



## ULTRAFAST, LOW SWITCHING LOSS RECTIFIER DIODE

### DESCRIPTION

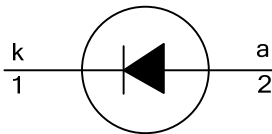
The UTC **BYC10-600** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

The UTC **BYC10-600** 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

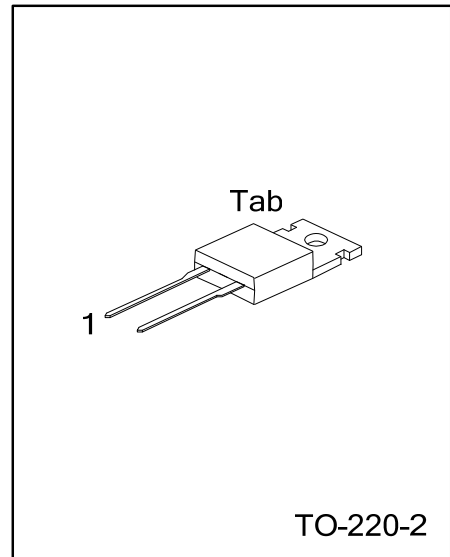


### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free Plating	Halogen Free		1	2	Tab	
BYC10L-600-TA2-T	BYC10G-600-TA2-T	TO-220-2	K	A	K	Tube

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

BYC10L-600-TA2-T (1) Packing Type (2) Package Type (3) Lead Free	(1) T: Tube (2) TA2: TO-220-2 (3) L: Lead Free, G: Halogen Free
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### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Peak Repetitive Reverse Voltage	$V_{RRM}$	600	V
Crest Working Reverse Voltage	$V_{RWM}$	600	V
Continuous Reverse Voltage	$V_R$	500	V
Average Forward Current	$I_{F(AV)}$	10	A
Repetitive Peak Forward Current	$I_{FRM}$	20	A
Non-Repetitive Peak Forward Current.	$I_{FSM}$	65	A
Operating Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-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 DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	60	K/W
Junction to Tab	$\theta_{JB}$	2	K/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	$V_F$	$I_F = 10\text{A}, T_J = 150^\circ\text{C}$		1.4	1.8	V
		$I_F = 20\text{A}, T_J = 150^\circ\text{C}$		1.7	2.3	V
		$I_F = 10\text{A}$		2.0	2.9	V
Reverse Current	$I_R$	$V_R = 600\text{V}$		9	200	$\mu\text{A}$
		$V_R = 500\text{V}, T_J = 100^\circ\text{C}$		1.1	3.0	mA
Reverse Recovery Time	$t_{RR}$	$I_F = 1\text{A}, V_R = 30\text{V}, dI_F/dt = 50\text{A}/\mu\text{s}$		35	55	ns
		$I_F = 10\text{A}, V_R = 400\text{V}, dI_F/dt = 500\text{A}/\mu\text{s}$		19		ns
		$T_J = 100^\circ\text{C}$		32	40	ns
Peak Reverse Recovery Current	$I_{RRM}$	$I_F = 10\text{A}, V_R = 400\text{V}, dI_F/dt = 100\text{A}/\mu\text{s}, T_J = 125^\circ\text{C}$		3	7.5	A
		$I_F = 10\text{A}, V_R = 400\text{V}, dI_F/dt = 500\text{A}/\mu\text{s}, T_J = 125^\circ\text{C}$		9.5	12	A
Forward Recovery Voltage	$V_{FR}$	$I_F = 10\text{A}, dI_F/dt = 100\text{A}/\mu\text{s}$		8	11	V

### ■ TYPICAL CHARACTERISTICS

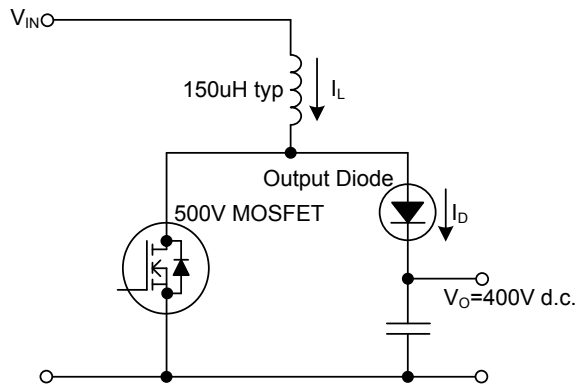


Fig.1. Typical application, output rectifier in boost converter power factor correction circuit. Continuous conduction mode, where the transistor turns on whilst forward current is still flowing in the diode.

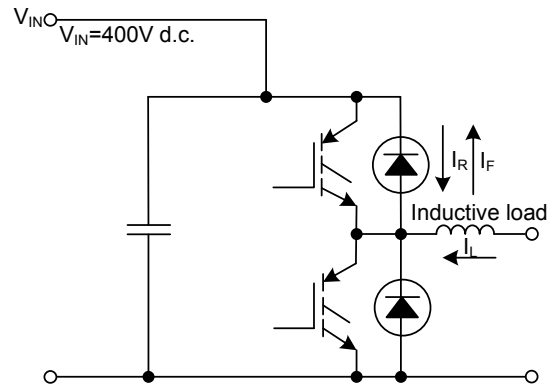


Fig.2. Typical application, freewheeling diode in half bridge converter. Continuous conduction mode, where each transistor turns on whilst forward current is still flowing in the other bridge leg diode.

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