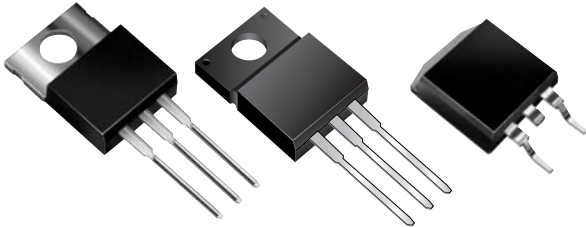


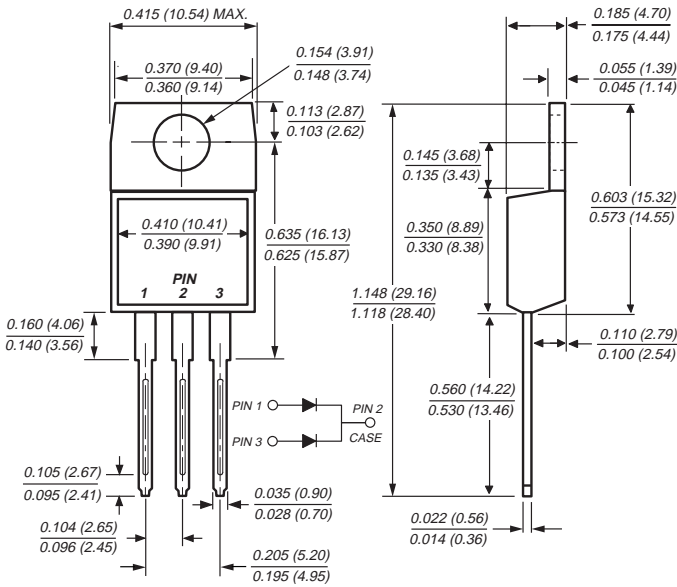


## Dual Ultrafast Soft Recovery Rectifier

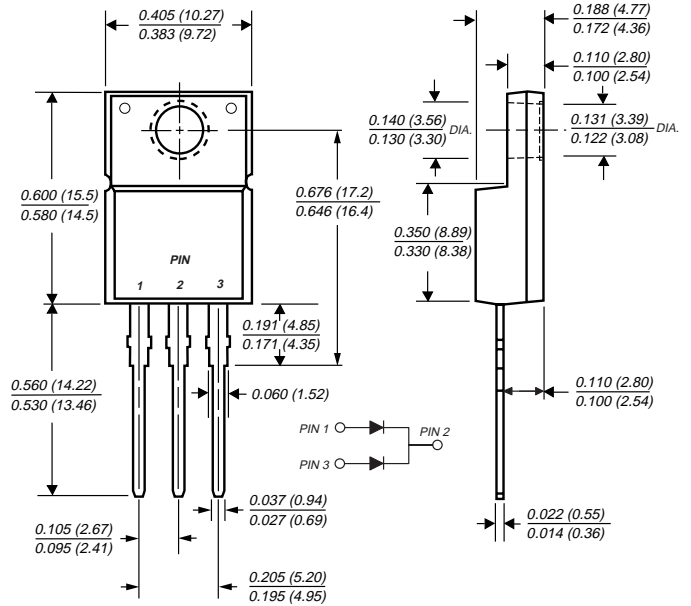


Reverse Voltage 100 to 200V Forward Current 10A  
Reverse Recovery Time 20ns

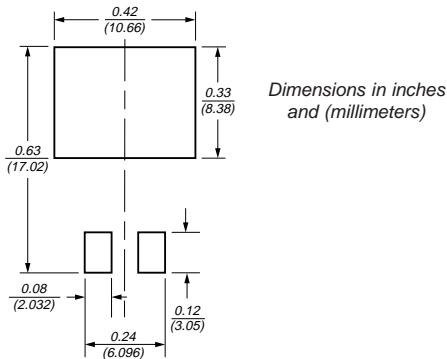
### TO-220AB (BYQ28E, UG10 Series)



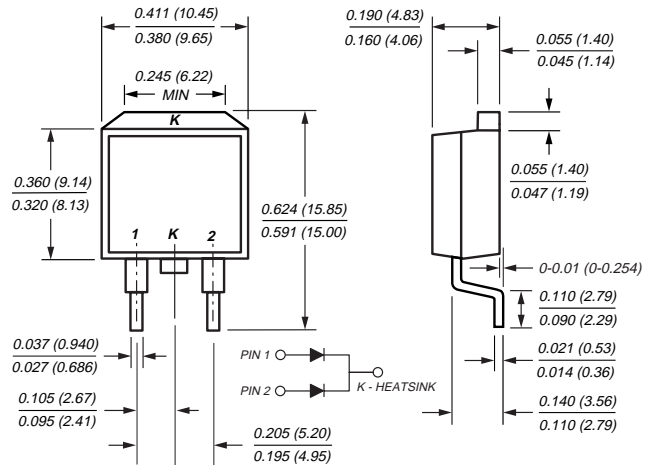
### ITO-220AB (BYQ28EF, UGF10 Series)



### Mounting Pad Layout TO-263AB



### TO-263AB (BYQ28EB, UGB10 Series)



## Features

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- High reverse energy capability
- Excellent high temperature switching
- High temperature soldering guaranteed: 250°C/10 seconds at terminals
- Glass passivated chip junction
- Soft recovery characteristics

## Mechanical Data

**Case:** JEDEC TO-220AB, ITO-220AB & TO-263AB molded plastic body

**Terminals:** Plated leads, solderable per MIL-STD-750, Method 2026

**Polarity:** As marked **Mounting Position:** Any

**Mounting Torque:** 10 in-lbs maximum

**Weight:** 0.08 oz., 2.24 g



Vishay Semiconductors  
formerly General Semiconductor

**Maximum Ratings** (T<sub>C</sub> = 25°C unless otherwise noted)

Parameter	Symbol	UG10BCT	UG10CCT	UG10DCT	Unit
		BYQ28E-100	BYQ28E-150	BYQ28E-200	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	100	150	200	V
Working peak reverse voltage	V <sub>RWM</sub>	100	150	200	V
Maximum DC blocking voltage	V <sub>DC</sub>	100	150	200	V
Maximum average forward rectified current at T <sub>C</sub> = 100°C <i>Total device Per leg</i>	I <sub>F(AV)</sub>	10 5			A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg	I <sub>FSM</sub>	55			A
Repetitive peak reverse current per leg at t <sub>p</sub> = 100μs	I <sub>RRM</sub>	0.2			A
Electrostatic discharge capacitor voltage, Human body model: C = 250pF, R = 1.5kΩ	V <sub>C</sub>	8			KV
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-40 to +150			°C
Non-repetitive peak reverse current per leg at t <sub>p</sub> = 100μs	I <sub>RSM</sub>	0.2			A
RMS Isolation voltage (BYQ28EF, UGF types) from terminals to heatsink with t = 1 second, RH ≤ 30%	V <sub>ISOL</sub>	4500 (NOTE 1) 3500 (NOTE 2) 1500 (NOTE 3)			V

**Electrical Characteristics** (T<sub>C</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Maximum instantaneous forward voltage per leg (Note 4) at I <sub>F</sub> = 10A, T <sub>J</sub> = 25°C at I <sub>F</sub> = 5A, T <sub>J</sub> = 25°C at I <sub>F</sub> = 5A, T <sub>J</sub> = 150°C	V <sub>F</sub>	1.25 1.10 0.895	V
Maximum reverse current per leg at working peak reverse voltage (Note 4) T <sub>J</sub> = 25°C T <sub>J</sub> = 100°C	I <sub>R</sub>	10 200	μA
Maximum reverse recovery time per leg at I <sub>F</sub> = 1.0A, di/dt = 100A/μs, V <sub>R</sub> = 30V, I <sub>rr</sub> = 0.1 I <sub>RM</sub>	t <sub>rr</sub>	25	ns
Maximum reverse recovery time per leg at I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1.0A, I <sub>rr</sub> = 0.25A	t <sub>rr</sub>	20	ns
Maximum stored charge per leg I <sub>F</sub> = 2A, di/dt = 20A/μs, V <sub>R</sub> = 30V, I <sub>rr</sub> = 0.1 I <sub>RM</sub>	Q <sub>rr</sub>	9	nC

**Thermal Characteristics** (T<sub>C</sub> = 25°C unless otherwise noted)

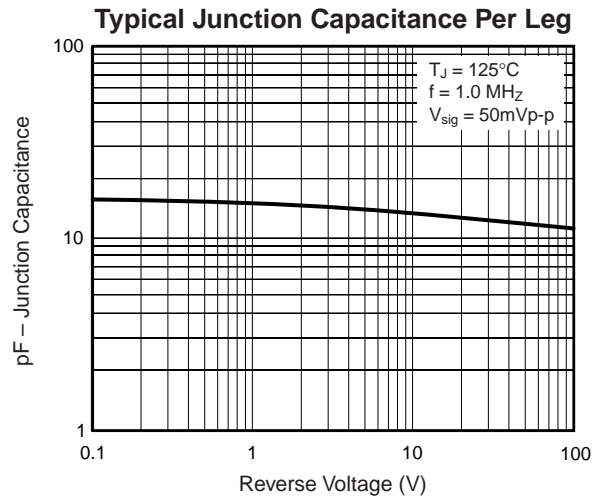
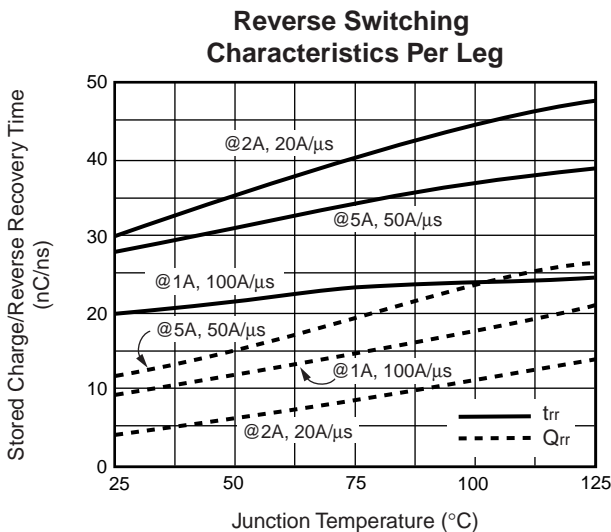
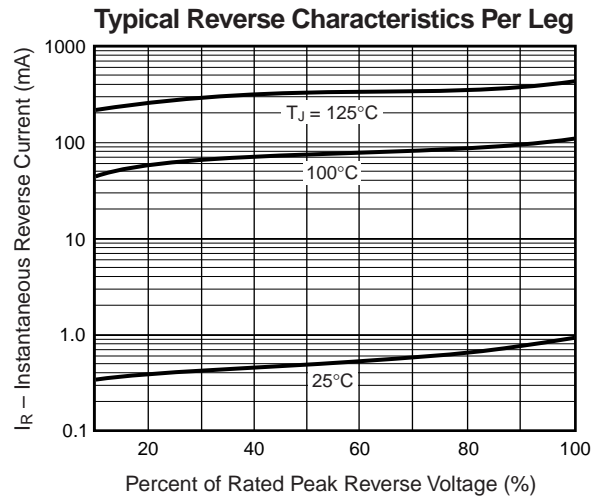
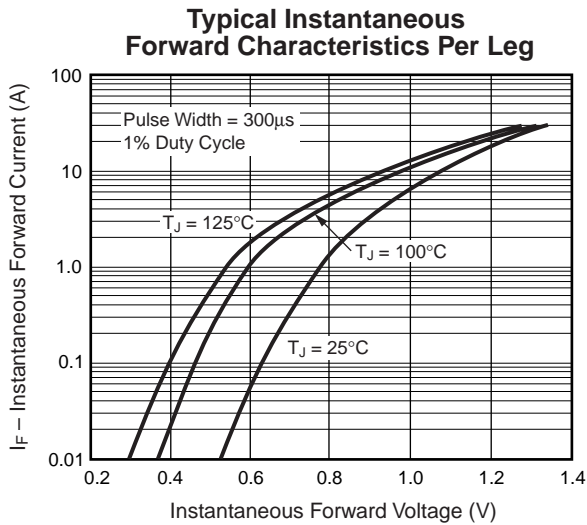
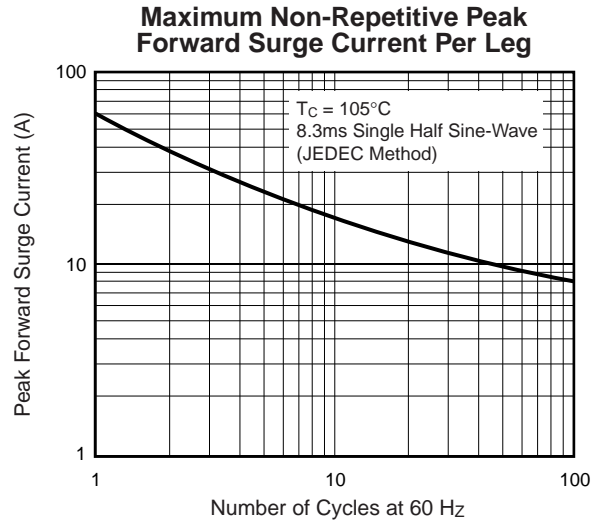
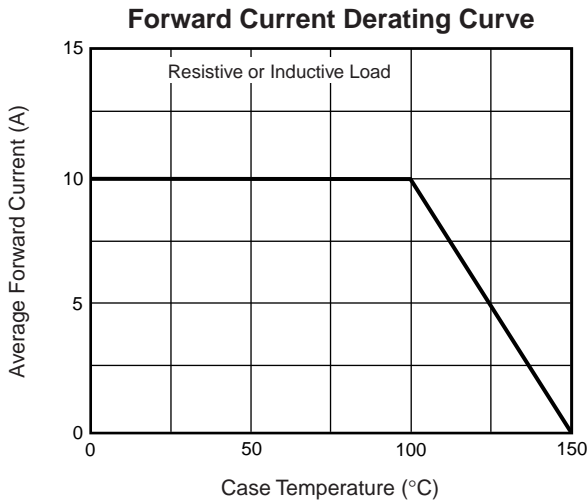
Parameter	Symbol	UG10	UGF10	UGB10	Unit
		BYQ28E	BYQ28EF	BYQ28EB	
Typical thermal resistance — junction to ambient	R <sub>θJA</sub>	50	55	50	°C/W
— junction to case	R <sub>θJC</sub>	4.5	6.7	4.5	°C/W

**Notes:**

- (1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
- (2) Clip mounting (on case), where leads do overlap heatsink
- (3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")
- (4) Pulse test: 300μs pulse width, 1% duty cycle



**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)



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