



UDF015N07

Preliminary

Power MOSFET

0.15A, 70V N-CHANNEL DEPLETION-MODE POWER MOSFET

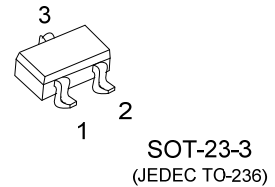
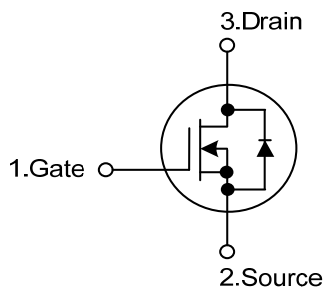
DESCRIPTION

The UTC **UDF015N07** is an N-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed.

FEATURES

- * $R_{DS(ON)} \leq 16 \Omega$ @ $V_{GS}=0V$, $I_D=100mA$
- * Depletion Mode (Normally On)
- * Proprietary Advanced Planar Technology
- * Rugged Polysilicon Gate Cell Structure
- * Fast Switching Speed

SYMBOL



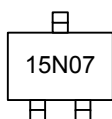
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|------------------|------------------|----------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| UDF015N07L-AE2-R | UDF015N07G-AE2-R | SOT-23-3 | G | S | D | Tape Reel |

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

| | | |
|------------------|---|--|
| UDF015N07G-AE2-R | (1) Packing Type (2) Package Type (3) Green Package | (1) R: Tape Reel (2) AE2: SOT-23-3 (3) G: Halogen Free and Lead Free, L: Lead Free |
|------------------|---|--|

MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|-------------------------------|------------|-----------|------------|--------------------|
| Drain-Source Voltage (Note 2) | | V_{DSX} | 70 | V |
| Drain-Gate Voltage (Note 2) | | V_{DGX} | 70 | V |
| Gate-Source Voltage | | V_{GSS} | ± 30 | V |
| Drain Current | Continuous | I_D | 0.15 | A |
| | Pulsed | I_{DM} | 0.3 | A |
| Power Dissipation | | P_D | 0.3 | W |
| Junction Temperature | | T_J | +150 | $^{\circ}\text{C}$ |
| Storage Temperature | | T_{STG} | -55 ~ +150 | $^{\circ}\text{C}$ |

Notes: 1. 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.

2. $T_J=+25^{\circ}\text{C} \sim +150^{\circ}\text{C}$

■ THERMAL DATA

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------|---------------|---------|----------------------|
| Junction to Ambient | θ_{JA} | 416 | $^{\circ}\text{C/W}$ |

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---------|----------------------|--|------|-----|------|------|
| OFF CHARACTERISTICS | | | | | | | |
| Drain-Source Breakdown Voltage | | BV _{DSX} | I _D =250μA, V _{GS} =-30V | 70 | | | V |
| Drain-Source Leakage Current | | I _{D(OFF)} | V _{DS} =70V, V _{GS} =-30V | | | 1 | μA |
| Gate-Source Leakage Current | Forward | I _{GSS} | V _{GS} =+30V, V _{DS} =0V | | | +100 | nA |
| | Reverse | | V _{GS} =-30V, V _{DS} =0V | | | -100 | nA |
| ON CHARACTERISTICS | | | | | | | |
| Gate to Source Cut Off Voltage | | V _{GS(OFF)} | V _{DS} =20V, I _D =8.0μA | -4.0 | | -10 | V |
| Drain-Source Leakage Current | | I _{DSS} | V _{DS} =25V, V _{GS} =0V | 150 | | | mA |
| Static Drain-Source On-State Resistance | | R _{DS(ON)} | V _{GS} =0V, I _D =100mA | | | 16 | Ω |
| DYNAMIC PARAMETERS | | | | | | | |
| Input Capacitance | | C _{ISS} | V _{GS} =-15V, V _{DS} =25V, f=1.0MHz | | 1.5 | | pF |
| Output Capacitance | | C _{OSS} | | | 7.3 | | pF |
| Reverse Transfer Capacitance | | C _{RSS} | | | 2.3 | | pF |
| SWITCHING PARAMETERS | | | | | | | |
| Turn-ON Delay Time | | t _{D(ON)} | V _{GS} =-15~0V, V _{DD} =30V, I _D =150mA, R _G =20Ω | | 32 | | ns |
| Rise Time | | t _R | | | 36 | | ns |
| Turn-OFF Delay Time | | t _{D(OFF)} | | | 32 | | ns |
| Fall-Time | | t _F | | | 34 | | ns |
| SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS | | | | | | | |
| Drain-Source Diode Forward Voltage | | V _{SD} | I _{SD} =150mA, V _{GS} =-10V | | | 1.4 | V |

Notes: 1. Repetitive rating, pulse width limited by maximum junction temperature.

2. Pulse width $\leq 380\mu\text{s}$; duty cycle $\leq 2\%$.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.