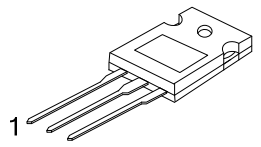
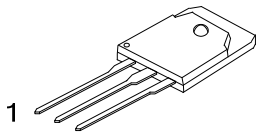
UFR9040C

FAST RECOVERY EPITAXIAL DIODE

ULTRAFAST SOFT RECOVERY RECTIFIER DIODE



TO-247



TO-3P

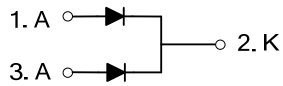
■ DESCRIPTION

The UTC **UFR9040C** 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

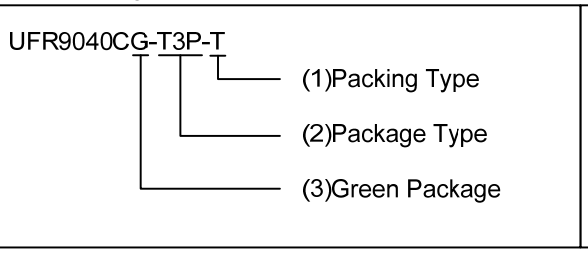
■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UFR9040CL-T3P-T	UFR9040CG-T3P-T	TO-3P	A	K	A	Tube
UFR9040CL-T47-T	UFR9040CG-T47-T	TO-247	A	K	A	Tube

Note: Pin Assignment: A: Anode K: Cathode

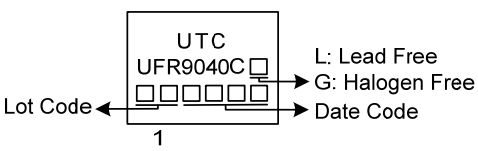


(1) T: Tube

(2) T3P: TO-3P, T47: TO-247

(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_C=25°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°C)	Per Leg	$I_{F(AV)}$	45	A
	Total		90	A
Non-Repetitive Forward Surge Current (T_J=45°C, t=10ms, 50Hz, Sine)		I_{FSM}	230	A
Operating Temperature Range		T_J	-40 ~ +150	°C
Storage Temperature Range		T_{STG}	-40 ~ +150	°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 (PER LEG)

PARAMETER	SYMBOL	RATINGS	UNIT
Typical Thermal Resistance	θ_{JC}	0.8	°C/W

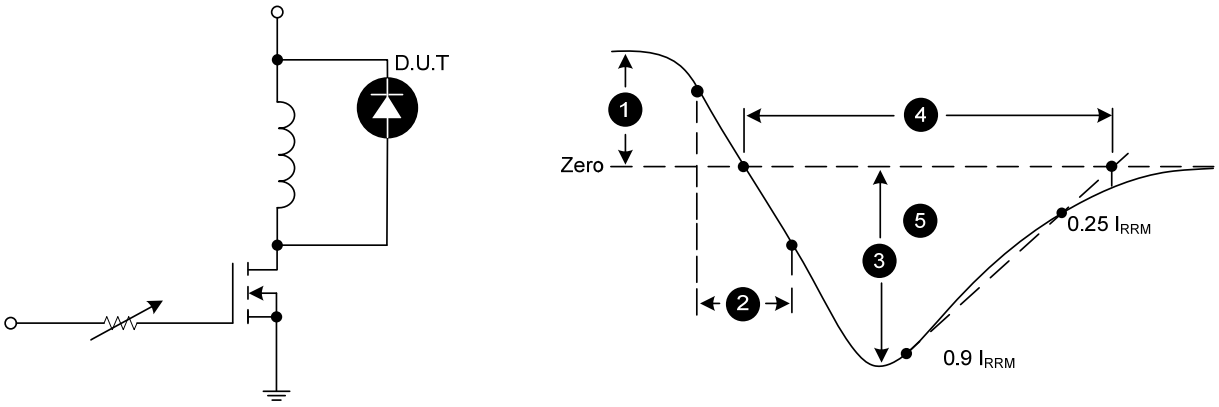
■ STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	V_F	I_F=45A			1.3	V
		I_F=45A, T_J=125°C			1.2	V
Maximum Reverse Leakage Current	I_{RM}	V_R=400V			1	μA
		V_R=400V, T_J=125°C			100	μA

■ DYNAMIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse Recovery Time	t_{rr}	I_F=1A, di_F/dt=-200A/μs, V_R=200V		32		ns
Reverse Recovery Time	t_{rr}	I_F=30A, di_F/dt=-100A/μs, V_R=200V		55		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. Qrr - Area Under the Curve Defined by I_{RRM} and t_{rr}.

■ TYPICAL CHARACTERISTICS