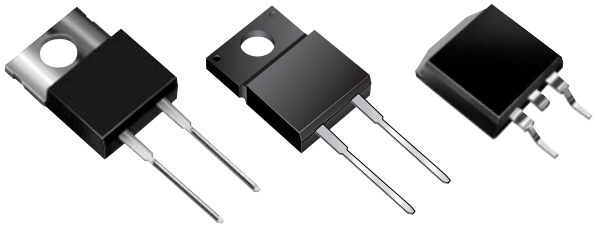
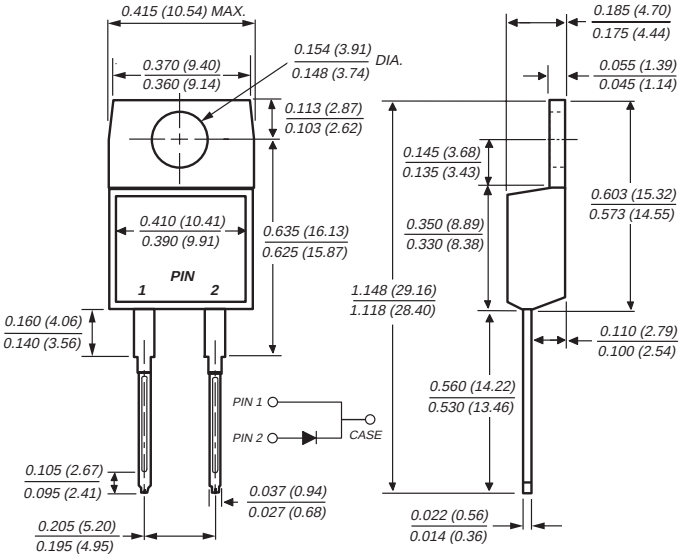
# High Voltage Damper Diodes

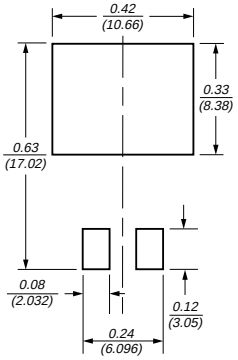
**Reverse Voltage** 1500V
**Forward Current** 6.5A
**Reverse Recovery Time** 350ns



**TO-220AC (BYS459)**

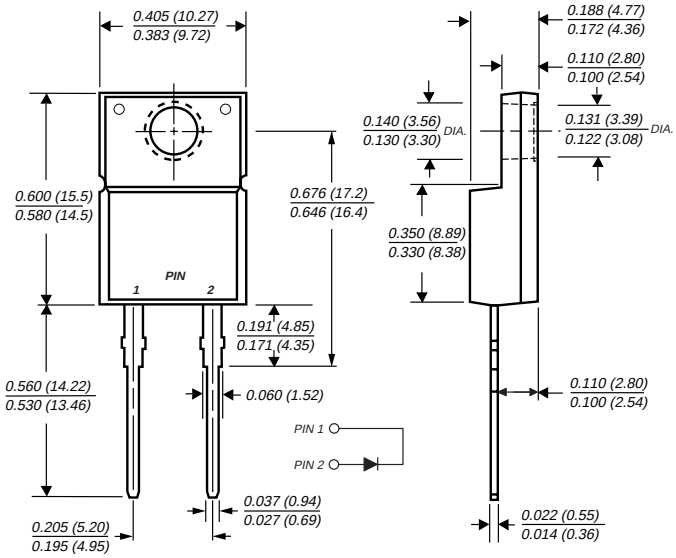



**Mounting Pad Layout TO-263AB**

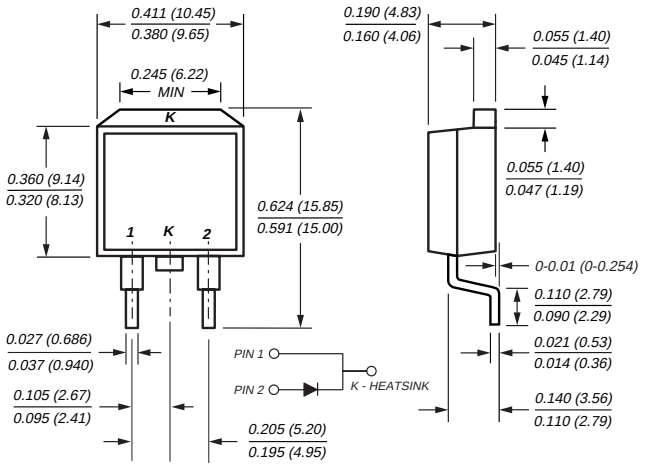



*Dimensions in inches and (millimeters)*

**ITO-220AC (BYS459F)**




**TO-263AB (BYS459B)**




## Features

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- Ideally suited CRT horizontal deflection
- Fast reverse recovery time
- Fast forward recovery time
- High temperature soldering in accordance with CECC 802 / Reflow guaranteed
- Glass passivated chip junction

## 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:** 10 in-lbs maximum

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

## Maximum Ratings ($T_A$ = 25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 1500 | V |
| Maximum working reverse voltage | $V_{RWM}$ | 1300 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 1500 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 6.5 | A |
| Peak working forward current at f = 48kH$_Z$ | $I_{F(Peak)}$ | 12 | A |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed<br>on rated load (JEDEC Method) at $T_J$ = 150°C | $I_{FSM}$ | 130 | A |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | –55 to +150 | °C |
| RMS Isolation voltage (BYS459F types only)<br>from terminals to heatsink with t = 1.0 second, RH ≤ 30% | $V_{ISOL}$ | 4500(1)<br>3500(2)<br>1500(3) | V |

## Electrical Characteristics ($T_J$ = 25°C unless otherwise noted)

| Parameter | | Symbol | Value | Unit |
|---|---|---|---|---|
| Maximum instantaneous forward voltage(4) | $I_F$ = 6.5A, $T_J$ = 25°C<br>$I_F$ = 6.5A, $T_J$ = 125°C | $V_F$ | 1.3<br>1.2 | V |
| Maximum DC reverse current at $V_{RWM}$ | $T_J$ = 25°C<br>$T_J$ = 125°C | $I_R$ | 250<br>1.0 | µA<br>mA |
| Maximum reverse recovery time at<br>$I_F$ = 1.0A, di/dt = 50A/µs, $V_R$ = 30V | | $t_{rr}$ | 350 | ns |
| Maximum reverse recovery charge at<br>$I_F$ = 2.0A, –di/dt = 20A/µs | | $Q_{rr}$ | 3.0 | µC |
| Maximum forward recovery time<br>$I_F$ = 6.5A, di/dt = 52A/µs | | $t_{fr}$ | 250 | ns |
| Peak forward recovery overshoot voltage<br>$I_F$ = 6.5A, di/dt = 52A/µs | | $V_{FP}$ | 20 | V |

## Thermal Characteristics ($T_A$ = 25°C unless otherwise noted)

| Parameter | Symbol | BYS459 | BYS459F | BYS459B | Unit |
|---|---|---|---|---|---|
| Typical thermal resistance from junction to ambient | $R_{\theta JA}$ | 60 | 55 | 60 | °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 – Forward Current Derating Curve**

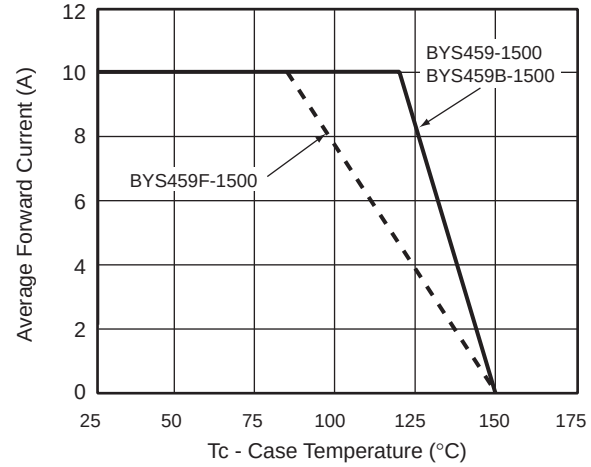



**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**

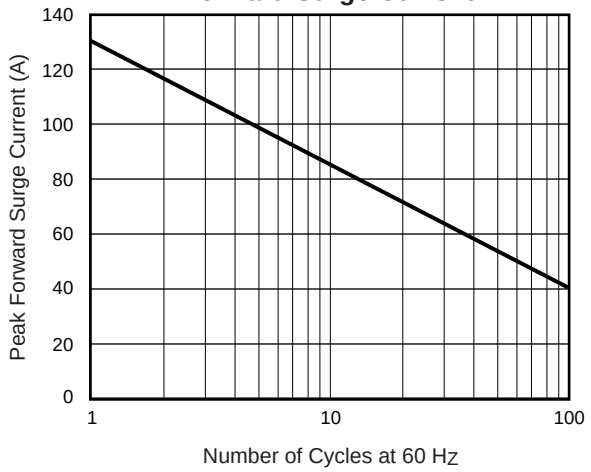



**Fig. 3 – Typical Forward Voltage**

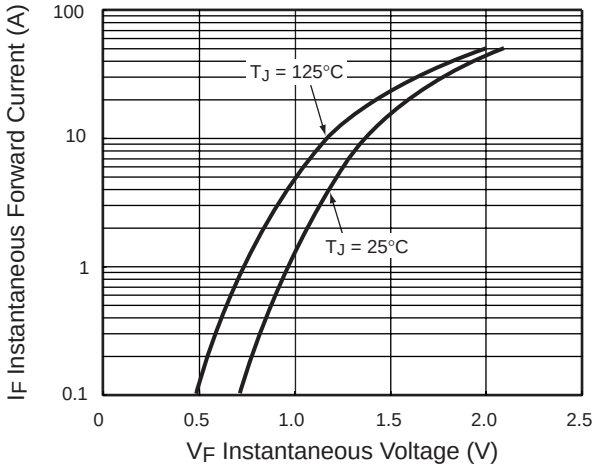



**Fig. 4 – Typical Reverse Current**

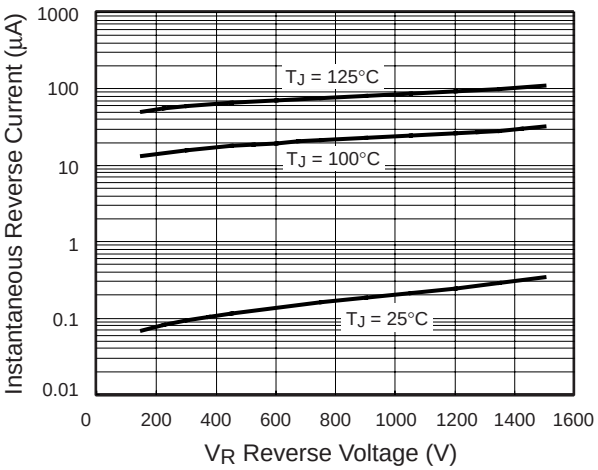



**Fig. 5 – Typical Capacitance**

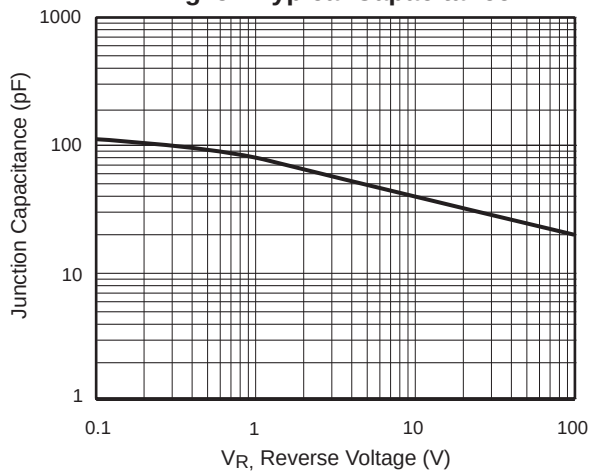



**Fig. 6 – Typical Reverse Recovery Time**