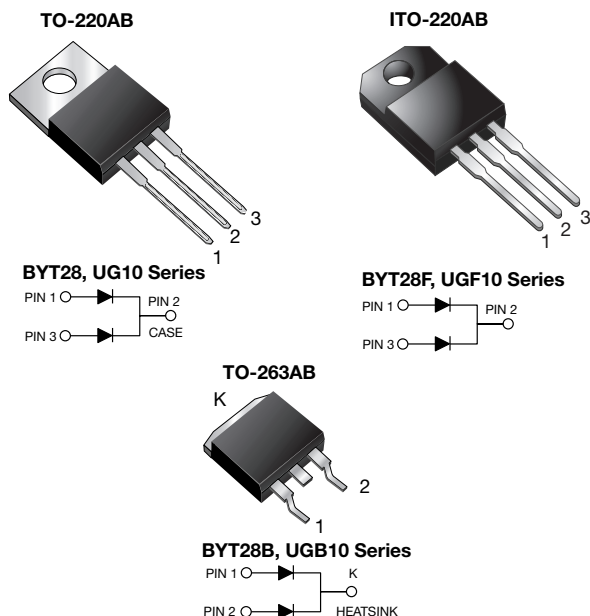




Dual Common Cathode Ultrafast Soft Recovery Rectifier



FEATURES

- Power pack
- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 275 °C max. 10 s, per JESD 22-B106 (for TO-220AB and ITO-220AB package)
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, DC/DC converters, and other power switching application.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 5.0 A
V_{RRM}	300 V to 400 V
I_{FSM}	60 A
t_{rr}	35 ns
V_F at I_F	1.05 V
T_J max.	150 °C
Package	TO-220AB, ITO-220AB, TO-263AB
Diode variations	Dual Common Cathode

MAXIMUM RATINGS ($T_C = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	BYT28-300 UG10FCT	BYT28-400 UG10GCT	UNIT
Maximum repetitive peak reverse voltage	V _{RRM}	300	400	V
Maximum working reverse voltage	V _{RWM}	300	400	V
Maximum RMS voltage	V _{RMS}	210	280	V
Maximum DC blocking voltage	V _{DC}	300	400	V
Maximum average forward rectified current at T _C = 100 °C	I _{F(AV)} total device per diode	10		A
		5.0		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I _{FSM}	60		A
Operating junction and storage temperature range	T _J , T _{STG}	-40 to +150		°C
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min	V _{AC}	1500		V



ELECTRICAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage per diode	I _F = 5 A	T _J = 25 °C	V _F ⁽¹⁾	1.30	V
	I _F = 10 A			1.40	
	I _F = 5 A	T _J = 150 °C		1.05	
Maximum reverse current per diode at V _{RRM}		T _J = 25 °C	I _R	10	μA
		T _J = 100 °C		200	
Maximum reverse recovery time per diode	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	35	ns
	I _F = 1.0 A, dI/dt = 100 A/μs, V _R = 30 V, I _{rr} = 0.1 I _{RM}			50	
Maximum reverse recovery current per diode	I _F = 5 A, dI/dt = 50 A/μs, V _R = 30 V, T _C = 100 °C		I _{RM}	3.0	A
Maximum stored charge per diode	I _F = 2 A, dI/dt = 20 A/μs, V _R = 30 V, I _{rr} = 0.1 I _{RM}		Q _{rr}	50	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	BYT28 UG10	BYT28F UGF10	BYT28B UGB10	UNIT
Typical thermal resistance junction to case per diode	$R_{\theta JC}$	4.5	6.7	4.5	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	BYT28-400-E3/45	1.80	45	50/tube	Tube
ITO-220AB	BYT28F-400-E3/45	1.95	45	50/tube	Tube
TO-263AB	BYT28B-400-E3/45	1.77	45	50/tube	Tube
TO-263AB	BYT28B-400-E3/81	1.77	81	800/reel	Tape and reel
TO-220AB	BYT28-400HE3/45 ⁽¹⁾	1.80	45	50/tube	Tube
ITO-220AB	BYT28F-400HE3/45 ⁽¹⁾	1.95	45	50/tube	Tube
TO-263AB	BYT28B-400HE3/45 ⁽¹⁾	1.77	45	50/tube	Tube
TO-263AB	BYT28B-400HE3/81 ⁽¹⁾	1.77	81	800/reel	Tape and reel

Note

⁽¹⁾ AEC-Q101 qualified



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

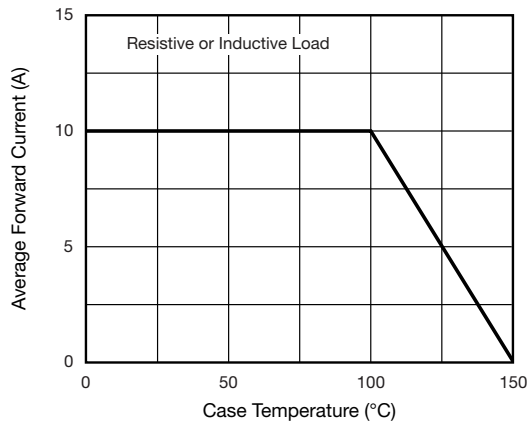


Fig. 1 - Forward Current Derating Curve

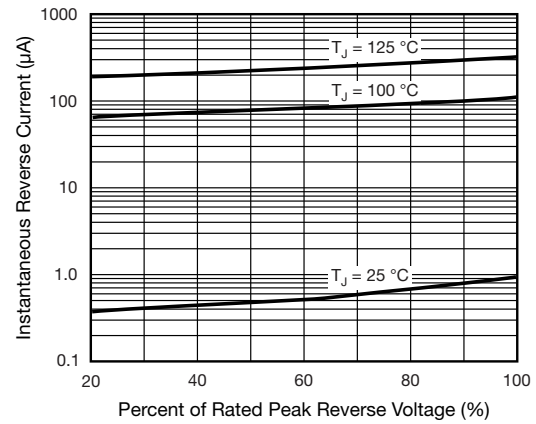


Fig. 4 - Typical Reverse Characteristics Per Diode

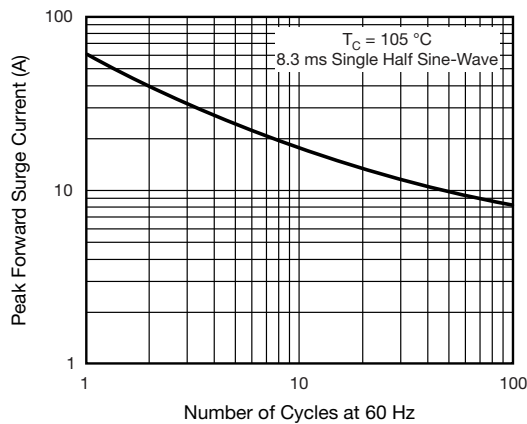


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

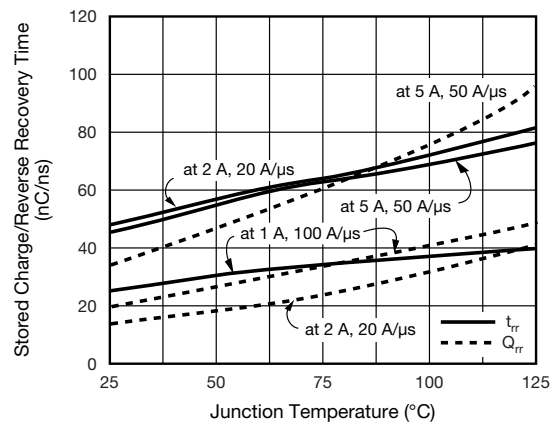


Fig. 5 - Reverse Switching Characteristics Per Diode

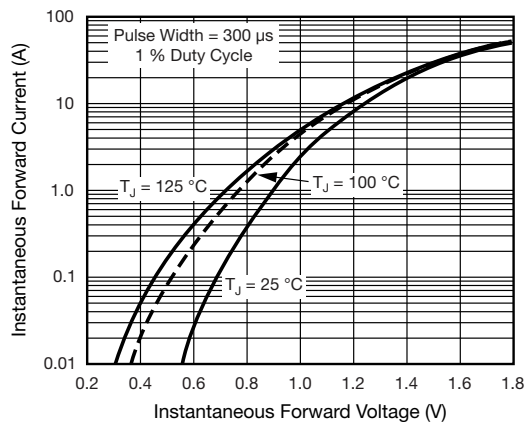


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

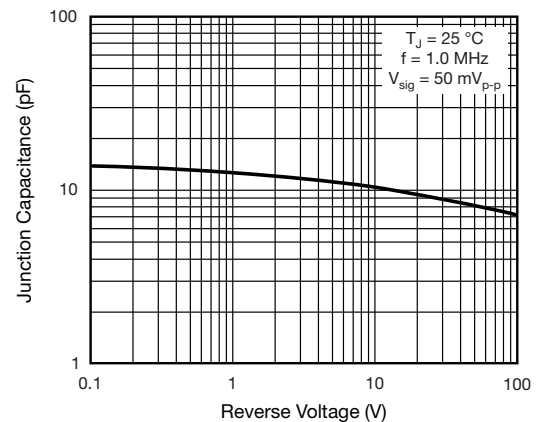
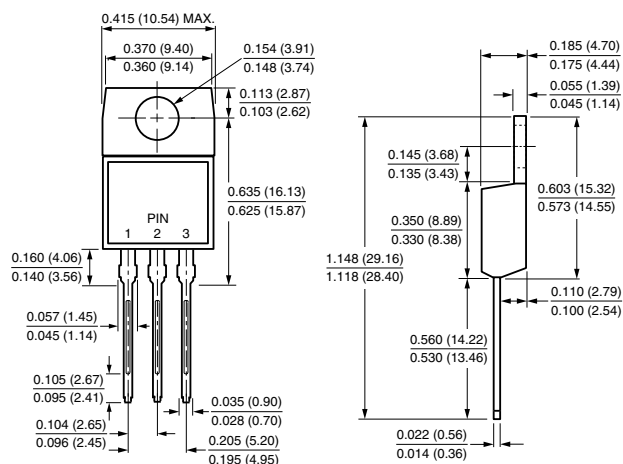


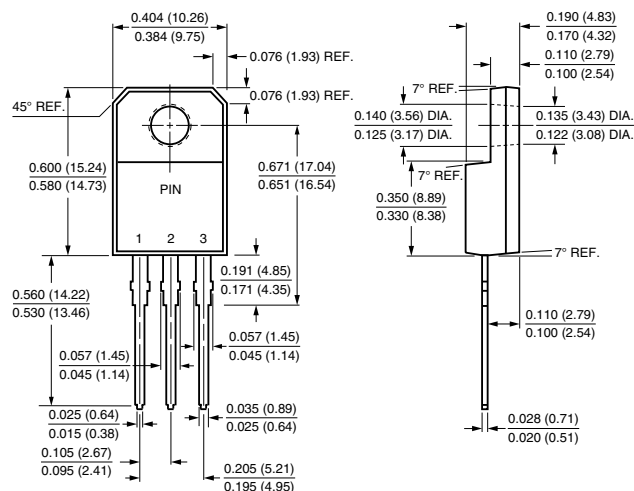
Fig. 6 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

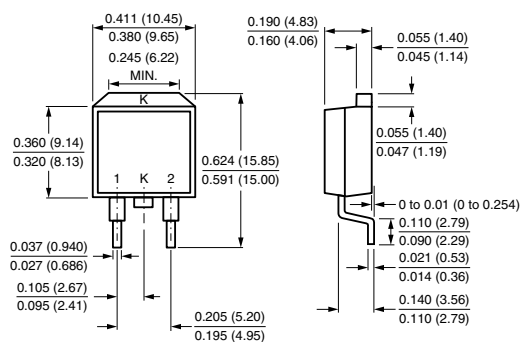
TO-220AB



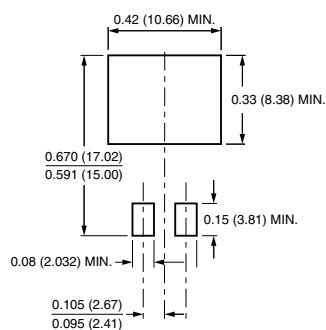
ITO-220AB



TO-263AB



Mounting Pad Layout





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