



UTT15P06

Power MOSFET

15A, 60V P-CHANNEL POWER MOSFET

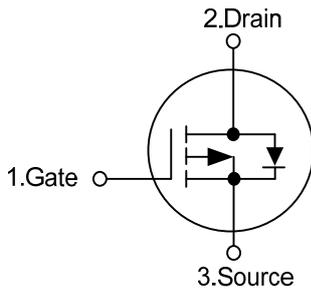
■ DESCRIPTION

The UTC **UTT15P06** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed, cost-effectiveness and minimum on-state resistance. It can also withstand high energy in the avalanche.

■ FEATURES

- * $R_{DS(ON)} < 90m\Omega @ V_{GS} = -10V, I_D = -15A$
- * High Switching Speed

■ SYMBOL



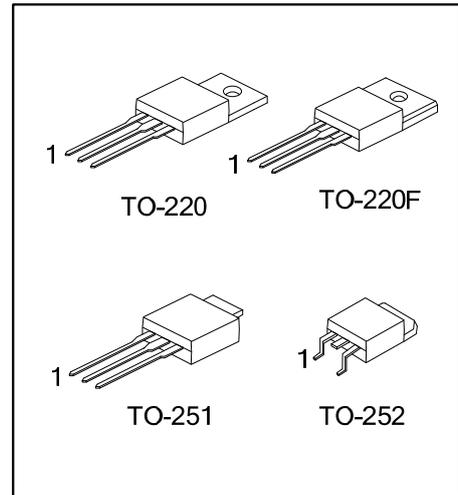
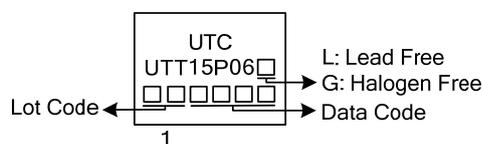
■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-----------------|-----------------|---------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| UTT15P06L-TA3-T | UTT15P06G-TA3-T | TO-220 | G | D | S | Tube |
| UTT15P06L-TF3-T | UTT15P06G-TF3-T | TO-220F | G | D | S | Tube |
| UTT15P06L-TM3-T | UTT15P06G-TM3-T | TO-251 | G | D | S | Tube |
| UTT15P06L-TN3-R | UTT15P06G-TN3-R | TO-252 | G | D | S | Tape Reel |

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

| | |
|--|--|
| <p>UTT15P06L-TA3-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p> | <p>(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TF3: TO-220F, TM3: TO-251, TN3: TO-252 (3) L: Lead Free, G: Halogen Free and Lead Free</p> |
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■ MARKING



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

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|----------------------|---------------|-----------|----------|--------------------|
| Drain-Source Voltage | | V_{DSS} | -60 | V |
| Gate-Source Voltage | | V_{GSS} | ± 25 | V |
| Drain Current | Continuous | I_D | -15 | A |
| | Pulsed | I_{DM} | -45 | A |
| Power Dissipation | TO-220 | P_D | 40 | W |
| | TO-220F | | 37 | |
| | TO-251/TO-252 | | 31.3 | |
| Junction Temperature | | T_J | +150 | $^{\circ}\text{C}$ |
| Storage Temperature | | T_{STG} | -55~+150 | $^{\circ}\text{C}$ |

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 (Steady state) | TO-220/TO-220F | θ_{JA} | 62 | $^{\circ}\text{C/W}$ |
| | TO-251/TO-252 | | 110 | $^{\circ}\text{C/W}$ |
| Junction to Case | TO-220 | θ_{JC} | 3.125 | $^{\circ}\text{C/W}$ |
| | TO-220F | | 3.3 | |
| | TO-251/TO-252 | | 4 | |

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

| PARAMETER | | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---------|--------------|---|-----|------|------|---------------|
| OFF CHARACTERISTICS | | | | | | | |
| Drain-Source Breakdown Voltage | | BV_{DSS} | $I_D=-250\mu\text{A}, V_{GS}=0\text{V}$ | -60 | | | V |
| Drain-Source Leakage Current | | I_{DSS} | $V_{DS}=-60\text{V}, V_{GS}=0\text{V}$ | | | -1 | μA |
| Gate-Source Leakage Current | Forward | I_{GSS} | $V_{GS}=+25\text{V}, V_{DS}=0\text{V}$ | | | +100 | nA |
| | Reverse | | $V_{GS}=-25\text{V}, V_{DS}=0\text{V}$ | | | -100 | nA |
| ON CHARACTERISTICS | | | | | | | |
| Gate Threshold Voltage | | $V_{GS(TH)}$ | $V_{DS}=V_{GS}, I_D=-250\mu\text{A}$ | -1 | | -3 | V |
| Static Drain-Source On-State Resistance | | $R_{DS(ON)}$ | $V_{GS}=-10\text{V}, I_D=-15\text{A}$ (Note 1) | | | 90 | m Ω |
| DYNAMIC PARAMETERS (Note 2) | | | | | | | |
| Input Capacitance | | C_{ISS} | $V_{GS}=0\text{V}, V_{DS}=-25\text{V}, f=1.0\text{MHz}$ (Note 2) | | 1100 | 2660 | pF |
| Output Capacitance | | C_{OSS} | | | 115 | | pF |
| Reverse Transfer Capacitance | | C_{RSS} | | | 90 | | pF |
| SWITCHING PARAMETERS | | | | | | | |
| Turn-ON Delay Time | | $t_{D(ON)}$ | $V_{DD}=-30\text{V}, I_D=-1\text{A}, R_G=12.5\Omega$ (Note 3) | | 16 | | ns |
| Rise Time | | t_R | | | 30 | | ns |
| Turn-OFF Delay Time | | $t_{D(OFF)}$ | | | 50 | | ns |
| Fall-Time | | t_F | | | 20 | | ns |
| Total Gate Charge | | Q_G | $V_{GS}=-10\text{V}, V_{DS}=-30\text{V},$ $I_D=-15\text{A}$ (Note 3) | | 14 | 27 | nC |
| Gate to Source Charge | | Q_{GS} | | | 3 | | nC |
| Gate to Drain Charge | | Q_{GD} | | | 8 | | nC |
| SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_c=25^{\circ}\text{C}$) (Note 2) | | | | | | | |
| Maximum Body-Diode Continuous Current | | I_S | | | | -15 | A |
| Maximum Body-Diode Pulsed Current | | I_{SM} | | | | -45 | A |
| Drain-Source Diode Forward Voltage | | V_{SD} | $I_F=-15\text{A}, V_{GS}=0\text{V}$ (Note 1) | | -1.0 | -1.5 | V |

Notes: 1. Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.

2. Guaranteed by design, not subject to production testing.

3. Independent of operating temperature.

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