



## BYC8

## DIODE

### ULTRAFAST, LOW SWITCHING LOSS RECTIFIER DIODE

#### DESCRIPTION

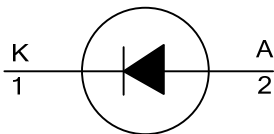
The UTC **BYC8** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

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

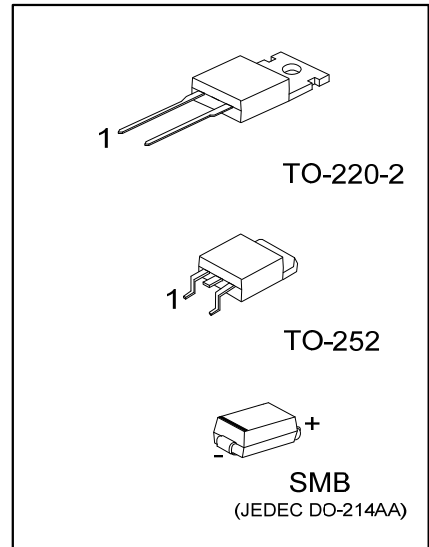
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	Tab	
BYC8L-6-TA2-T	BYC8G-6-TA2-T	TO-220-2	K	A	K	Tube
BYC8L-6-TN3-R	BYC8G-6-TN3-R	TO-252	K	A	K	Tape Reel
BYC8L-6-SMB-R	BYC8G-6-SMB-R	SMB	K	A	-	Tape Reel

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

<p>BYC8L-6-TA2-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA2: TO-220-2, TN3: TO-252, SMB: SMB</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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#### MARKING

TO-220-2 / TO-252	SMB



### ■ 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	$\theta_{JA}$	60	K/W
	TO-252		110	K/W
	SMB		90 (Note)	K/W
Junction to Tab	TO-220-2	$\theta_{JB}$	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	$\mu\text{A}$
		$V_R = 500\text{V}$ , $T_J = 100^{\circ}\text{C}$		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

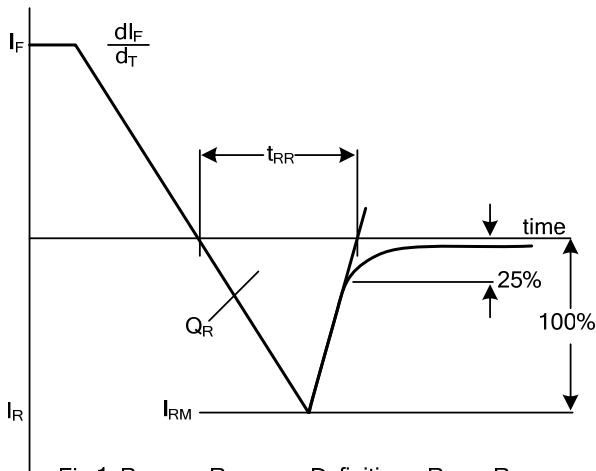


Fig 1. Reverse Recovery Definitions; Ramp Recovery

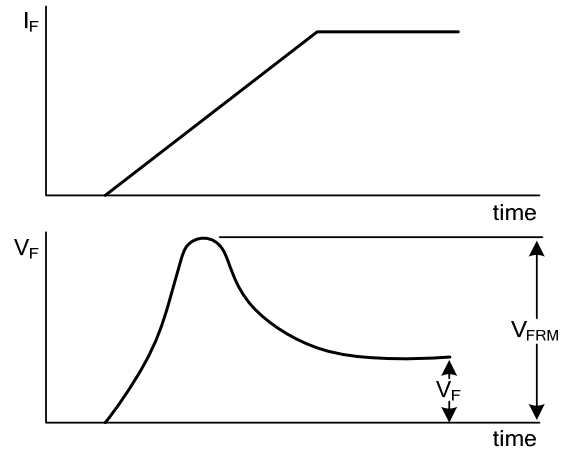


Fig 2. Forward Recovery Definitions

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