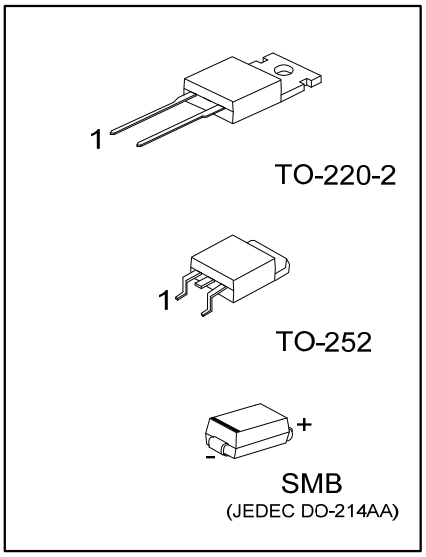
ULTRAFAST, LOW SWITCHING LOSS RECTIFIER DIODE



■ DESCRIPTION

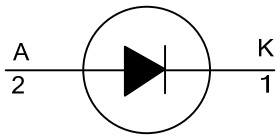
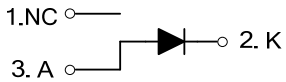
The UTC **BYC8** is a rectifier diode. It provides the designers with ultra-fast switching and low switching loss in associated MOSFET.

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

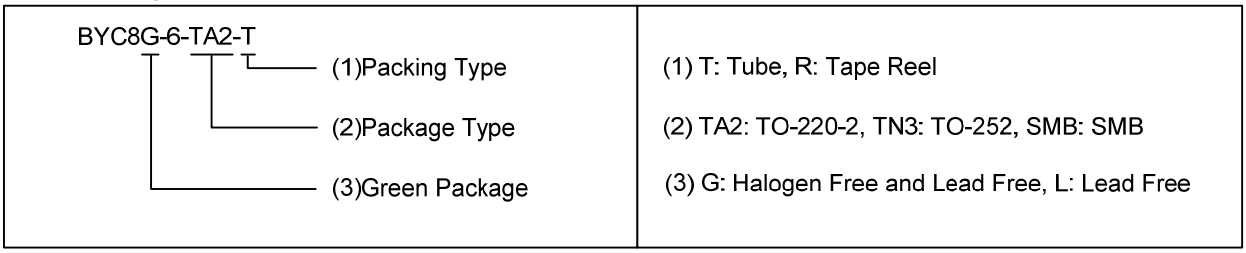
■ SYMBOL

TO-220-2 / SMB	TO-252
	

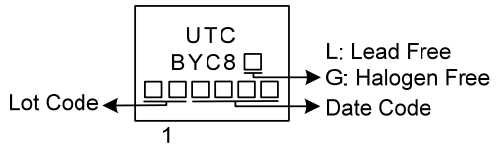
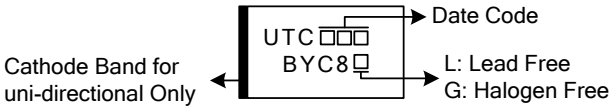
■ ORDERING INFORMATION

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



■ 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;δ =0.5; T_{Tab} ≤109°C	$I_{F(AV)}$	8	A
Repetitive Peak Forward Current	square-wave pulse; δ =0.5; t_P = 25μs, T_{Tab} ≤109°C	I_{FRM}	16	A
Non-Repetitive Peak Forward Current	t_P=8.3ms,sine-wave pulse; T_J =150°C	I_{FSM}	60	A
Operating Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-40 ~ +150	°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	$θ_{JA}$	60	K/W
	TO-252		110	K/W
	SMB		90 (Note)	K/W
Junction to Tab	TO-220-2	$θ_{JB}$	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°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Forward Voltage	V_F	I_F =8A, T_J =25°C			2	2.9	V
		I_F =8A, T_J =150°C			1.4	1.85	V
		I_F =16A, T_J =150°C			1.7	2.3	V
Reverse Current	I_R	V_R=600V			9	150	μA
		V_R=500V, T_J=100°C			1.1	3	mA
Recovered Charge	Q_R	I_F =1A, dI_F/dt=100A/μs, T_J =25°C			12		nC
Reverse Recovery Time	t_{RR}	I_F =1A, V_R=30V, dI_F/dt=50A/μs, T_J =25°C			30	52	ns
		I_F=8A,V_R=400V, dI_F/dt=500A/μs	T_J=100°C		32	40	ns
			T_J=25°C (See Figure1)		19		ns
Peak Reverse Recovery Current	I_{RM}	I_F=8A,V_R=400V, dI_F/dt=50A/μs, T_J=125°C			1.5	5.5	A
		I_F=8A,V_R=400V, dI_F/dt=500A/μs, T_J=100°C			9.5	12	A
Forward Recovery Voltage	V_{FR}	I_F =10A, dI_F/dt=100A/μs(See Figure2)			8	10	V

■ TYPICAL CHARACTERISTICS

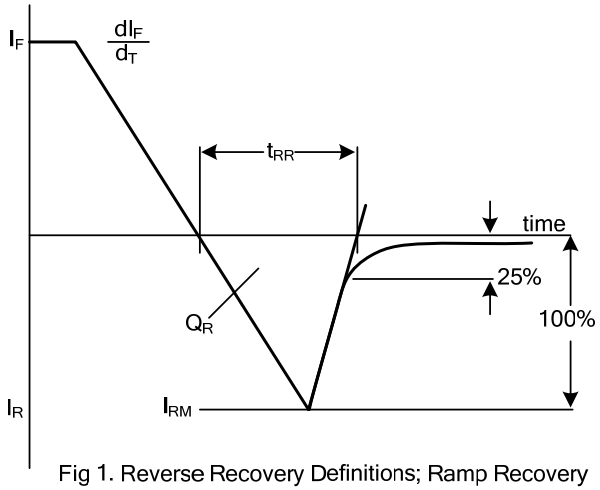


Fig 1. Reverse Recovery Definitions; Ramp Recovery

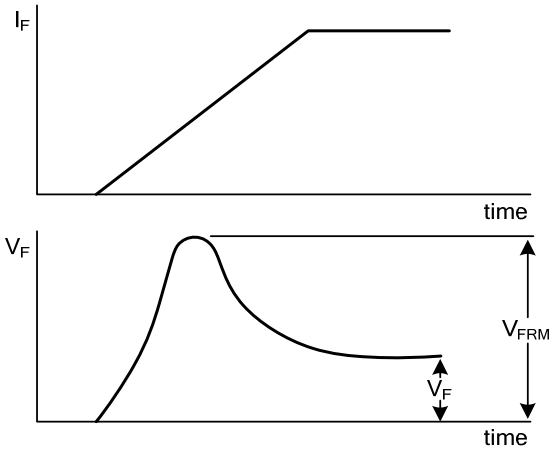


Fig 2. Forward Recovery Definitions