



## ULTRAFAST, LOW SWITCHING LOSS RECTIFIER DIODE

### DESCRIPTION

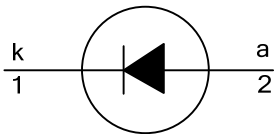
The UTC **BYC8-600** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

The UTC **BYC8-600** is generally applied in continuous current mode(CCM), power factor correction (PFC), half-bridge lighting ballasts and half-bridge/full-bridge switched mode power supplies.

### FEATURES

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

### SYMBOL

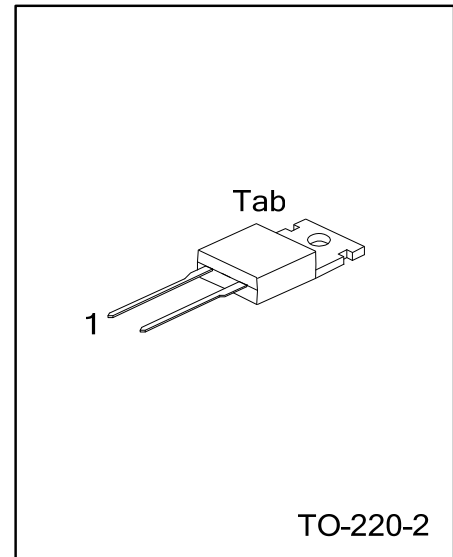


### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free Plating	Halogen Free		1	2	Tab	
BYC8L-600-TA2-T	BYC8G-600-TA2-T	TO-220-2	K	A	K	Tube

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

<p>BYC8L-600-TA2-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) T: Tube</p> <p>(2) TA2: TO-220-2</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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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
Average Forward Current	square-wave pulse; $\delta = 0.5$ ; $T_{Tab} \leq 109^{\circ}\text{C}$	$I_{F(AV)}$	8 A
Repetitive Peak Forward Current	square-wave pulse; $\delta = 0.5$ ; $t_p = 25\mu\text{s}$ , $T_{Tab} \leq 109^{\circ}\text{C}$	$I_{FRM}$	16 A
Non-Repetitive Peak Forward Current.	$t_p = 8.3\text{ms}$ , sine-wave pulse; $T_J = 150^{\circ}\text{C}$	$I_{FSM}$	60 A
	$t_p = 10\text{ms}$ , sine-wave pulse; $T_J = 150^{\circ}\text{C}$		55 A
Operating Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +150	$^{\circ}\text{C}$

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	$\theta_{JB}$	2.2	K/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Forward Voltage	$V_F$	$I_F = 8\text{A}$ , $T_J = 25^{\circ}\text{C}$		2	2.9	V	
		$I_F = 8\text{A}$ , $T_J = 150^{\circ}\text{C}$		1.4	1.85	V	
		$I_F = 16\text{A}$ , $T_J = 150^{\circ}\text{C}$		1.7	2.3	V	
Reverse Current	$I_R$	$V_R = 600\text{V}$		9	150	$\mu\text{A}$	
		$V_R = 500\text{V}$ , $T_J = 100^{\circ}\text{C}$		1.1	3	mA	
Recovered Charge	$Q_R$	$I_F = 1\text{A}$ , $dI_F/dt = 100\text{A}/\mu\text{s}$ , $T_J = 25^{\circ}\text{C}$		12		nC	
Reverse Recovery Time	$t_{RR}$	$I_F = 1\text{A}$ , $V_R = 30\text{V}$ , $dI_F/dt = 50\text{A}/\mu\text{s}$ , $T_J = 25^{\circ}\text{C}$		30	52	ns	
		$I_F = 8\text{A}$ , $V_R = 400\text{V}$ , $dI_F/dt = 500\text{A}/\mu\text{s}$	$T_J = 100^{\circ}\text{C}$		32	40	ns
		$T_J = 25^{\circ}\text{C}$ (See Figure 1)		19		ns	
Peak Reverse Recovery Current	$I_{RM}$	$I_F = 8\text{A}$ , $V_R = 400\text{V}$ , $dI_F/dt = 50\text{A}/\mu\text{s}$ , $T_J = 125^{\circ}\text{C}$		1.5	5.5	A	
		$I_F = 8\text{A}$ , $V_R = 400\text{V}$ , $dI_F/dt = 500\text{A}/\mu\text{s}$ , $T_J = 100^{\circ}\text{C}$		9.5	12	A	
Forward Recovery Voltage	$V_{FR}$	$I_F = 10\text{A}$ , $dI_F/dt = 100\text{A}/\mu\text{s}$ (See Figure 2)		8	10	V	

■ TYPICAL CHARACTERISTICS

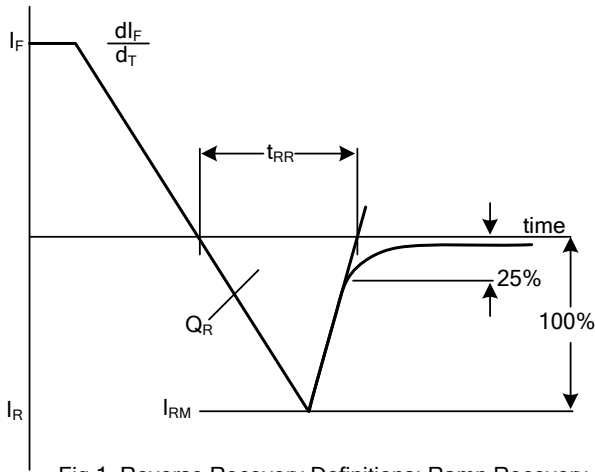


Fig 1. Reverse Recovery Definitions; Ramp Recovery

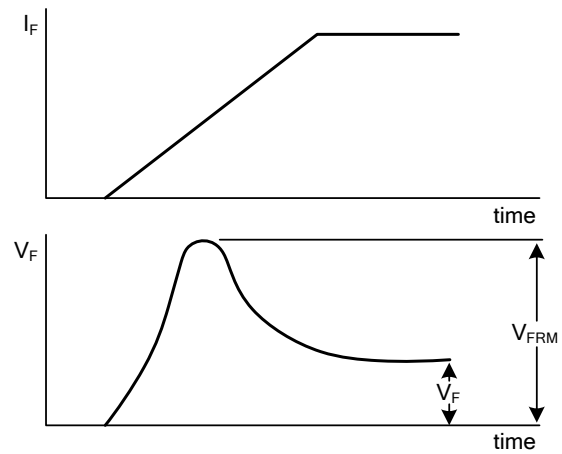


Fig 2. Forward Recovery Definitions

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