



BYC8

Preliminary

DIODE

ULTRAFAST, LOW SWITCHING LOSS RECTIFIER DIODE

■ DESCRIPTION

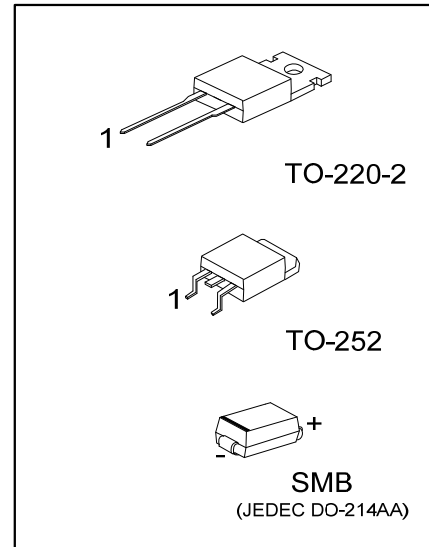
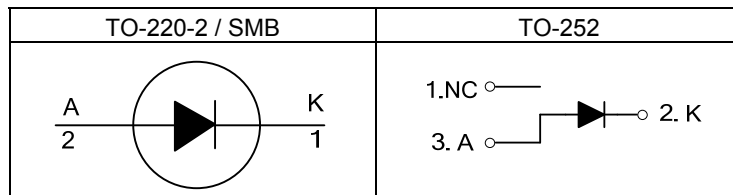
The UTC **BYC8** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

The UTC **BYC8** 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



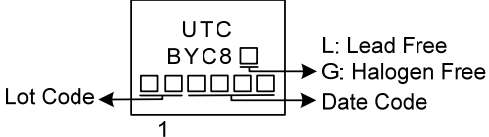
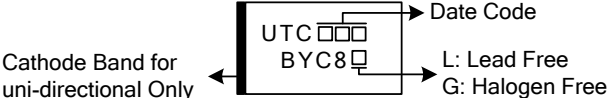
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BYC8L-6-TA2-T	BYC8G-6-TA2-T	TO-220-2	K	A	NC	Tube
BYC8L-6-TN3-R	BYC8G-6-TN3-R	TO-252	NC	K	A	Tape Reel
BYC8L-6-SMB-R	BYC8G-6-SMB-R	SMB	K	A	NC	Tape Reel

Note: Pin Assignment: A: Anode K: Cathode

<p>BYC8G-6-TA2-T</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) T: Tube, R: Tape Reel (2) TA2: TO-220-2, TN3: TO-252, SMB: SMB (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

TO-220-2 / TO-252	SMB
 <p>UTC BYC8</p> <p>Lot Code ← [] [] [] [] [] →</p> <p>1</p> <p>→ L: Lead Free → G: Halogen Free → Date Code</p>	 <p>UTC [] [] [] [] BYC8 []</p> <p>← Cathode Band for uni-directional Only</p> <p>→ Date Code</p> <p>→ L: Lead Free → G: Halogen Free</p>

■ 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
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	TO-220-2	60	K/W
	TO-252	110	K/W
	SMB	90 (Note)	K/W
Junction to Tab	TO-220-2	2.2	K/W
	TO-252	2.5	K/W
	SMB	18 (Note)	K/W

Note: Mounted on PCB with minimum pad size.

■ 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	μA
		$V_R = 500\text{V}$, $T_J = 100^\circ\text{C}$		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

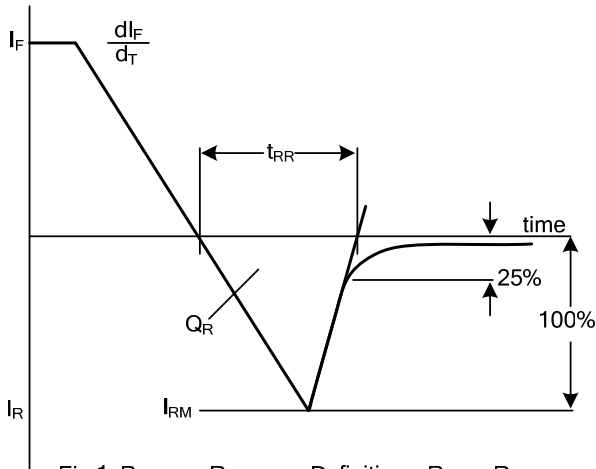


Fig 1. Reverse Recovery Definitions; Ramp Recovery

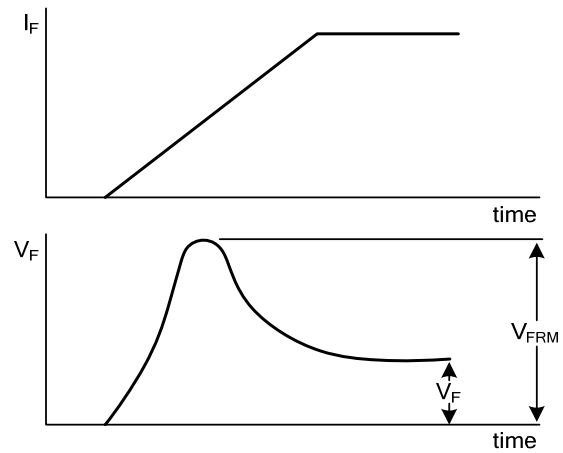


Fig 2. Forward Recovery Definitions

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