



**BYC5**

Preliminary

**DIODE**

**ULTRAFAST, LOW SWITCHING LOSS RECTIFIER DIODE**

■ DESCRIPTION

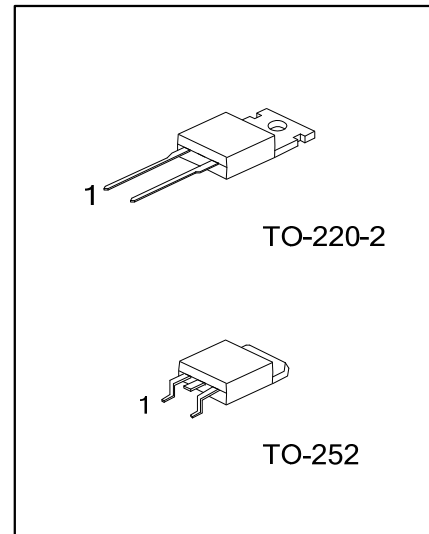
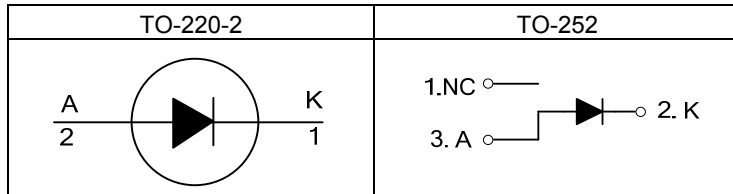
The UTC **BYC5** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss.

The UTC **BYC5** is suitable for half-bridge lighting ballasts, half-bridge/full-bridge switched mode power supplies and active power factor correction applications.

■ FEATURES

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

■ SYMBOL



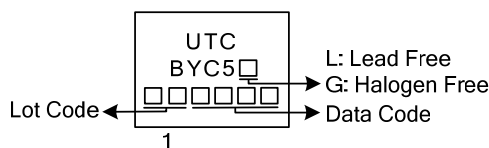
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BYC5L-6-TA2-T	BYC5G-6-TA2-T	TO-220-2	K	A	NC	Tube
BYC5L-6-TN3-T	BYC5G-6-TN3-T	TO-252	NC	K	A	Tube
BYC5L-6-TN3-R	BYC5G-6-TN3-R	TO-252	NC	K	A	Tape Reel

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

<p>BYC5L-6-TA2-T</p>	<p>(1) T: Tube</p> <p>(2) TA2: TO-220-2, TN3: TO-252</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING



### ■ 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	$I_{F(AV)}$	5	A
Repetitive Peak Forward Current	$I_{FRM}$	10	A
Non-Repetitive Peak Forward Current	$I_{FSM}$	40	A
		44	A
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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220-2	60	°C/W
	TO-252	80	°C/W
Junction to Case	TO-220-2	2.5	°C/W
	TO-252	3.5	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	$V_F$	$I_F = 5\text{A}$ , $T_J = 150^\circ\text{C}$		1.4	1.75	V
		$I_F = 10\text{A}$ , $T_J = 150^\circ\text{C}$		1.75	2.2	V
		$I_F = 5\text{A}$		2.0	2.9	V
Reverse Current	$I_R$	$V_R = 600\text{V}$		9	100	$\mu\text{A}$
		$V_R = 500\text{V}$ , $T_J = 100^\circ\text{C}$		0.9	3.0	mA
Reverse Recovery Time	$t_{RR}$	$I_F = 1\text{A}$ , $V_R = 30\text{V}$ , $dI_F/dt = 50\text{A}/\mu\text{s}$		30	50	ns
		$I_F = 5\text{A}$ , $V_R = 400\text{V}$ , $dI_F/dt = 500\text{A}/\mu\text{s}$		19		ns
Peak Reverse Recovery Current	$I_{RRM}$	$I_F = 5\text{A}$ , $V_R = 400\text{V}$ , $T_J = 125^\circ\text{C}$		0.7	3	A
					8	11
Forward Recovery Voltage	$V_{FR}$	$I_F = 10\text{A}$ , $dI_F/dt = 100\text{A}/\mu\text{s}$		9	11	V

## ■ TYPICAL CHARACTERISTICS

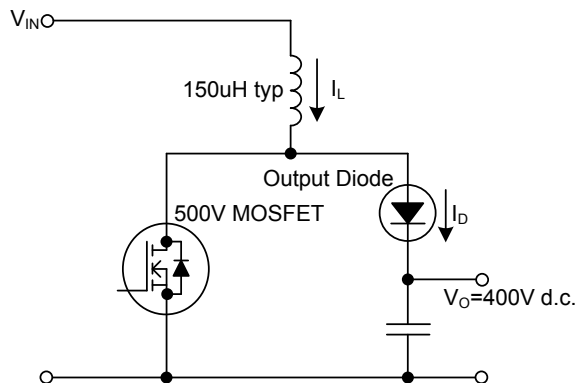


Fig.1. Typical application, output rectifier in boost converter power factor correction circuit. Continuous conduction mode, where the transistor turns on whilst forward current is still flowing in the diode.

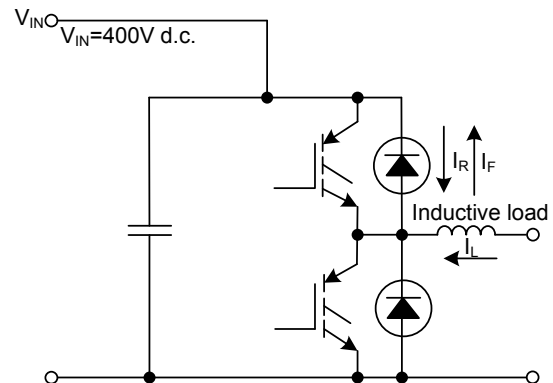


Fig.2. Typical application, freewheeling diode in half bridge converter. Continuous conduction mode, where each transistor turns on whilst forward current is still flowing in the other bridge leg diode.

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