



# BYC10

**DIODE**

## ULTRAFAST, LOW SWITCHING LOSS RECTIFIER DIODE

### DESCRIPTION

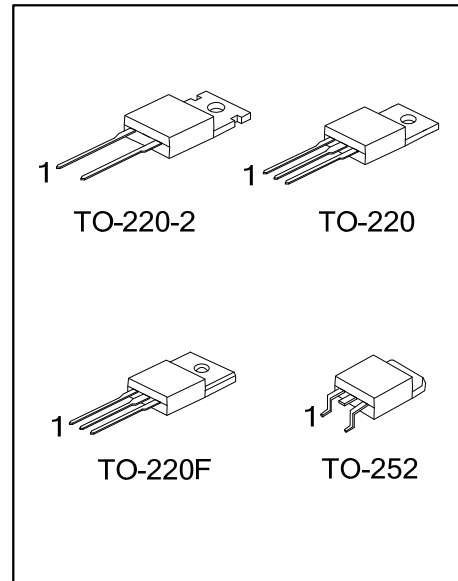
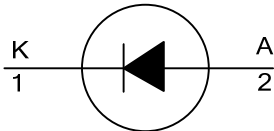
The UTC **BYC10** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

The UTC **BYC10** can be used in applications, such as half-bridge/full-bridge switched mode power supplies, active power factor correction and half-bridge lighting ballasts.

### FEATURES

- \* Low Reverse Recovery Current
- \* Ultra-Fast Switching
- \* Low Switching Loss In Associated MOSFET
- \* Low Thermal Resistance

### SYMBOL



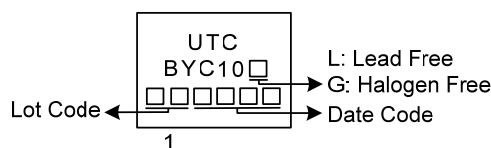
### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	Tab	
BYC10L-6-TA2-T	BYC10G-6-TA2-T	TO-220-2	K	A	K	Tube
BYC10L-6-TA3-T	BYC10G-6-TA3-T	TO-220	A	K	A	Tube
BYC10L-6-TF3-T	BYC10G-6-TF3-T	TO-220F	A	K	A	Tube
BYC10L-6-TN3-R	BYC10G-6-TN3-R	TO-252	A	K	A	Tape Reel

Note: Pin Assignment: A: Anode K: Cathode Tab: Mounting Base

<p>BYC10G-6-TA2-T</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA2: TO-220-2, TA3: TO-220, TF3: TO-220F, TN3: TO-252</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
-----------------------	--

### MARKING



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Peak Repetitive Reverse Voltage		$V_{RRM}$	600	V
Crest Working Reverse Voltage		$V_{RWM}$	600	V
Average Forward Current	$\delta = 0.5$ ; with reapplied $V_{RRM(max)}$ ; $T_{Tab} \leq 78^{\circ}C$	$I_{F(AV)}$	10	A
Repetitive Peak Forward Current	$\delta = 0.5$ ; with reapplied $V_{RRM(max)}$ ; $T_{Tab} \leq 78^{\circ}C$	$I_{FRM}$	20	A
Non-Repetitive Peak Forward Current.	$t = 10ms$	$I_{FSM}$	65	A
	$t = 8.3ms$ sinusoidal; $T_J = 150^{\circ}C$ prior to surge with reapplied $V_{RWM(max)}$		71	A
Operating Junction Temperature		$T_J$	+150	$^{\circ}C$
Storage Temperature		$T_{STG}$	-40 ~ +150	$^{\circ}C$

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 Ambient	TO-220-2/TO-220	$\theta_{JA}$	60	K/W
	TO-220F			
	TO-252			
Junction to Tab	TO-220-2/TO-220	$\theta_{JB}$	2	K/W
	TO-220F			
	TO-252			

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	$V_F$	$I_F = 10A$			2.9	V
Reverse Current	$I_{RM}$	$V_R = 600V$			200	$\mu A$
Reverse Recovery Time	$t_{RR}$	$I_F = 1A, V_R = 30V, dI_F/dt = 50A/\mu s$		46		ns
		$I_F = 10A, V_R = 400V, dI_F/dt = 300A/\mu s$		76		ns
Forward Recovery Voltage	$V_{FR}$	$I_F = 10A, dI_F/dt = 100A/\mu s$		8	11	V

■ TYPICAL CHARACTERISTICS

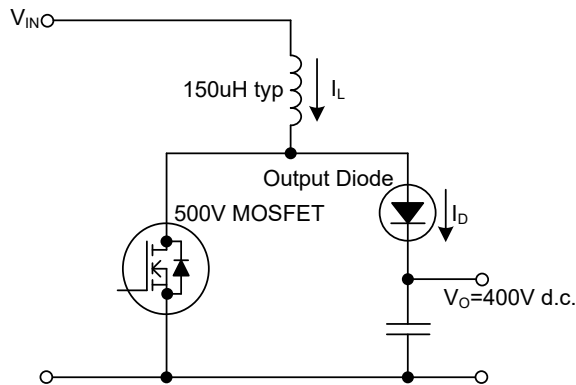


Fig.1. Typical application, output rectifier in boost converter power factor correction circuit. Continuous conduction mode, where the transistor turns on whilst forward current is still flowing in the diode.

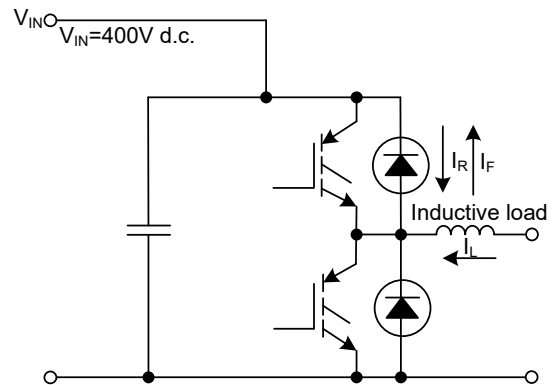
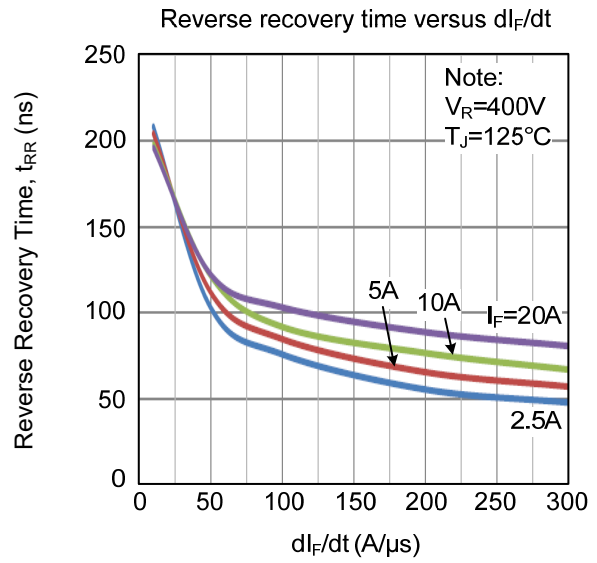
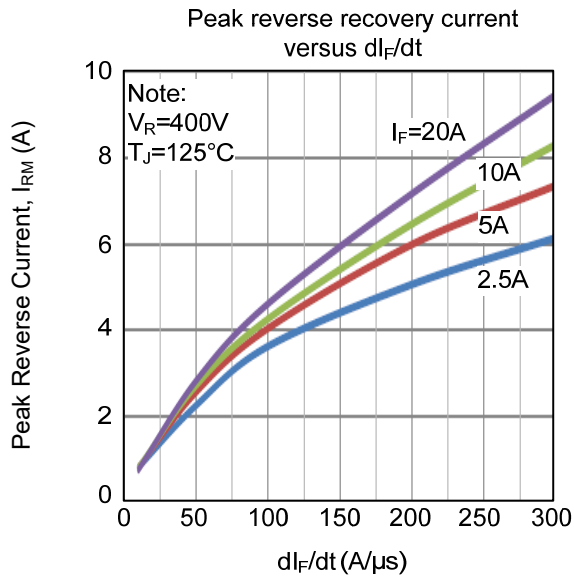


Fig.2. Typical application, freewheeling diode in half bridge converter. Continuous conduction mode, where each transistor turns on whilst forward current is still flowing in the other bridge leg diode.

■ TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.