



BYC20

Preliminary

DIODE

**RECTIFIER DIODE,
HYPERFAST**

■ DESCRIPTION

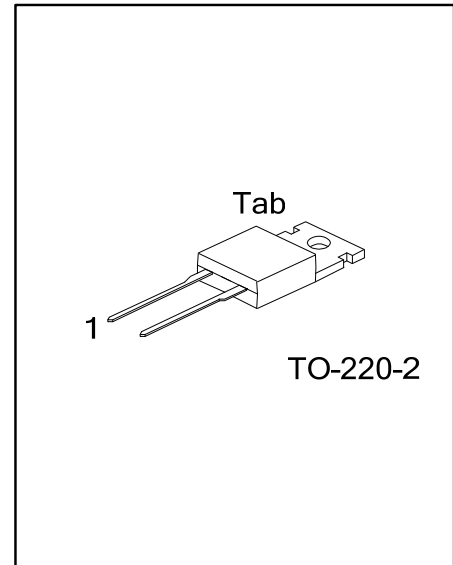
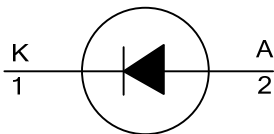
The UTC **BYC20** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

The UTC **BYC20** is ideally used in half-bridge lighting ballasts, half-bridge/full-bridge switched mode power supplies and continuous current mode (CCM) power factor correction (PFC).

■ FEATURES

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

■ SYMBOL



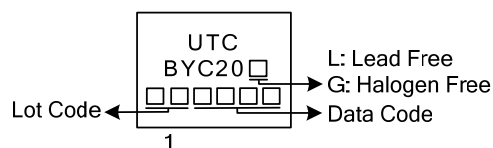
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	Tab	
BYC20L-TA2-T	BYC20G-TA2-T	TO-220-2	K	A	K	Tube

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

BYC20L-6-TA2-T	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) TA2: TO-220-2
	(3)Green Package	(3) L: Lead Free, G: Halogen Free and 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	
Reverse Voltage	square-wave pulse; $\delta = 1.0$; $T_{Tab} \leq 100^{\circ}\text{C}$	V_R	500	V
Average Forward Current	square-wave pulse; $\delta = 0.5$; $T_{Tab} \leq 93^{\circ}\text{C}$	$I_{F(AV)}$	20	A
Repetitive Peak Forward Current	square-wave pulse; $\delta = 0.5$; $t_p = 25\mu\text{s}$, $T_{Tab} \leq 93^{\circ}\text{C}$	I_{FRM}	40	A
Non-Repetitive Peak Forward Current	$t_p = 10\text{ms}$, sine-wave pulse; $t_p = 8.3\text{ms}$, sine-wave pulse;	I_{FSM}	250	A
			274	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	θ_{JA}	60	K/W
Junction to Tab	θ_{JB}	1.2	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	$I_F = 20\text{A}$, $T_J = 150^{\circ}\text{C}$		1.54	1.97	V	
		$I_F = 40\text{A}$, $T_J = 150^{\circ}\text{C}$		1.95	2.34	V	
		$I_F = 20\text{A}$		1.89	2.9	V	
Reverse Current	I_R	$V_R = 600\text{V}$		16	200	μA	
		$V_R = 500\text{V}$, $T_J = 100^{\circ}\text{C}$		1.6	3.0	mA	
Reverse Recovery Time	t_{RR}	$I_F = 1\text{A}$, $V_R = 30\text{V}$, $dI_F/dt = 50\text{A}/\mu\text{s}$ (Figure 1)		35	55	ns	
		$I_F = 20\text{A}$, $V_R = 400\text{V}$, $dI_F/dt = 500\text{A}/\mu\text{s}$ (Figure 1)	$T_J = 25^{\circ}\text{C}$		19		ns
			$T_J = 100^{\circ}\text{C}$		32	40	ns
Peak Reverse Recovery Current	I_{RM}	$I_F = 20\text{A}$, $V_R = 400\text{V}$, $T_J = 125^{\circ}\text{C}$ (Figure 1)	$dI_F/dt = 50\text{A}/\mu\text{s}$		3.0	7.5	A
			$dI_F/dt = 500\text{A}/\mu\text{s}$		9.5	12	A
Forward Recovery Voltage	V_{FR}	$I_F = 20\text{A}$, $dI_F/dt = 100\text{A}/\mu\text{s}$ (Figure 2)		8	11	V	

■ TYPICAL CHARACTERISTICS

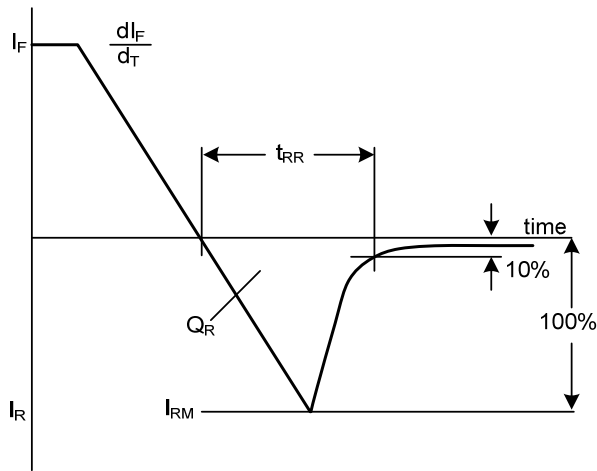


Fig 1. Reverse Recovery Definitions

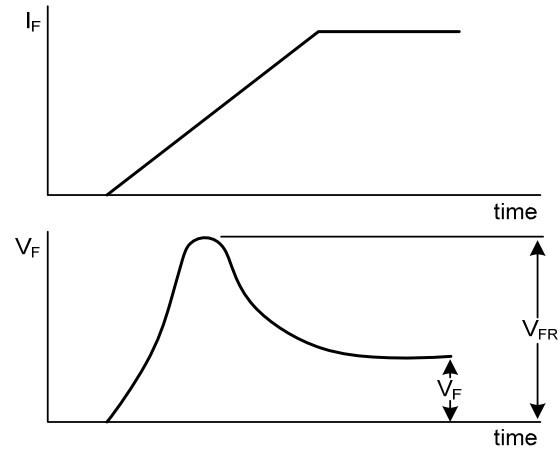


Fig 2. Forward Recovery Definitions

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