



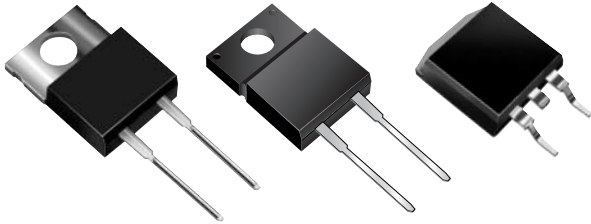
# BYS459-1500, BY5459F-1500, BY5459B-1500

New Product

Vishay Semiconductors  
formerly General Semiconductor

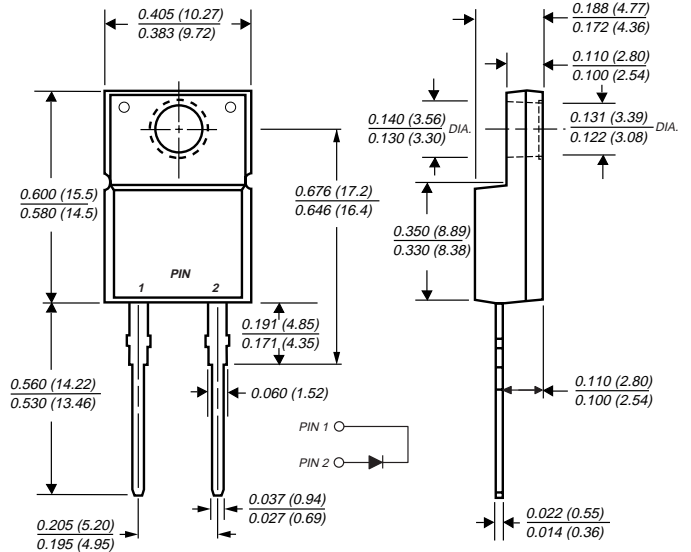
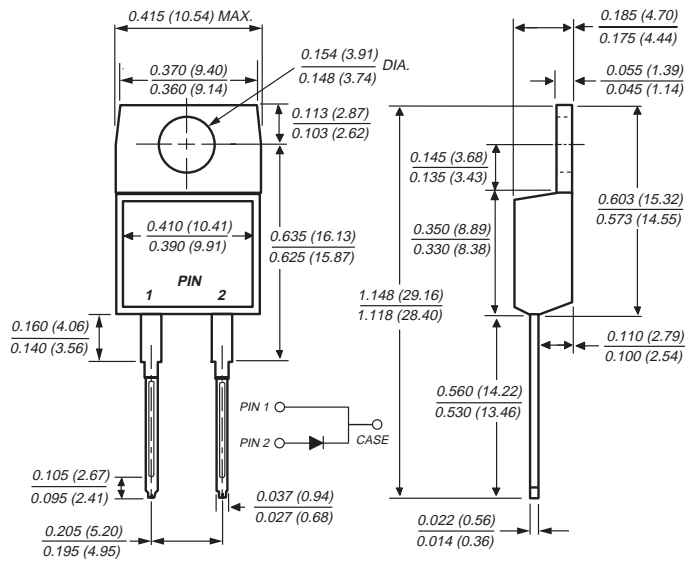
## High Voltage Damper Diodes

Reverse Voltage 1500V  
Forward Current 10A  
Reverse Recovery Time 350ns

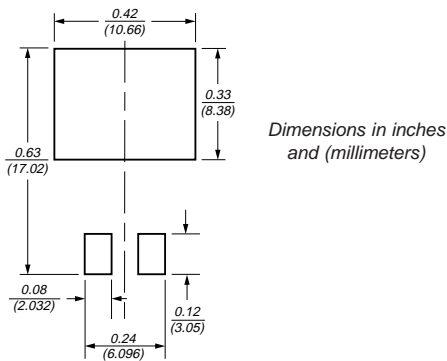


TO-220AC (BYS459)

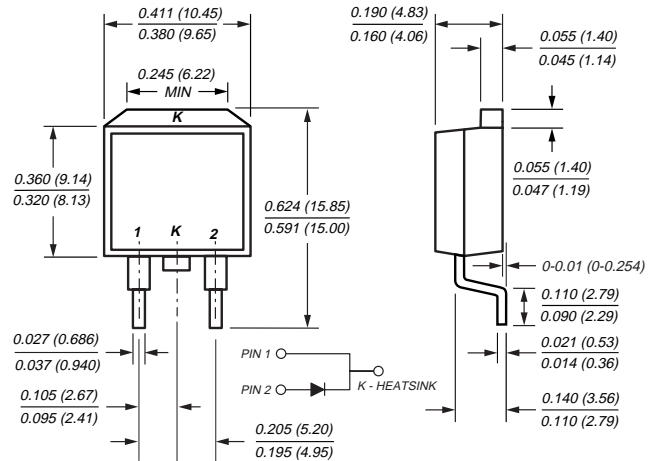
ITO-220AC (BYS459F)



Mounting Pad Layout TO-263AB



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<sub>A</sub> = 25°C unless otherwise noted)

| Parameter  | Symbol                            | Value   | Unit |
|--|-----------------------------------|---|------|
| Maximum repetitive peak reverse voltage  | V <sub>RRM</sub>                  | 1500  | V    |
| Maximum working reverse voltage  | V <sub>RWM</sub>                  | 1300  | V    |
| Maximum DC blocking voltage  | V <sub>DC</sub>                   | 1500  | V    |
| Maximum average forward rectified current  | I <sub>F(AV)</sub>                | 10  | A    |
| Peak working forward current at f = 48kHz  | I <sub>F(Peak)</sub>              | 12  | A    |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed<br>on rated load (JEDEC Method) at T <sub>J</sub> = 150°C | I <sub>FSM</sub>                  | 130   | A    |
| Operating junction and storage temperature range   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150   | °C   |
| RMS Isolation voltage (BYS459F types only)<br>from terminals to heatsink with t = 1.0 second, RH ≤ 30%                           | V <sub>ISOL</sub>                 | 4500 <sup>(1)</sup><br>3500 <sup>(2)</sup><br>1500 <sup>(3)</sup> | V    |

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

| Parameter   | Symbol          | Value      | Unit     |
|---|-----------------|------------|----------|
| Maximum instantaneous forward voltage <sup>(4)</sup><br>I <sub>F</sub> = 6.5A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 6.5A, T <sub>J</sub> = 125°C | V <sub>F</sub>  | 1.3<br>1.2 | V        |
| Maximum DC reverse current at V <sub>RWM</sub><br>T <sub>J</sub> = 25°C<br>T <sub>J</sub> = 125°C   | I <sub>R</sub>  | 250<br>1.0 | μA<br>mA |
| Maximum reverse recovery time at<br>I <sub>F</sub> = 1.0A, di/dt = 50A/μs, V <sub>R</sub> = 30V   | t <sub>rr</sub> | 350        | ns       |
| Maximum reverse recovery charge at<br>I <sub>F</sub> = 2.0A, -di/dt = 20A/μs  | Q <sub>rr</sub> | 3.0        | μC       |
| Maximum forward recovery time<br>I <sub>F</sub> = 6.5A, di/dt = 52A/μs  | t <sub>fr</sub> | 250        | ns       |
| Peak forward recovery overshoot voltage<br>I <sub>F</sub> = 6.5A, di/dt = 52A/μs  | V <sub>FP</sub> | 20         | V        |

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

| Parameter   | Symbol           | BYS459 | BYS459F | BYS459B | Unit |
|---|------------------|--------|---------|---------|------|
| Typical thermal resistance from junction to ambient | R <sub>θJA</sub> | 60     | 55      | 60      | °C/W |

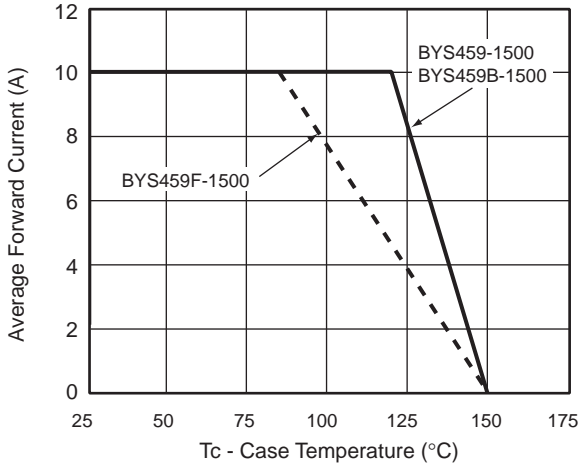
### Notes:

- (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

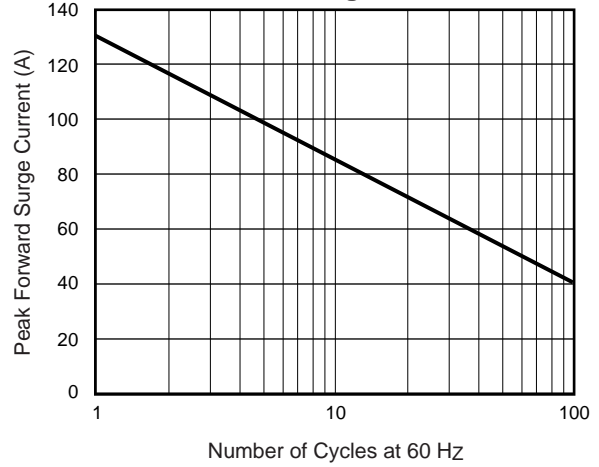


**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

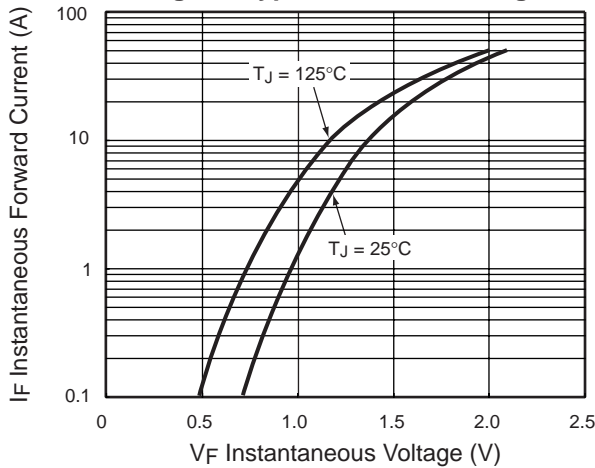
**Fig. 1 – Forward Current Derating Curve**



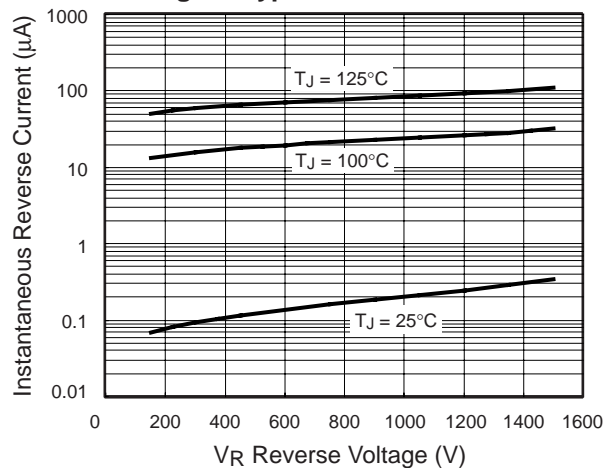
**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**



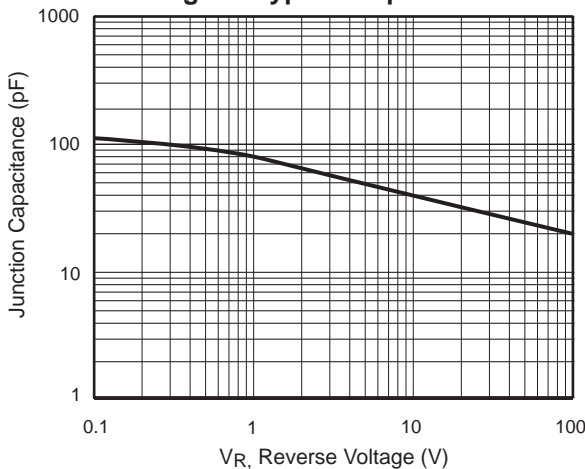
**Fig. 3 – Typical Forward Voltage**



**Fig. 4 – Typical Reverse Current**



**Fig. 5 – Typical Capacitance**



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

