



UFR6040C

FAST RECOVERY EPITAXIAL DIODE

ULTRAFAST SOFT RECOVERY RECTIFIER DIODE

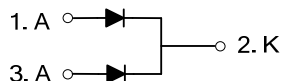
DESCRIPTION

The UTC **UFR6040C** utilizes advanced processing techniques to achieve ultrafast recovery times and higher forward current. Its soft recovery characteristics and high reliability suit for wide industrial applications.

FEATURES

- * Ultrafast Recovery Time
- * Soft Recovery Characteristics
- * Low Recovery Loss
- * Low Forward Voltage
- * High Surge Current Capability
- * Low Leakage Current

SYMBOL



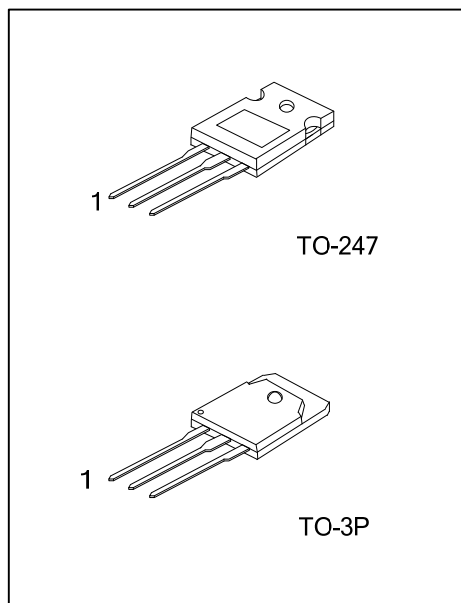
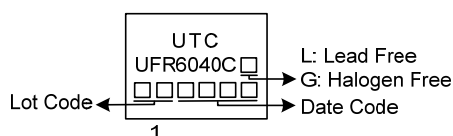
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-----------------|-----------------|---------|----------------|---|---|---------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| UFR6040CL-T3P-T | UFR6040CG-T3P-T | TO-3P | A | K | A | Tube |
| UFR6040CL-T47-T | UFR6040CG-T47-T | TO-247 | A | K | A | Tube |

Note: Pin Assignment: A: Anode K: Cathode

| | | |
|-----------------|--|---|
| UFR6040CG-T3P-T | (1)Packing Type (2)Package Type (3)Green Package | (1) T: Tube (2) T3P: TO-3P, T47: TO-247 (3) G: Halogen Free and Lead Free, L: Lead Free |
|-----------------|--|---|

MARKING



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

| PARAMETER | SYMBOL | RATINGS | UNIT |
|--|--------------|-----------------|--------------------|
| Maximum D.C. Reverse Voltage | V_R | 400 | V |
| Maximum Peak Repetitive Reverse Voltage | V_{RRM} | 400 | V |
| Maximum Working Peak Reverse Voltage | V_{RWM} | 400 | V |
| Maximum Average Forward Current ($T_C=110^{\circ}\text{C}$) | Per Leg | 30 | A |
| | Total | 60 | A |
| RMS Forward Current ($T_C=110^{\circ}\text{C}$) | $I_{F(RMS)}$ | 30 | A |
| Non-Repetitive Forward Surge Current ($T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine) | I_{FSM} | 180 | A |
| Operating Temperature Range | T_J | $-40 \sim +150$ | $^{\circ}\text{C}$ |
| Storage Temperature Range | T_{STG} | $-40 \sim +150$ | $^{\circ}\text{C}$ |

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 CHARACTERISTICS

| PARAMETER | SYMBOL | RATINGS | UNIT |
|------------------|---------------|---------|----------------------|
| Junction to Case | θ_{JC} | 0.8 | $^{\circ}\text{C/W}$ |

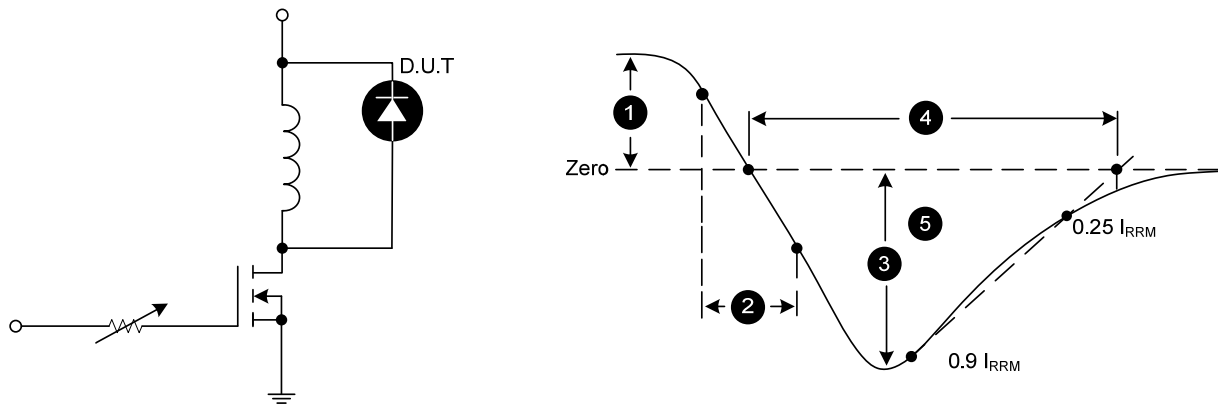
■ STATIC ELECTRICAL CHARACTERISTICS

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---------------------------------|----------|---|-----|-----|-----|---------------|
| Forward Voltage | V_F | $I_F=30\text{A}$ | | | 1.5 | V |
| | | $I_F=30\text{A}$, $T_J=150^{\circ}\text{C}$ | | | 1.2 | V |
| Maximum Reverse Leakage Current | I_{RM} | $V_R=400\text{V}$ | | | 1 | μA |
| | | $V_R=400\text{V}$, $T_J=150^{\circ}\text{C}$ | | | 100 | μA |

■ DYNAMIC CHARACTERISTICS

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|-----------------------|----------|--|-----|-----|-----|------|
| Reverse Recovery Time | t_{rr} | $I_F=1\text{A}$, $di_F/dt=-100\text{A}/\mu\text{s}$, $V_R=200\text{V}$ | | | 42 | ns |
| Reverse Recovery Time | t_{rr} | $I_F=30\text{A}$, $di_F/dt=-100\text{A}/\mu\text{s}$, $V_R=200\text{V}$ | | | 50 | ns |

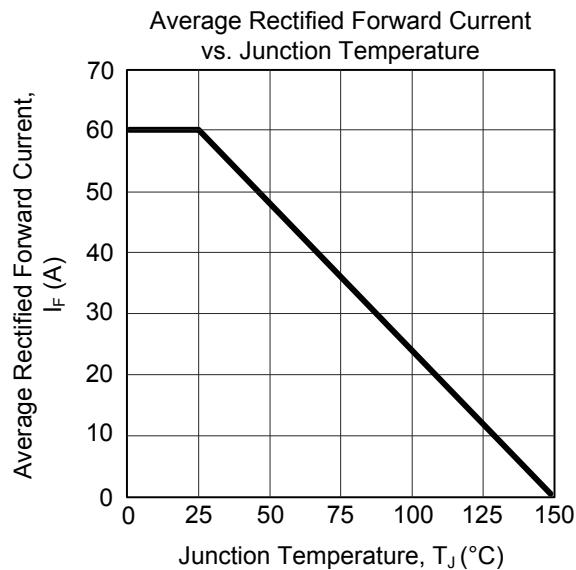
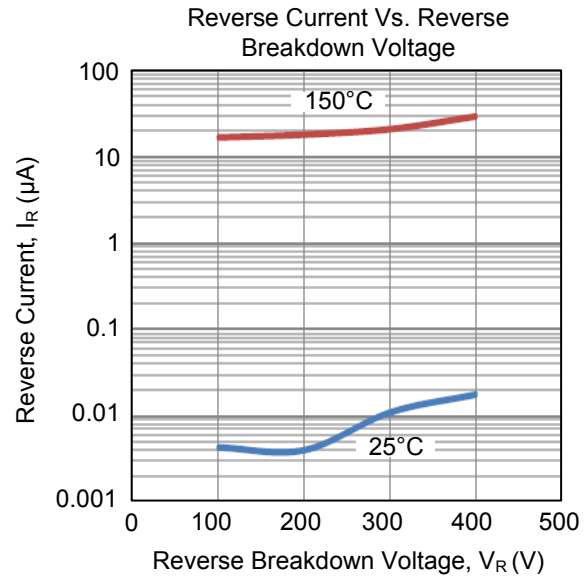
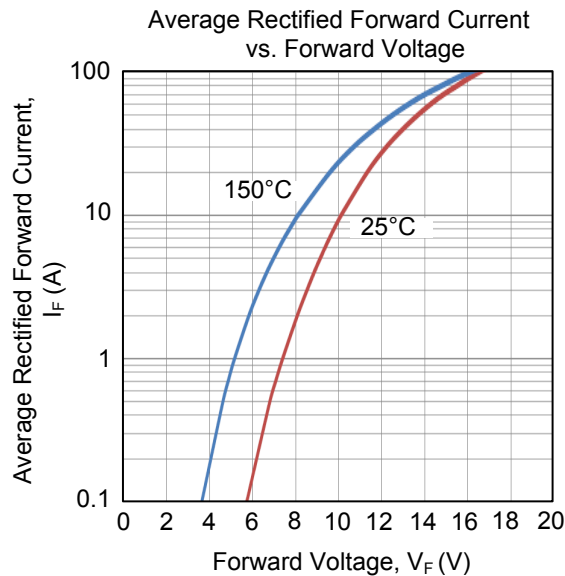
■ TEST CIRCUITS AND WAVEFORMS



Diode Reverse Recovery Test Circuit and Waveform

1. I_F - Forward Conduction Current
2. di_F/dt - Rate of Diode Current Change Through Zero Crossing.
3. I_{RRM} - Maximum Reverse Recovery Current.
4. t_{rr} - Reverse Recovery Time, measured from zero crossing where diode current goes from positive to negative, to the point at which the straight line through I_{RRM} and $0.25 \cdot I_{RRM}$ passes through zero.
5. Q_{rr} - Area Under the Curve Defined by I_{RRM} and t_{rr} .

■ TYPICAL CHARACTERISTICS



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