



UFR12040C

FAST RECOVERY EPITAXIAL DIODE

ULTRAFAST SOFT RECOVERY RECTIFIER DIODE

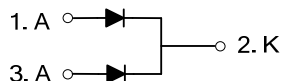
DESCRIPTION

The UTC **UFR12040C** 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



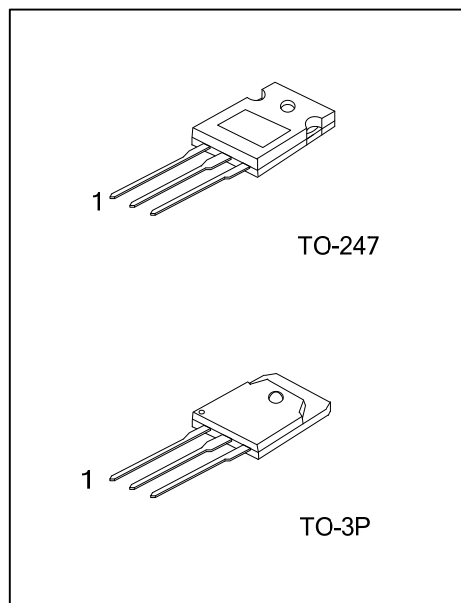
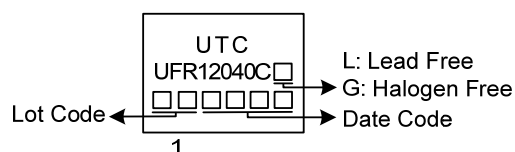
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UFR12040CL-T3P-T	UFR12040CG-T3P-T	TO-3P	A	K	A	Tube
UFR12040CL-T47-T	UFR12040CG-T47-T	TO-247	A	K	A	Tube

Note: Pin Assignment: A: Anode K: Cathode

UFR12040CG-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
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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	60	A
	Total	120	A
RMS Forward Current ($T_C=110^{\circ}\text{C}$)	$I_{F(RMS)}$	60	A
Non-Repetitive Forward Surge Current ($T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine)	I_{FSM}	360	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	$^{\circ}\text{C/W}$

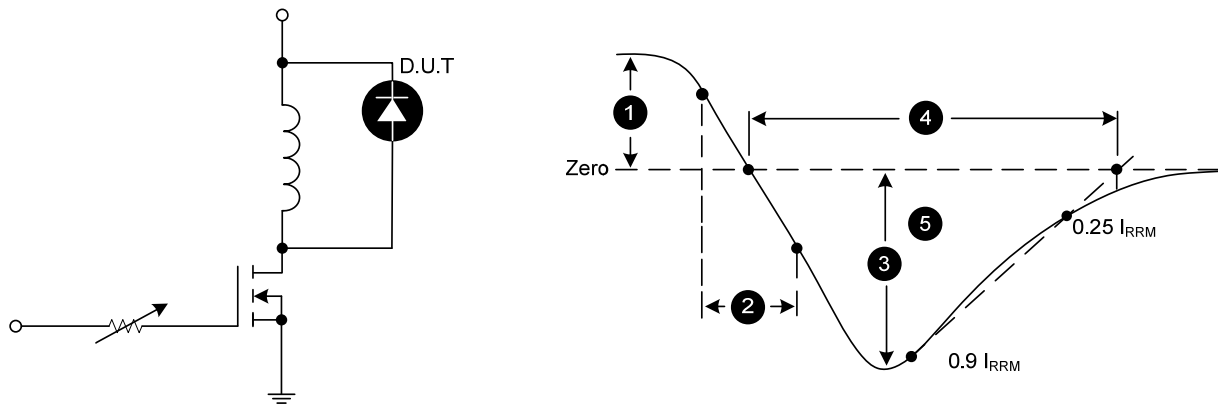
■ STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	V_F	$I_F=60\text{A}$			1.5	V
		$I_F=60\text{A}$, $T_J=150^{\circ}\text{C}$			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}	$I_F=1\text{A}$, $di_F/dt=-100\text{A}/\mu\text{s}$, $V_R=200\text{V}$			68	ns
Reverse Recovery Time	t_{rr}	$I_F=30\text{A}$, $di_F/dt=-100\text{A}/\mu\text{s}$, $V_R=200\text{V}$			85	ns

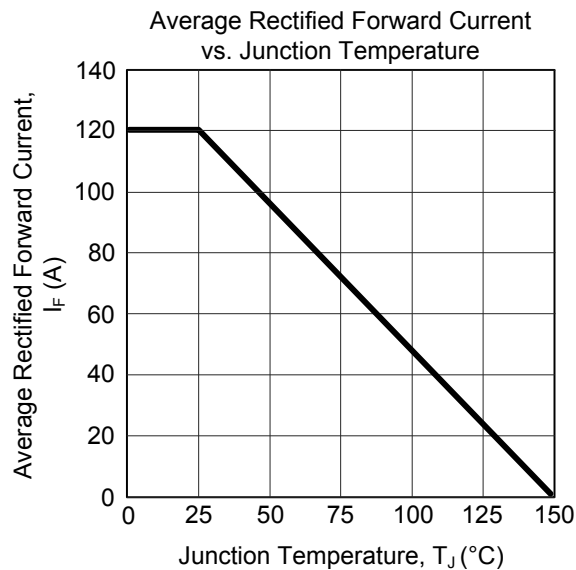
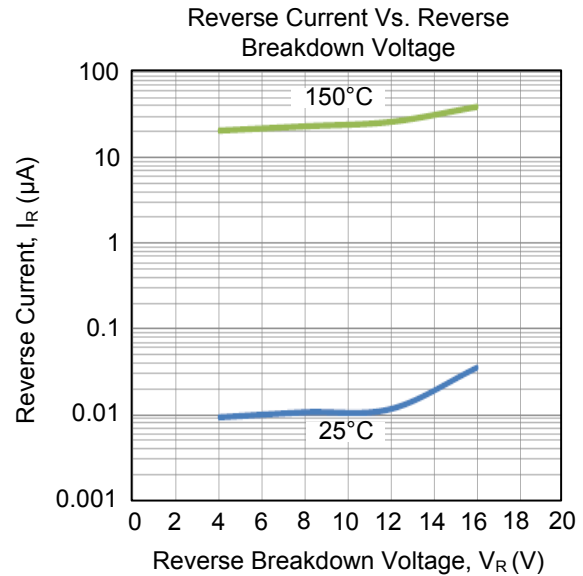
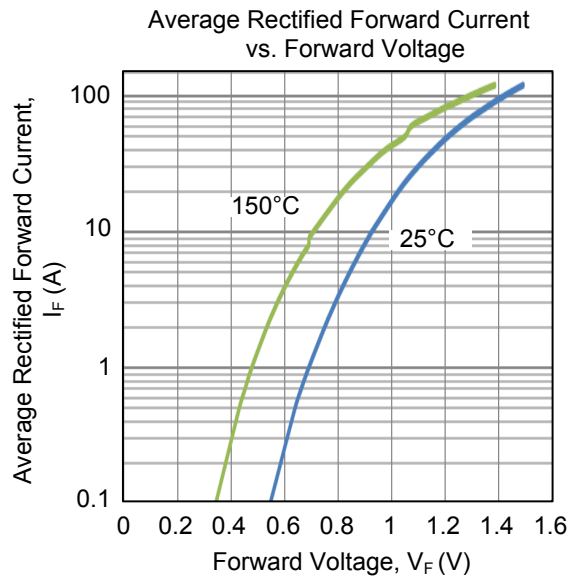
■ TEST CIRCUITS AND WAVEFORMS



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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