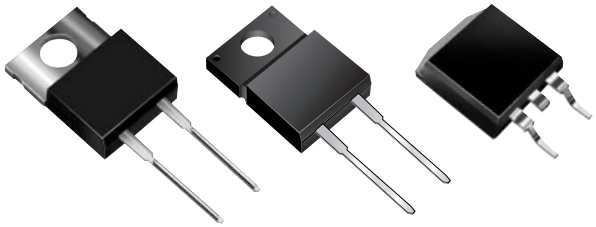
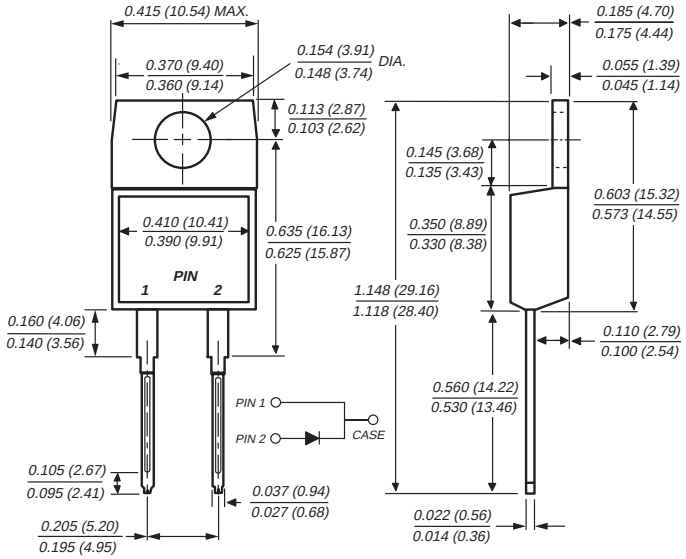
Vishay Semiconductors
formerly General Semiconductor

Ultrafast Rectifier

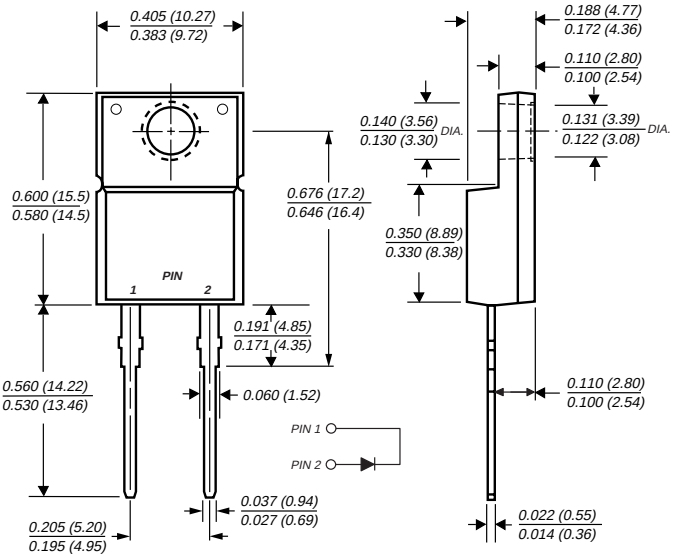


Reverse Voltage 300 to 400V
Forward Current 8.0A
Reverse Recovery Time 35ns

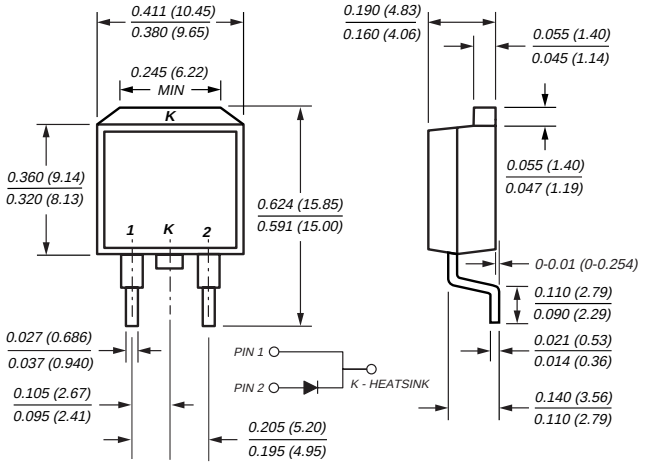
TO-220AC (BYV29, UG8 Series)



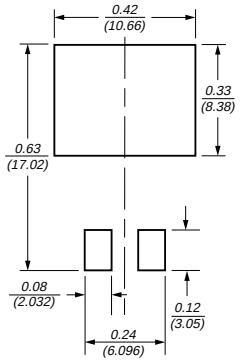
ITO-220AC (BYV29F, UGF8 Series)



TO-263AB (BYV29B, UGB8 Series)



Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

Mechanical Data

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

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

Polarity: As marked

Mounting Position: Any

Mounting Torque: 5 in-lbs maximum

Weight: 0.08 ounce, 2.24 grams

Features

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- Ideally suited for freewheeling diode power factor correction applications
- Soft recovery characteristics
- Excellent high temperature switching
- Optimized to reduce switching losses
- High temperature soldering in accordance with CECC 802 / Reflow guaranteed
- Glass passivated chip junction

Maximum Ratings (T_C = 25°C unless otherwise noted)

Parameter	Symbol	UG8FT BYV29-300	UG8GT BYV29-400	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	$I_{F(AV)}$	8.0		A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_C = 100°C	I_{FSM}	110		A
Operating junction and storage temperature range	T_J, T_{STG}	–40 to +150		°C
RMS Isolation voltage (UGF & BYV29F types only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V_{ISOL}	4500(1) 3500(2) 1500(3)		V

Electrical Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	UG8FT BYV29-300	UG8GT BYV29-400	Unit
Maximum instantaneous forward voltage(4) I_F = 8A, T_J = 25°C I_F = 8A, T_J = 150°C I_F = 20A, T_J = 25°C	V_F	1.25 1.03 1.40		V
Maximum DC reverse current at V_{RRM} T_C = 25°C T_C = 100°C	I_R	10 350		µA
Maximum reverse recovery time at I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	35		ns
Maximum reverse recovery time at I_F = 1.0A, di/dt = 100A/µs, V_R = 30V, I_{rr} = 0.1 I_{RM}	t_{rr}	50		ns
Maximum reverse recovery current at I_F = 10A, di/dt = 50A/µs, V_R = 30V, T_C = 100°C	I_{RM}	5.5		A
Maximum recovered stored charged at I_F = 2A, di/dt = 20A/µs, V_R = 30V, I_{rr} = 0.1 I_{RM}	Q_{rr}	55		nC

Thermal Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	UG8 BYV29	UGF8 BYV29F	UGB8 BYV29B	Unit
Typical thermal resistance from junction to case	$R_{\Theta JC}$	2.5	5.5	2.5	°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°C unless otherwise noted)

Fig. 1 – Maximum Forward Current Derating Curve

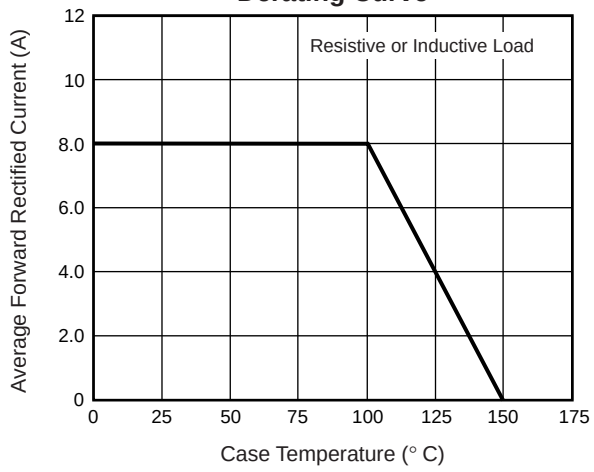


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current

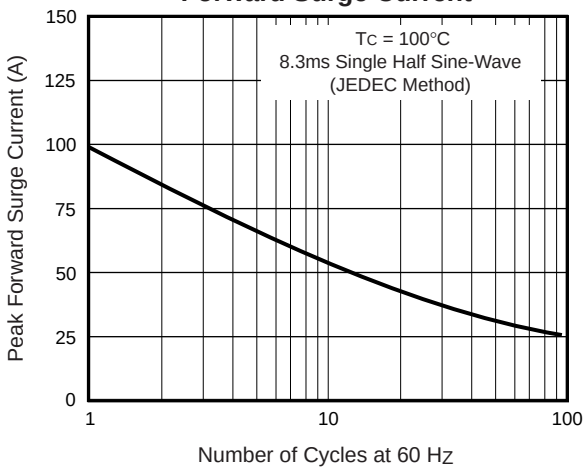


Fig. 3 – Typical Instantaneous Forward Characteristics

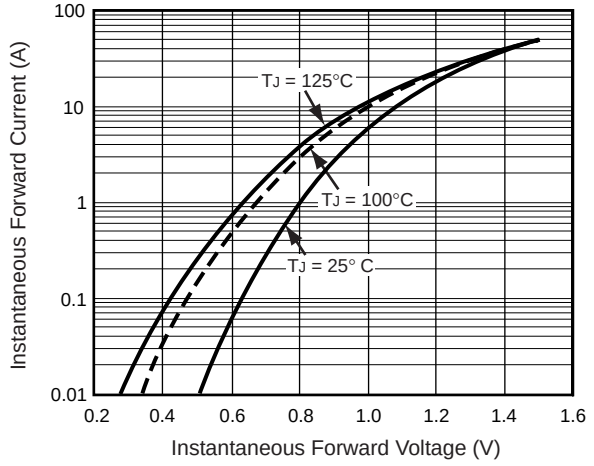


Fig. 4 – Typical Reverse Leakage Characteristics

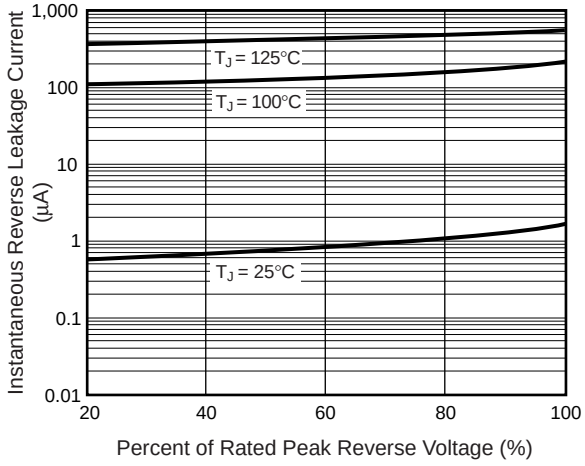


Fig 5 — Reverse Switching Characteristics Per Leg

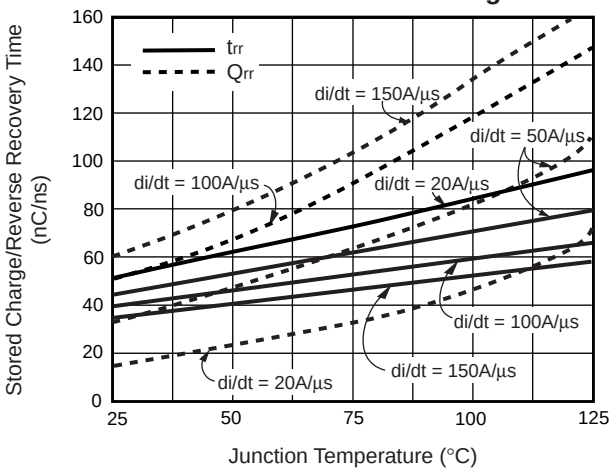


Fig. 6 – Typical Junction Capacitance