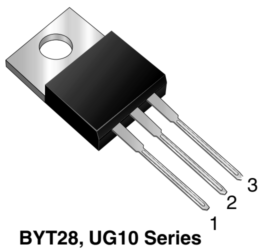
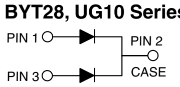
Dual Common-Cathode Ultrafast Soft Recovery Rectifier

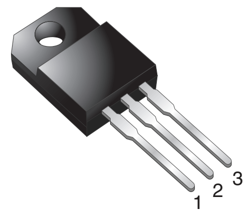
TO-220AB



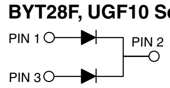
BYT28, UG10 Series



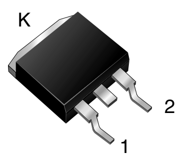
ITO-220AB



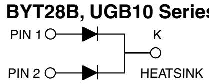
BYT28F, UGF10 Series



TO-263AB



BYT28B, UGB10 Series



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	5 A x 2
V_{RRM}	300 V, 400 V
I_{FSM}	60 A
t_{rr}	35 ns
V_F	1.05 V
T_J max.	150 °C

FEATURES

- 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 260 °C, 40 s (for TO-220AB and ITO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

Pb

e3

RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

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

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

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	
Maximum DC blocking voltage		V_{DC}	300	400	V
Maximum average forward rectified current at T_C = 100 °C	total device per diode	$I_{F(AV)}$	10 5.0		A
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 (1)	I_F = 5 A, I_F = 10 A I_F = 5 A	T_J = 25 °C T_J = 25 °C T_J = 150 °C	V_F	1.30 1.40 1.05	V
Maximum reverse current per diode at V_{RRM}		T_J = 25 °C T_J = 100 °C	I_R	10 200	µA
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
Maximum reverse recovery time per diode	I_F = 1.0 A, dI/dt = 100 A/µs, V_R = 30 V, I_{rr} = 0.1 I_{RM}		t_{rr}	50	ns
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 °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	°C/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) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

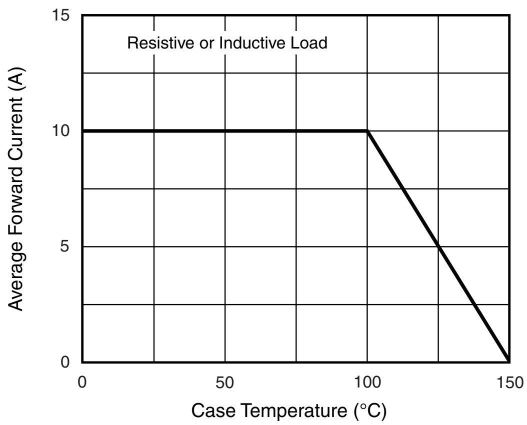


Figure 1. Forward Current Derating Curve

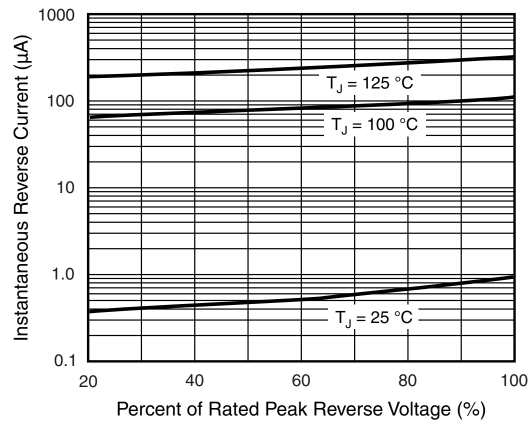


Figure 4. Typical Reverse Characteristics Per Diode

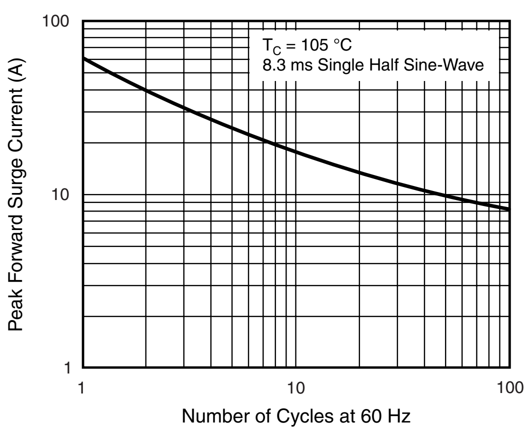


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

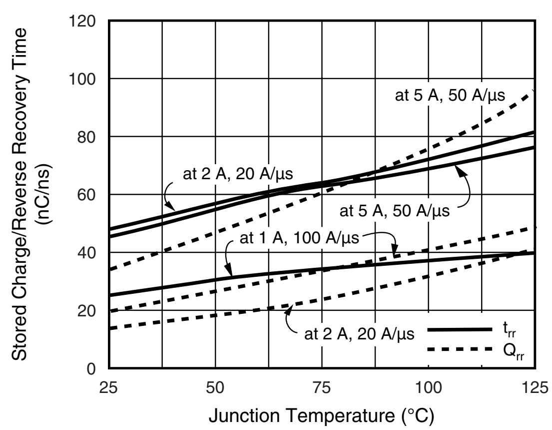


Figure 5. Reverse Switching Characteristics Per Diode

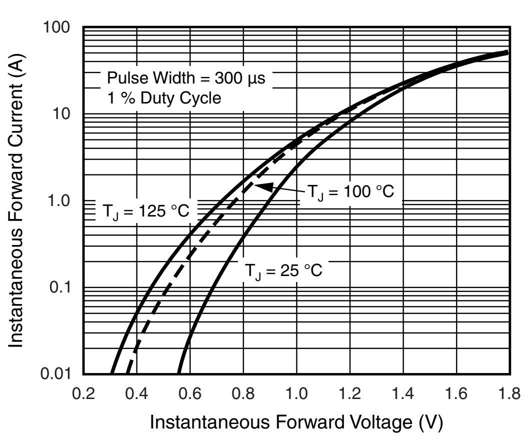


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

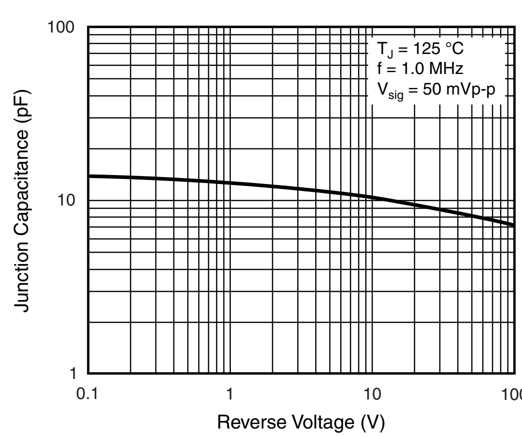
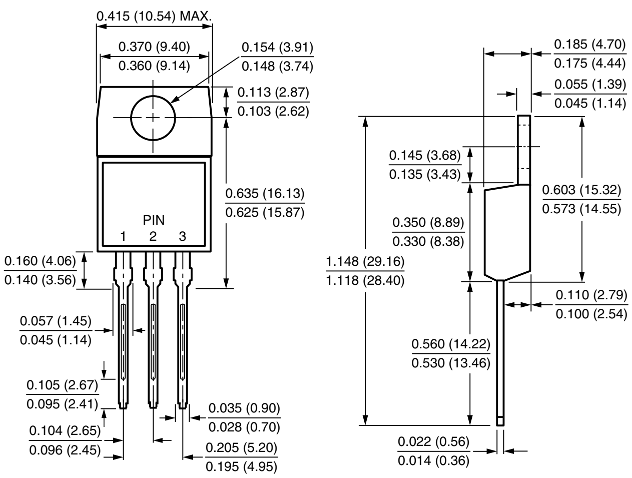


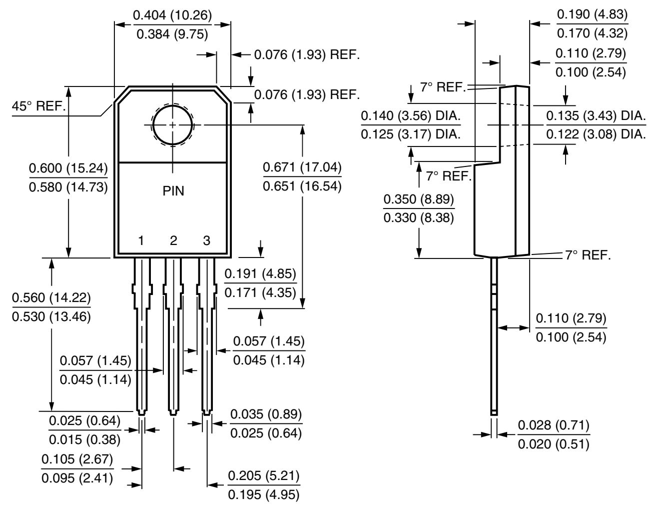
Figure 6. Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

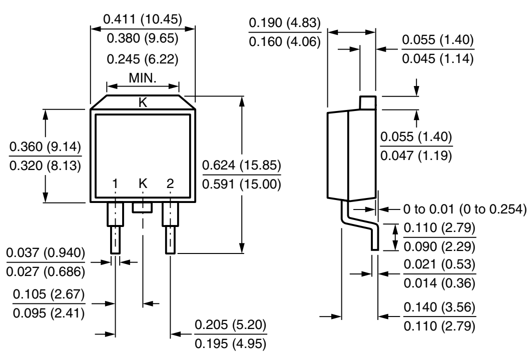
TO-220AB

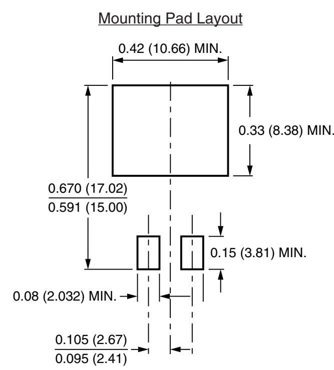


ITO-220AB



TO-263AB





For technical questions within your region, please contact one of the following:
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