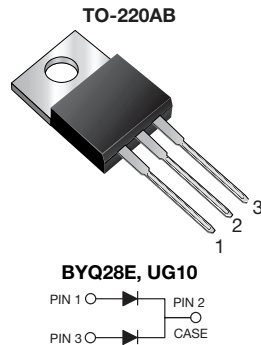


Dual Common Cathode Ultrafast Rectifier


RoHS
COMPLIANT

FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery times
- Soft recovery characteristics
- Low switching losses, high efficiency
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching power supplies, freewheeling diodes, DC/DC converters and polarity protection application.

MECHANICAL DATA

Case: TO-220AB

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs max.

LINKS TO ADDITIONAL RESOURCES



3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 5.0 A
V_{RRM}	100 V to 200 V
I_{FSM}	55 A
t_{rr}	25 ns
V_F	0.895 V
T_J max.	150 °C
Package	TO-220AB
Circuit configuration	Common cathode

MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	UG10BCT	UG10CCT	UG10DCT	UNIT
		BYQ28E-100	BYQ28E-150	BYQ28E-200	
Maximum repetitive peak reverse voltage	V_{RRM}	100	150	200	V
Working peak reverse voltage	V_{RWM}	100	150	200	V
Maximum DC blocking voltage	V_{DC}	100	150	200	V
Maximum average forward rectified current at $T_C = 100\text{ °C}$	$I_{F(AV)}$	total device			A
		per diode			
Peak forward surge current 8.3 ms single half sine-wave	I_{FSM}		55		A
Non-repetitive peak reverse current per diode at $t_p = 100\text{ }\mu\text{s}$	I_{RSM}		0.2		A
Electrostatic discharge capacitor voltage, human body model: $C = 250\text{ pF}$, $R = 1.5\text{ k}\Omega$	V_C		8		kV
Operating junction and storage temperature range	T_J, T_{STG}	-40 to +150			°C



ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT	
Maximum instantaneous forward voltage per diode	$I_F = 10\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	1.25	V	
		$T_J = 150\text{ }^\circ\text{C}$		1.10		
	$I_F = 5\text{ A}$			0.895		
Maximum reverse current per diode at working peak reverse voltage			I_R	$T_J = 25\text{ }^\circ\text{C}$	10	μA
				$T_J = 100\text{ }^\circ\text{C}$	200	
Maximum reverse recovery time per diode	$I_F = 1.0\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$		t_{rr}	25	ns	
Maximum reverse recovery time per diode	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$		t_{rr}	20	ns	
Maximum stored charge per diode	$I_F = 2\text{ A}$, $di/dt = 20\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$		Q_{rr}	9	nC	

Note(1) Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	UG10	UNIT
		BYQ28E	
Typical thermal resistance per diode, junction to ambient	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$
Typical thermal resistance per diode, junction to case	$R_{\theta JC}$	4.5	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	BYQ28E-200-E3/45	1.80	45	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

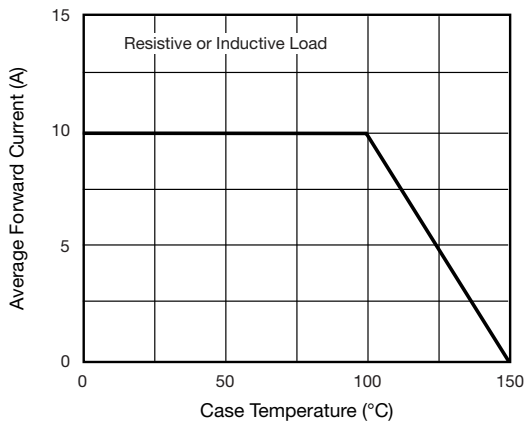


Fig. 1 - Forward Current Derating Curve

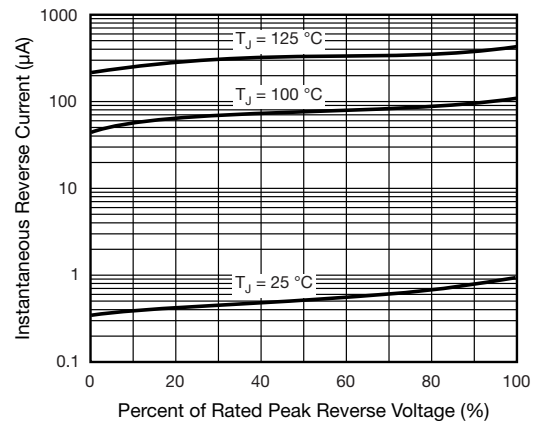


Fig. 4 - Typical Reverse Characteristics Per Diode

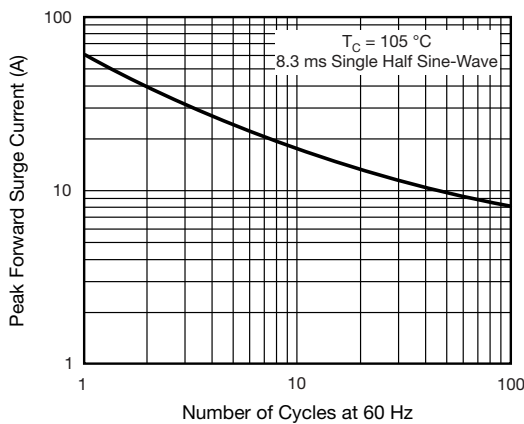


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

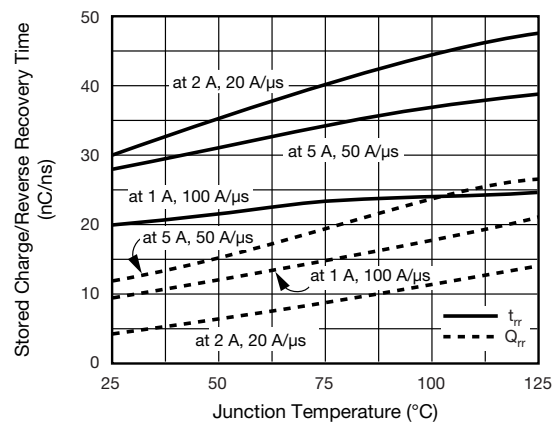


Fig. 5 - Reverse Switching Characteristics Per Diode

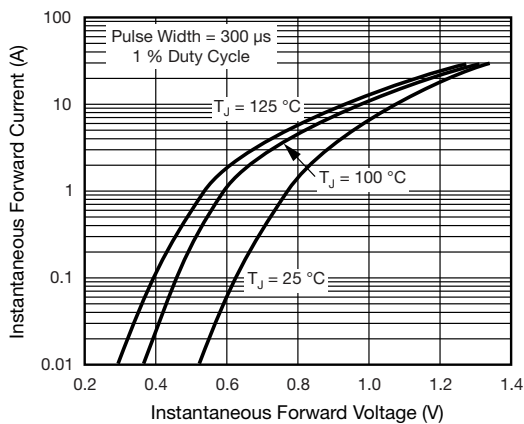


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

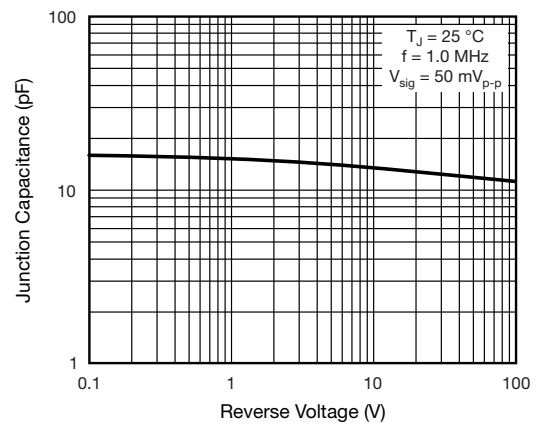
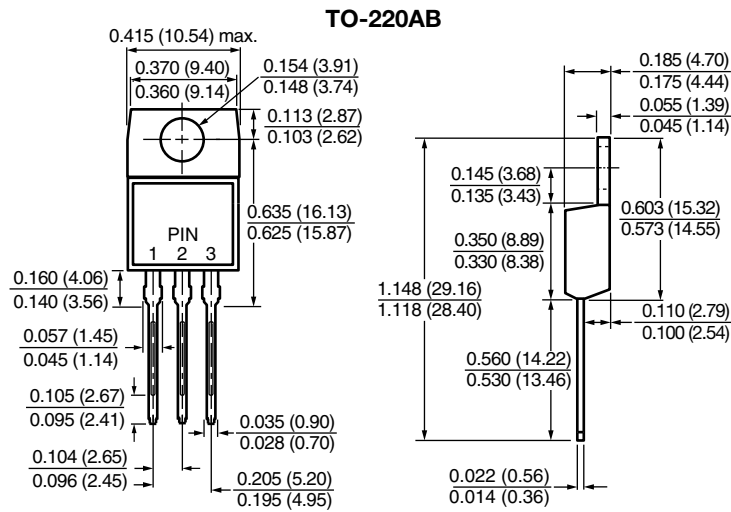


Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSION in inches (millimeters)





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