



## UFR16030C

### FAST RECOVERY EPITAXIAL DIODE

## ULTRAFAST SOFT RECOVERY RECTIFIER DIODE

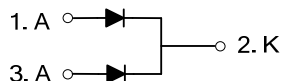
### DESCRIPTION

The UTC **UFR16030C** 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



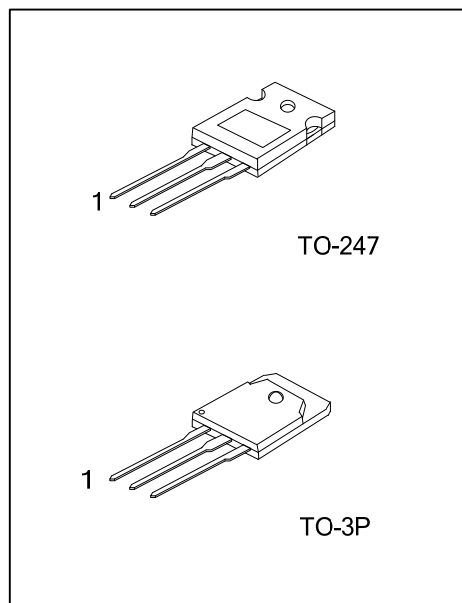
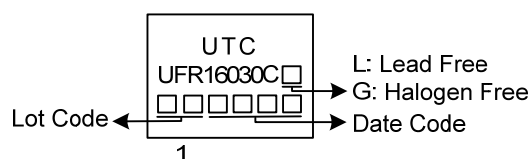
### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UFR16030CL-T3P-T	UFR16030CG-T3P-T	TO-3P	A	K	A	Tube
UFR16030CL-T47-T	UFR16030CG-T47-T	TO-247	A	K	A	Tube

Note: Pin Assignment: A: Anode K: Cathode

UFR16030CG-T3P-T	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) T3P: TO-3P, T47: TO-247
	(3)Green Package	(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	$V_R$	300	V
Maximum Peak Repetitive Reverse Voltage	$V_{RRM}$	300	V
Maximum Working Peak Reverse Voltage	$V_{RWM}$	300	V
Maximum Average Forward Current ( $T_C=110^{\circ}\text{C}$ )	Per Leg	80	A
	Total	160	A
Non-Repetitive Forward Surge Current ( $T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine)	$I_{FSM}$	330	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	$\theta_{JC}$	0.8	$^{\circ}\text{C/W}$

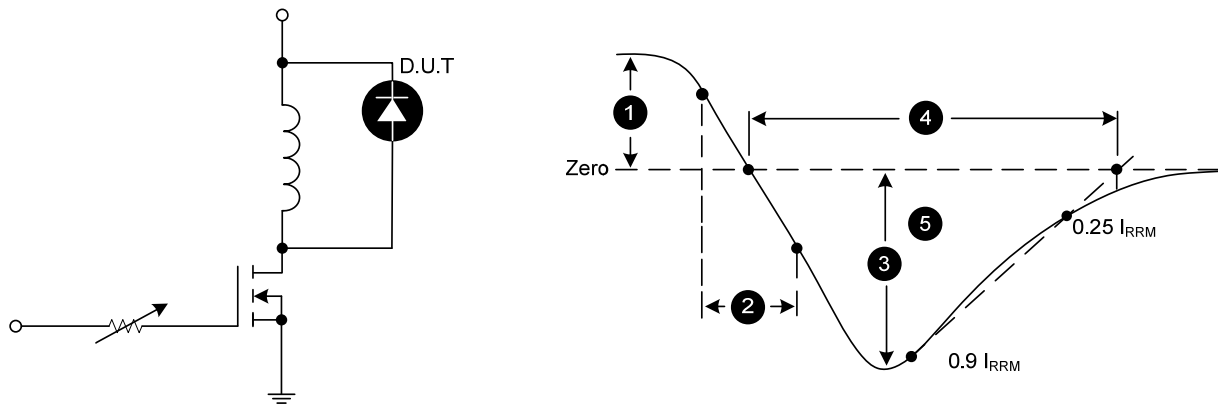
### ■ STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	$V_F$	$I_F=80\text{A}$			1.3	V
		$I_F=80\text{A}$ , $T_J=125^{\circ}\text{C}$			1.2	V
Maximum Reverse Leakage Current	$I_{RM}$	$V_R=300\text{V}$			1	$\mu\text{A}$
		$V_R=300\text{V}$ , $T_J=125^{\circ}\text{C}$			100	$\mu\text{A}$

### ■ DYNAMIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse Recovery Time	$t_{rr}$	$I_F=1\text{A}$ , $di_F/dt=-200\text{A}/\mu\text{s}$ , $V_R=200\text{V}$		38		ns
Reverse Recovery Time	$t_{rr}$	$I_F=30\text{A}$ , $di_F/dt=-100\text{A}/\mu\text{s}$ , $V_R=200\text{V}$		60		ns

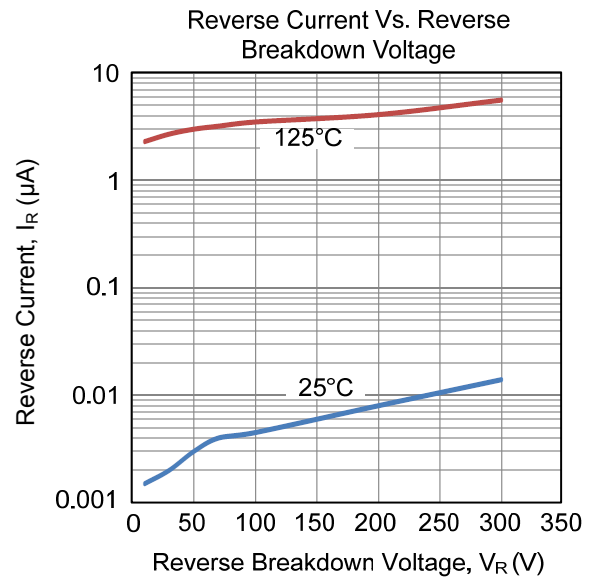
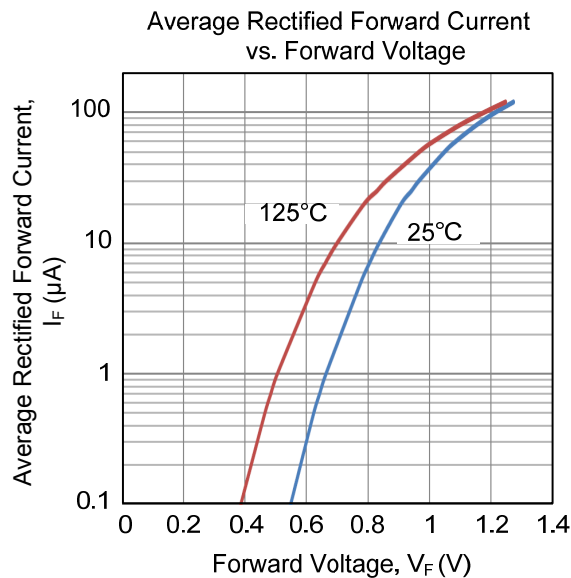
### ■ TEST CIRCUITS AND WAVEFORMS



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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