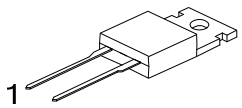
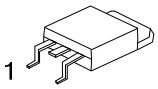
ULTRAFAST, LOW SWITCHING LOSS RECTIFIER DIODE



TO-220-2



TO-252

■ DESCRIPTION

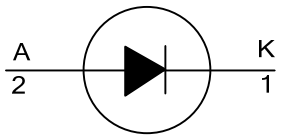
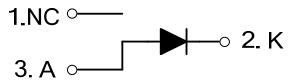
The UTC **BYC5** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss.

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

TO-220-2	TO-252
	

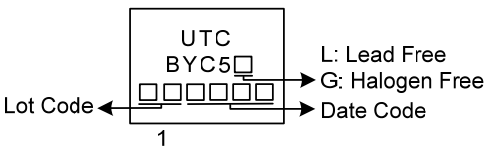
■ ORDERING INFORMATION

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

BYC5G-6-TA2-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube (2) TA2: TO-220-2, TN3: TO-252 (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
Continuous Reverse Voltage	T_{Tab} ≤ 110°C	V_R	500	V
Average Forward Current	δ =0.5; with reapplied $V_{RRM(max)}$; T_{Tab} ≤89°C	$I_{F(AV)}$	5	A
Repetitive Peak Forward Current	δ =0.5; with reapplied $V_{RRM(max)}$; T_{Tab} ≤ 89°C	I_{FRM}	10	A
Non-Repetitive Peak Forward Current	t = 10ms	I_{FSM}	40	A
	t = 8.3ms sinusoidal; T_J =150°C prior to surge with reapplied $V_{RWM(max)}$		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	$θ_{JA}$	60	°C/W
	TO-252		80	°C/W
Junction to Case	TO-220-2	$θ_{JC}$	2.5	°C/W
	TO-252		3.5	°C/W

■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Forward Voltage	V_F	I_F =5A, T_J =150°C		1.4	1.75	V
		I_F =10A, T_J =150°C		1.75	2.2	V
		I_F =5A		2.0	2.9	V
Reverse Current	I_R	V_R=600V		9	100	μA
		V_R=500V, T_J=100°C		0.9	3.0	mA
Reverse Recovery Time	t_{RR}	I_F =1A, V_R=30V, dI_F/dt=50A/μs			55	ns
		I_F=5A, V_R=400V, dI_F/dt=300A/μs		48		ns
Forward Recovery Voltage	V_{FR}	I_F =10A, dI_F/dt=100A/μs		9	11	V

■ TYPICAL CHARACTERISTICS

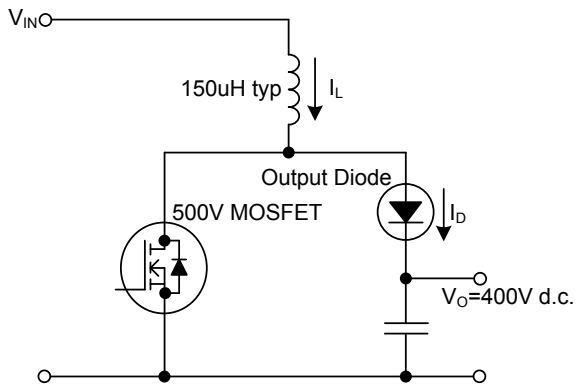


Fig.1. Typical application, output rectifier in boost converter power factor correction circuit. Continuous conduction mode, where the transistor turns on whilst forward current is still flowing in the diode.

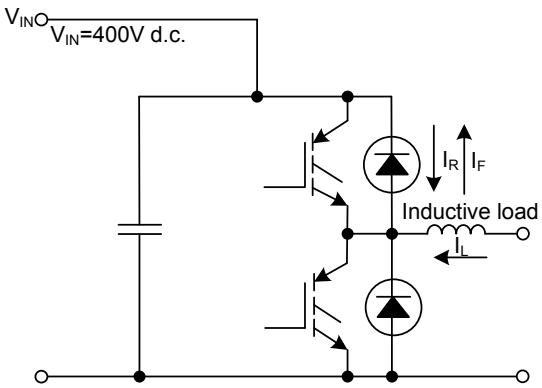


Fig.2. Typical application, freewheeling diode in half bridge converter. Continuous conduction mode, where each transistor turns on whilst forward current is still flowing in the other bridge leg diode.