

**BYC10**

Preliminary

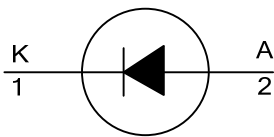
DIODE**ULTRAFAST, LOW SWITCHING
LOSS RECTIFIER DIODE****DESCRIPTION**

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

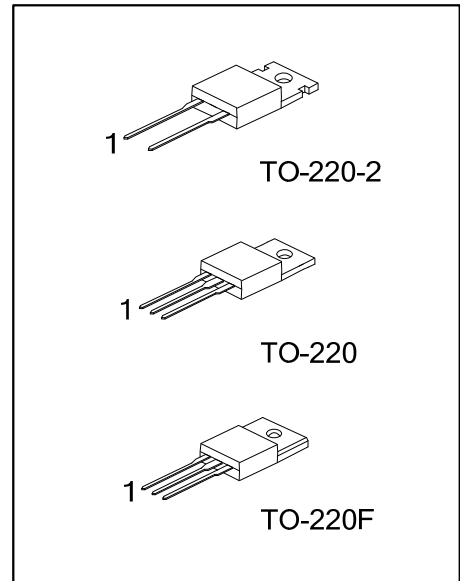
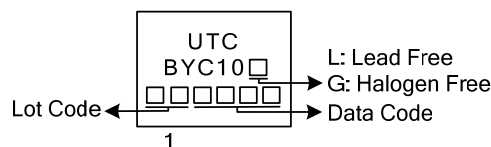
- * Low Reverse Recovery Current
- * Ultra-Fast Switching
- * Low Switching Loss In Associated MOSFET
- * Low Thermal Resistance

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	Tape Reel
BYC10L-6-TF3-T	BYC10G-6-TF3-T	TO-220F	A	K	A	Tape Reel

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

BYC10L-6-TA2-T	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) TA2: TO-220-2
	(3)Green Package	(3) L: Lead Free, G: Halogen Free and Lead Free

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	$I_{F(AV)}$	10	A
Repetitive Peak Forward Current	I_{FRM}	20	A
Non-Repetitive Peak Forward Current.	I_{FSM}	65	A
		71	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	θ_{JA}	60	K/W
Junction to Tab	θ_{JB}	2	K/W
		5	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	μA
		$V_R = 500\text{V}, T_J = 100^\circ\text{C}$		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

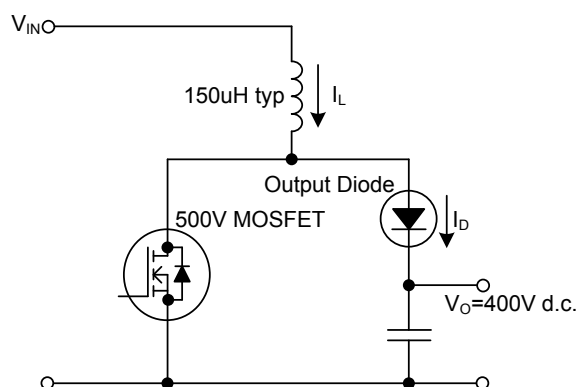


Fig.1. Typical application, output rectifier in boost converter power factor correction circuit. Continuous conduction mode, where the transistor turns on whilst forward current is still flowing in the diode.

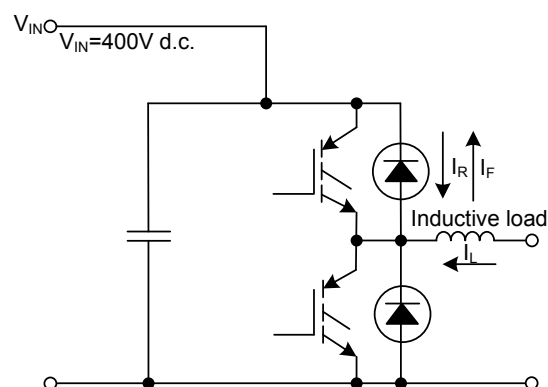


Fig.2. Typical application, freewheeling diode in half bridge converter. Continuous conduction mode, where each transistor turns on whilst forward current is still flowing in the other bridge leg diode.

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