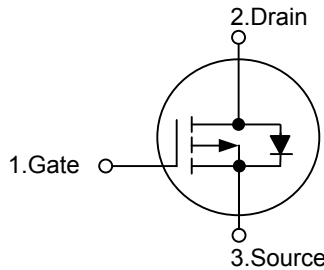
*Power MOSFET*

**P-CHANNEL  
ENHANCEMENT MODE**

■ **FEATURES**

- \*  $R_{DS(ON)} = 40m\Omega @ V_{GS} = -10 V$
- \* Low Capacitance
- \* Optimized gate charge
- \* Fast switching capability
- \* Avalanche energy specified

■ **SYMBOL**



TO-252

■ **ORDERING INFORMATION**

| Ordering Number |                | Package | Pin Assignment |   |   | Packing   |
|-----------------|----------------|---------|----------------|---|---|-----------|
| Lead Free       | Halogen Free   |         | 1              | 2 | 3 |           |
| UT30P03L-TN3-R  | UT30P03G-TN3-R | TO-252  | G              | D | S | Tape Reel |

|  |  |
|--|--|
| <p>UT30P03G-TN3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Halogen Free</p> | <p>(1) R: Tape Reel</p> <p>(2) TN3: TO-252</p> <p>(3) G: Halogen Free,L: Lead Free</p> |
|--|--|

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise specified)

| PARAMETER                | SYMBOL           | RATINGS    | UNIT |
|--------------------------|------------------|------------|------|
| Drain-Source Voltage     | V <sub>DS</sub>  | -30        | V    |
| Gate-Source Voltage      | V <sub>GS</sub>  | ±20        | V    |
| Continuous Drain Current | I <sub>D</sub>   | -26        | A    |
| Power Dissipation        | P <sub>D</sub>   | 50         | W    |
| Junction Temperature     | T <sub>J</sub>   | +175       | °C   |
| Storage Temperature      | T <sub>STG</sub> | -55 ~ +175 | °C   |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied

■ THERMAL DATA

| PARAMETER           | SYMBOL          | RATINGS | UNIT |
|---------------------|-----------------|---------|------|
| Junction to Ambient | θ <sub>JA</sub> | 50      | °C/W |
| Junction to Case    | θ <sub>JC</sub> | 3       | °C/W |

■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub> =25°C, unless otherwise specified)

| PARAMETER  | SYMBOL              | TEST CONDITIONS   | MIN | TYP | MAX  | UNIT |
|--|---------------------|---|-----|-----|------|------|
| <b>OFF CHARACTERISTICS</b>                             |                     |   |     |     |      |      |
| Drain-Source Breakdown Voltage                         | BV <sub>DSS</sub>   | V <sub>GS</sub> =0V, I <sub>D</sub> =-250 μA  | -30 |     |      | V    |
| Drain-Source Leakage Current                           | I <sub>DSS</sub>    | V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V  |     |     | -1   | μA   |
| Gate-Source Leakage Current                            | I <sub>GSS</sub>    | V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V  |     |     | ±100 | nA   |
| <b>ON CHARACTERISTICS</b>                              |                     |   |     |     |      |      |
| Gate Threshold Voltage                                 | V <sub>GS(TH)</sub> | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250 μA  | -1  |     | -3   | V    |
| Static Drain-Source On-State Resistance (Note)         | R <sub>DS(ON)</sub> | V <sub>GS</sub> =-10V, I <sub>D</sub> =-10A   |     | 30  | 40   | mΩ   |
|  |                     | V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-10A  |     | 40  | 60   | mΩ   |
| <b>DYNAMIC CHARACTERISTICS</b>                         |                     |   |     |     |      |      |
| Input Capacitance                                      | C <sub>ISS</sub>    | V <sub>DS</sub> =-25V, V <sub>GS</sub> =0V, f=1.0MHz  |     | 700 |      | pF   |
| Output Capacitance                                     | C <sub>OSS</sub>    |   |     | 130 |      | pF   |
| Reverse Transfer Capacitance                           | C <sub>RSS</sub>    |   |     | 120 |      | pF   |
| <b>SWITCHING CHARACTERISTICS</b>                       |                     |   |     |     |      |      |
| Turn-On Delay Time                                     | t <sub>D(ON)</sub>  | V <sub>DS</sub> =-15V, I <sub>D</sub> =1A, R <sub>L</sub> = 15Ω,<br>V <sub>GS</sub> =-10V, R <sub>G</sub> =3.3Ω |     | 25  |      | ns   |
| Turn-On Rise Time                                      | t <sub>R</sub>      |   |     | 50  |      | ns   |
| Turn-Off Delay Time                                    | t <sub>D(OFF)</sub> |   |     | 380 |      | ns   |
| Turn-Off Fall Time                                     | t <sub>F</sub>      |   |     | 180 |      | ns   |
| Total Gate Charge                                      | Q <sub>G</sub>      | V <sub>DS</sub> = -24V, I <sub>D</sub> = -30A, V <sub>GS</sub> = -4.5V  |     | 100 |      | nC   |
| Gate-Source Charge                                     | Q <sub>GS</sub>     |   |     | 15  |      | nC   |
| Gate-Drain Charge                                      | Q <sub>GD</sub>     |   |     | 10  |      | nC   |
| <b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b> |                     |   |     |     |      |      |
| Drain-Source Diode Forward Voltage                     | V <sub>SD</sub>     | V <sub>GS</sub> = 0V, I <sub>S</sub> =-10A  |     |     | -1.2 | V    |
| Maximum Continuous Drain-Source Diode Forward Current  | I <sub>S</sub>      |   |     |     | -26  | A    |

Note: Pulse Test: Pulse width ≤300μs, Duty cycle ≤2%

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