



BYC10

DIODE

ULTRAFAST, LOW SWITCHING
LOSS RECTIFIER DIODE

■ DESCRIPTION

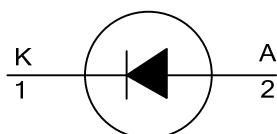
The UTC **BYC10** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

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



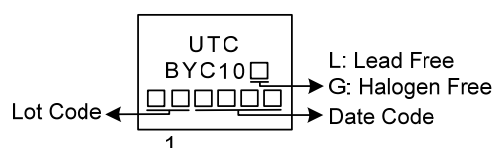
■ ORDERING INFORMATION

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

BYC10G-6-TA2-T	(1)Packing Type	(1) T: Tube, R: Tape Reel
	(2)Package Type	(2) TA2: TO-220-2, TA3: TO-220, TF3: TO-220F, TN3: TO-252
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: 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
Average Forward Current	$\delta = 0.5$; with reappplied $V_{RRM(max)}$; $T_{Tab} \leq 78^{\circ}C$	$I_{F(AV)}$	10	A
Repetitive Peak Forward Current	$\delta = 0.5$; with reappplied $V_{RRM(max)}$; $T_{Tab} \leq 78^{\circ}C$	I_{FRM}	20	A
Non-Repetitive Peak Forward Current.	$t = 10ms$	I_{FSM}	65	A
	$t = 8.3ms$		71	A
	sinusoidal; $T_J = 150^{\circ}C$ prior to surge with reappplied $V_{RWM(max)}$			
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	θ_{JA}	60	K/W
	TO-220F		80	K/W
	TO-252			
Junction to Tab	TO-220-2/TO-220	θ_{JB}	2	K/W
	TO-220F		5	K/W
	TO-252		3.2	K/W

■ 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	μA
Reverse Recovery Time	t_{RR}	$I_F = 1A$, $V_R = 30V$, $dI_F/dt = 50A/\mu s$		35		ns
		$I_F = 10A$, $V_R = 400V$, $dI_F/dt = 300A/\mu s$		52		ns
Forward Recovery Voltage	V_{FR}	$I_F = 10A$, $dI_F/dt = 100A/\mu s$		8	11	V

■ TYPICAL CHARACTERISTICS

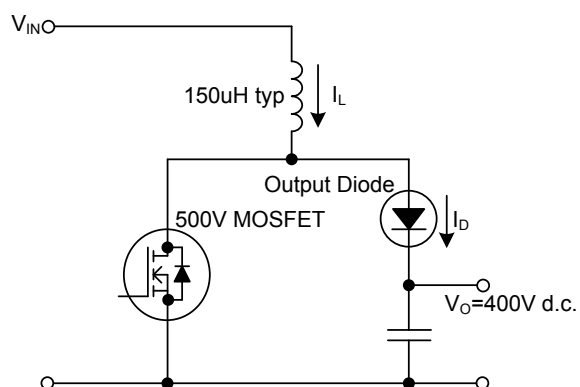


Fig.1. Typical application, output rectifier in boost converter power factor correction circuit. Continuous conduction mode, where the transistor turns on whilst forward current is still flowing in the diode.

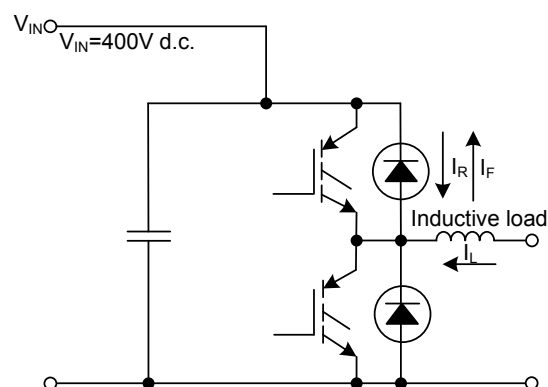
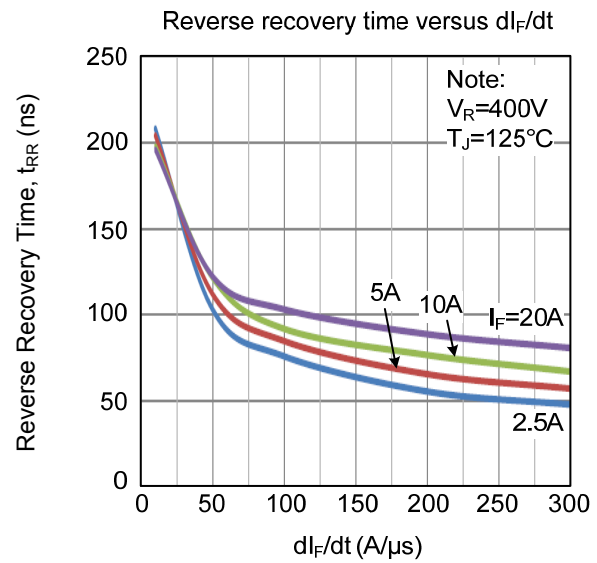
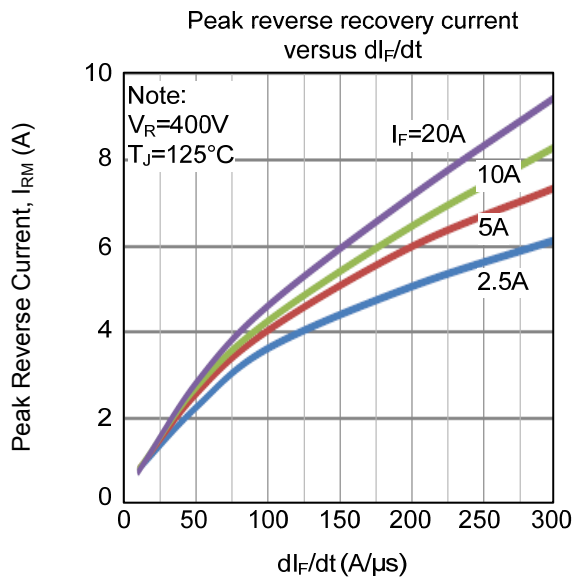


Fig.2. Typical application, freewheeling diode in half bridge converter. Continuous conduction mode, where each transistor turns on whilst forward current is still flowing in the other bridge leg diode.

■ TYPICAL CHARACTERISTICS



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