



## RECTIFIER DIODE, HYPERFAST

### ■ DESCRIPTION

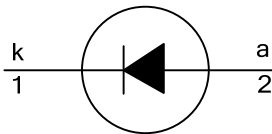
The UTC **BYC20-600** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

The UTC **BYC20-600** 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

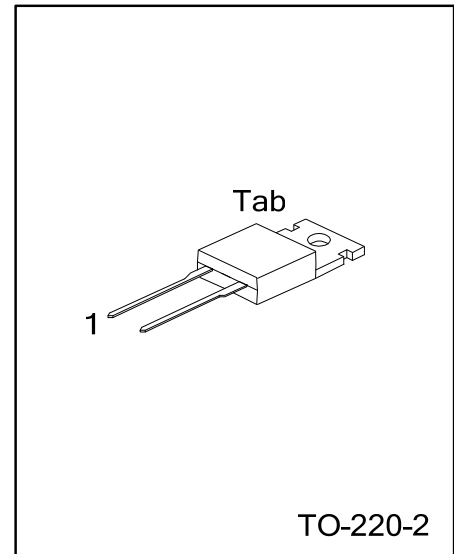


### ■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free Plating	Halogen Free		1	2	Tab	
BYC20L-600-TA2-T	BYC20G-600-TA2-T	TO-220-2	K	A	K	Tube

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

BYC20L-600-TA2-T	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) TA2: TO-220-2
	(3)Lead Free	(3) L: Lead Free, G: Halogen Free



# ■ 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	$T_{STG}$	$-40 \sim +150$	$^{\circ}\text{C}$

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	$\theta_{JB}$	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	$\mu\text{A}$
		$V_R = 500\text{V}$ , $T_J = 100^{\circ}\text{C}$		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
		$I_F = 20\text{A}$ , $V_R = 400\text{V}$ , $dI_F/dt = 500\text{A}/\mu\text{s}$ , $T_J = 25^{\circ}\text{C}$ (Figure 1)		19		ns
		$I_F = 20\text{A}$ , $V_R = 400\text{V}$ , $dI_F/dt = 500\text{A}/\mu\text{s}$ , $T_J = 100^{\circ}\text{C}$ (Figure 1)		32	40	ns
Peak Reverse Recovery Current	$I_{RM}$	$I_F = 20\text{A}$ , $V_R = 400\text{V}$ , $dI_F/dt = 50\text{A}/\mu\text{s}$ , $T_J = 125^{\circ}\text{C}$ (Figure 1)		3.0	7.5	A
		$I_F = 20\text{A}$ , $V_R = 400\text{V}$ , $dI_F/dt = 500\text{A}/\mu\text{s}$ , $T_J = 125^{\circ}\text{C}$ (Figure 1)		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

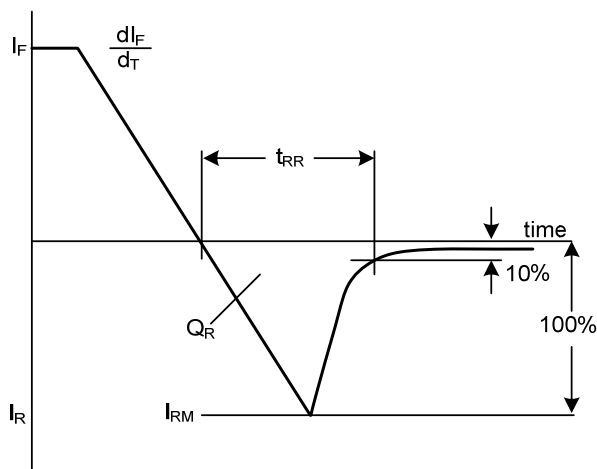


Fig 1. Reverse Recovery Definitions

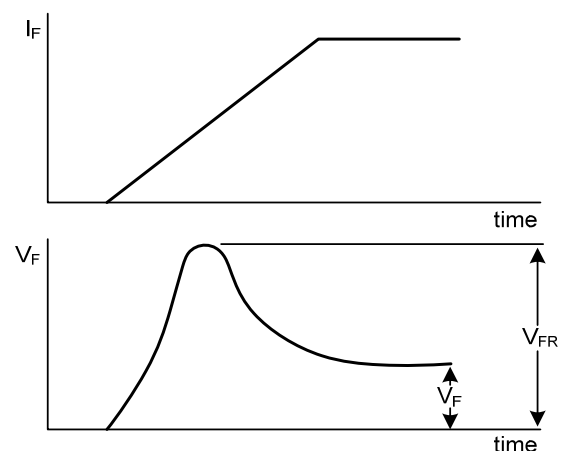


Fig 2. Forward Recovery Definitions

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