



## UFR40120

Preliminary

FAST RECOVERY EPITAXIAL DIODE

## SUPERFAST RECOVERY RECTIFIER

### DESCRIPTION

The UTC **UFR40120** is a superfast recovery rectifier, it uses UTC's advanced technology to provide customers with low forward voltage drop, low leakage, high current capability and high surge capability etc. These characteristics make it ideal for heavy duty applications that demand long term reliability. also fit into auxiliary functions such as snubber, bootstrap, and demagnetization applications.

### FEATURES

- \* Ultrafast, soft recovery
- \* Very low conduction and switching losses
- \* High frequency and or high pulsed current operation
- \* High reverse voltage capability
- \* High junction temperature

### SYMBOL



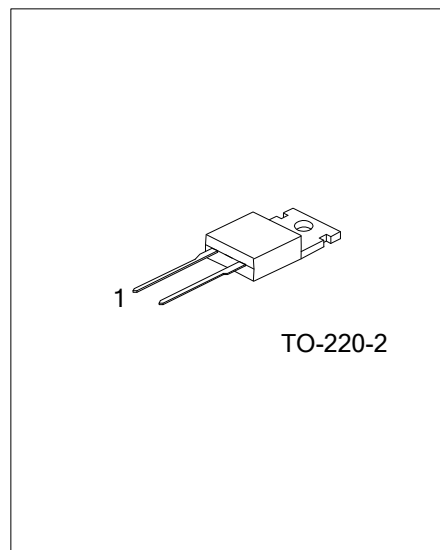
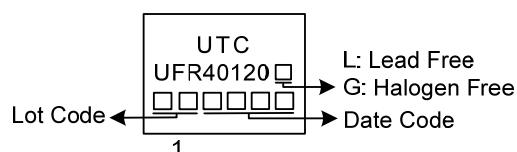
### ORDERING INFORMATION

| Ordering Number |                 | Package  | Pin Assignment |   | Packing |
|-----------------|-----------------|----------|----------------|---|---------|
| Lead Free       | Halogen Free    |          | 1              | 2 |         |
| UFR40120L-TA2-T | UFR40120G-TA2-T | TO-220-2 | K              | A | Tube    |

Note: Pin Assignment: A: Anode K: Cathode

|                 |                  |   |
|-----------------|------------------|---|
| UFR40120G-TA2-T | (1)Packing Type  | (1) T: Tube                                     |
|                 | (2)Package Type  | (2) TA2: TO-220-2                               |
|                 | (3)Green Package | (3) G: Halogen Free and Lead Free, L: Lead Free |

### MARKING



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

Ratings at  $25^{\circ}\text{C}$  ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.

| PARAMETER                               | SYMBOL      | RATINGS    | UNIT               |
|---|-------------|------------|--------------------|
| Repetitive Peak Reverse Voltage         | $V_{RRM}$   | 1200       | V                  |
| Average forward current, $\delta=0.5\%$ | $I_{F(AV)}$ | 40         | A                  |
| Surge non repetitive forward current    | $I_{FSM}$   | 210        | A                  |
| Operating Junction Temperature          | $T_J$       | +150       | $^{\circ}\text{C}$ |
| Storage Temperature Range               | $T_{STG}$   | -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 Case | $\theta_{JC}$ | 30      | $^{\circ}\text{C/W}$ |

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

Ratings at  $25^{\circ}\text{C}$  ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz

| PARAMETER                              | SYMBOL   | TEST CONDITIONS   | MIN | TYP | MAX | UNIT          |
|--|----------|---|-----|-----|-----|---------------|
| Forward voltage drop (Note 1)          | $V_F$    | $I_F=40\text{A}$  |     |     | 2.1 | V             |
|  |          |   |     |     | 1.6 | V             |
| Instantaneous reverse current (Note 2) | $I_R$    | $V_R=V_{RRM}$   |     |     | 20  | $\mu\text{A}$ |
|  |          |   |     |     | 150 | $\mu\text{A}$ |
| Reverse recovery time                  | $t_{rr}$ | $I_F=1\text{A}, V_R=30\text{V}, dI_F/dt=100\text{A}/\mu\text{s}$  |     | 54  |     | ns            |
|  |          | $I_F=30\text{A}, V_R=30\text{V}, dI_F/dt=100\text{A}/\mu\text{s}$ |     | 92  |     | ns            |

Notes: 1. Pulse test:  $t_P = 380\text{ ms}$ ,  $\delta = 2\%$ .

2. Pulse test:  $t_P = 5\text{ ms}$ ,  $\delta = 2\%$ .

3. To evaluate the conduction losses use the following equation:  $P=1.6 \times I_{F(AV)} + 0.012 I_F^2$  (RMS).

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