



N-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

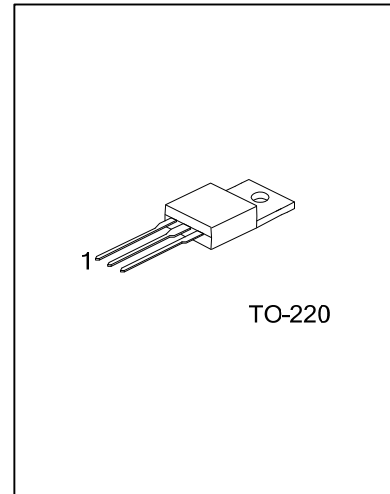
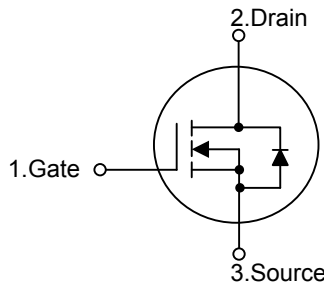
The UTC **UTT100N08** is an N-channel enhancement mode Power FET using UTC's advanced technology to provide customers with a minimum on-state resistance and superior switching performance.

It also can withstand high energy pulse in the avalanche and commutation mode.

FEATURES

- * Fast switching speed
- * $R_{DS(ON)} = 7m\Omega @ V_{GS} = 10V$
- * Work below 175°C
- * 100% avalanche tested
- * Improved dv/dt capability

SYMBOL



ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|------------------|------------------|---------|----------------|---|---|---------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| UTT100N08L-TA3-T | UTT100N08G-TA3-T | TO-220 | G | D | S | Tube |

Note: Pin Assignment: G: Gate D: Drain S: Source

| | |
|-------------------------|--|
| <p>UTT100N08L-TA3-T</p> | <p>(1) T: Tube (2) TA3: TO-220 (3) G: Halogen Free, L: Lead Free</p> |
|-------------------------|--|

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

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------------|------------------|-----------------|------|
| Drain-Source Voltage | V _{DSS} | 80 | V |
| Gate-Source Voltage | V _{GSS} | ±20 | V |
| Drain Current | Continuous | I _D | 100 |
| | Pulsed | I _{DM} | 400 |
| Avalanche Energy | Single Pulsed | E _{AS} | 875 |
| Peak Diode Recovery dv/dt | dv/dt | 6 | V/ns |
| Power Dissipation | P _D | 83 | W |
| Junction Temperature | T _J | +150 | °C |
| Storage Temperature | T _{STG} | -55~+150 | °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 _{JA} | 62.5 | °C/W |
| Junction to Case | θ _{JC} | 1.5 | °C/W |

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---------------------|--|------|------|------|------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | I _D =250μA, V _{GS} =0V | 80 | | | V |
| Drain-Source Leakage Current | I _{DSS} | V _{DS} =60V, V _{GS} =0V | | | 10 | μA |
| Gate- Source Leakage Current | I _{GSS} | Forward | | | +100 | nA |
| | | Reverse | | | -100 | nA |
| ON CHARACTERISTICS | | | | | | |
| Gate Threshold Voltage | V _{GS(TH)} | V _{DS} =V _{GS} , I _D =250μA | 1 | | 3 | V |
| Static Drain-Source On-State Resistance | R _{DS(ON)} | V _{GS} =10V, I _D =50A | | 7 | 12 | mΩ |
| DYNAMIC PARAMETERS | | | | | | |
| Input Capacitance | C _{ISS} | V _{GS} =0V, V _{DS} =25V, f=1.0MHz | | 1500 | | pF |
| Output Capacitance | C _{OSS} | | | 1060 | | pF |
| Reverse Transfer Capacitance | C _{RSS} | | | 700 | | pF |
| SWITCHING PARAMETERS | | | | | | |
| Total Gate Charge | Q _G | V _{GS} =10V, V _{DS} =30V, I _D =100A | | 500 | | nC |
| Gate to Source Charge | Q _{GS} | | | 50 | | nC |
| Gate to Drain Charge | Q _{GD} | | | 33 | | nC |
| Turn-ON Delay Time | t _{D(ON)} | V _{DD} =30V, V _{GS} =10V, I _D =100A, R _G =0.4Ω | | 90 | | ns |
| Rise Time | t _R | | | 130 | 200 | ns |
| Turn-OFF Delay Time | t _{D(OFF)} | | | 768 | | ns |
| Fall-Time | t _F | | | 280 | 420 | ns |
| Transconductance | g _{FS} | V _{DS} =15V, I _D =30A | 30 | | | S |
| SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS | | | | | | |
| Maximum Body-Diode Continuous Current | I _S | | 100 | | | A |
| Maximum Body-Diode Pulsed Current | I _{SM} | | 400 | | | A |
| Drain-Source Diode Forward Voltage | V _{SD} | I _S =100A, V _{GS} =0V | | 1.0 | 1.5 | V |
| Resistance of Gate | R _G | | 0.65 | 1.3 | 2 | Ω |

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