



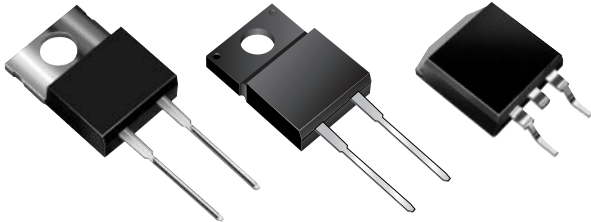
# BYS459-1500S, BYS459F-1500S, BYS459B-1500S

New Product

Vishay Semiconductors  
formerly General Semiconductor

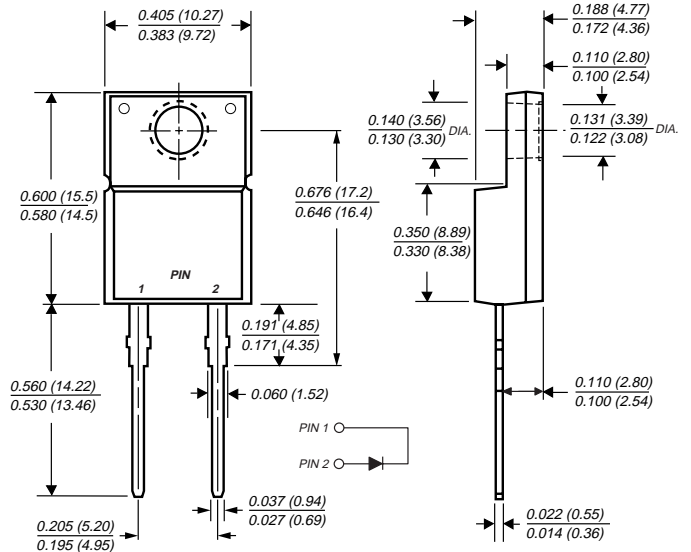
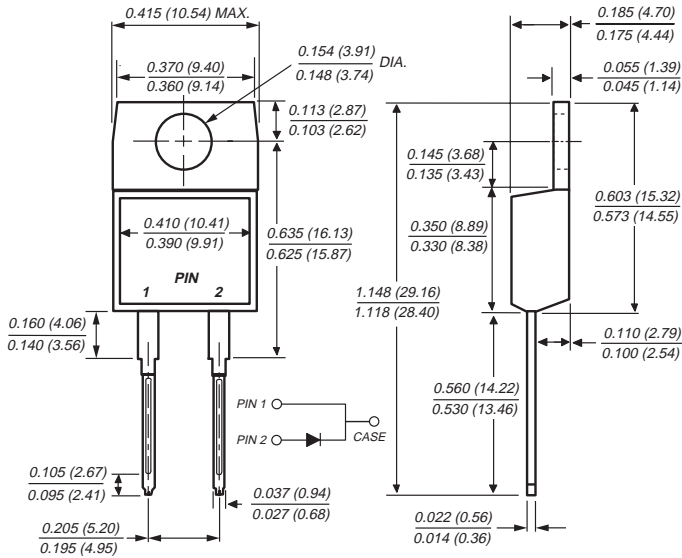
## High Voltage Damper Diodes

Reverse Voltage 1500V  
Forward Current 10A  
Reverse Recovery Time 220ns

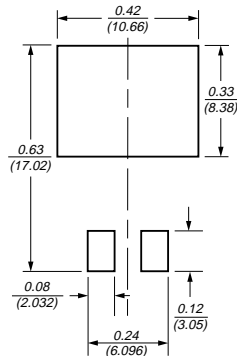


TO-220AC (BYS459)

ITO-220AC (BYS459F)

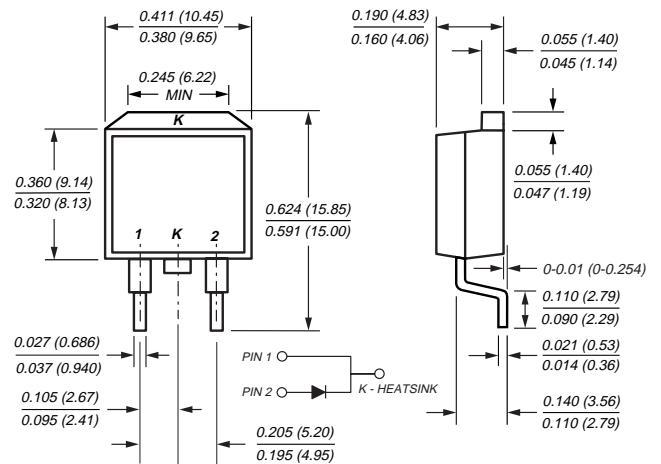


Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

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
- Soft recovery characteristics
- 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

High temperature soldering guaranteed: 250°C/10 seconds, 0.25" (6.35mm) from case for TO-220 & ITO-220; at terminals for TO-263

**Polarity:** As marked

**Mounting Position:** Any

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

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

# BYS459-1500S, BYS459F-1500S, BYS459B-1500S



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## 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 (see fig. 1)	I <sub>F(AV)</sub>	10	A
Peak working forward current at f = 82 kHz	I <sub>F(peak)</sub>	10	A
Peak forward surge current 8.3ms single half sine-wave superimposed 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) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V <sub>ISOL</sub>	4500 <sup>(1)</sup> 3500 <sup>(2)</sup> 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> I <sub>F</sub> = 6.5A, T <sub>J</sub> = 25°C I <sub>F</sub> = 6.5A, T <sub>J</sub> = 125°C	V <sub>F</sub>	1.35 1.25	V
Maximum DC reverse current at V <sub>RWM</sub> T <sub>J</sub> = 25°C T <sub>J</sub> = 125°C	I <sub>R</sub>	250 1.0	μA mA
Maximum reverse recovery time at I <sub>F</sub> = 1.0A, di/dt = 50A/μs, V <sub>R</sub> = 30V	t <sub>rr</sub>	220	ns
Maximum reverse recovery charge at I <sub>F</sub> = 2.0A, di/dt = 20A/μs, V <sub>R</sub> = 30V	Q <sub>rr</sub>	0.95	μC
Maximum forward recovery time I <sub>F</sub> = 6.5A, di/dt = 52A/μs, V <sub>FR</sub> = 5V	t <sub>fr</sub>	300	ns
Peak forward recovery overshoot voltage I <sub>F</sub> = 6.5A, di/dt = 52A/μs	V <sub>FP</sub>	27	V

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

Parameter	Symbol	BYS459	BYS459F	BYS459B	Unit
Typical thermal resistance from junction to case	R <sub>θJC</sub>	2.0	4.0	2.0	°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

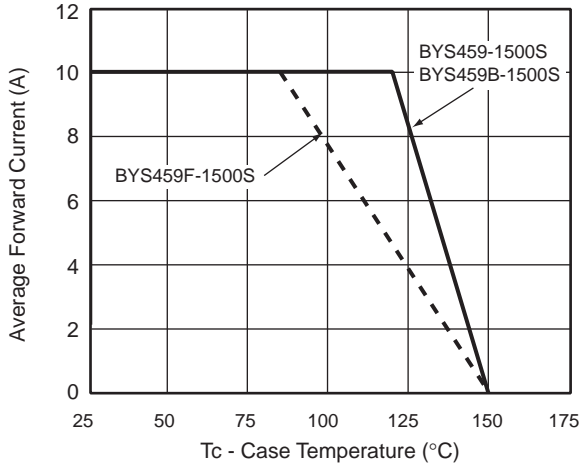
## Ordering Information

Product	Case	Package Code	Package Option
BYS459-1500S	TO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
BYS459F-1500S	ITO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
BYS459B-1500S	TO-263AB	31	13" reel, 800/reel, 4.8K/carton
		45	Anti-Static tube, 50/tube, 2K/carton
		81	Anti-Static 13" reel, 800/reel, 4.8K/carton

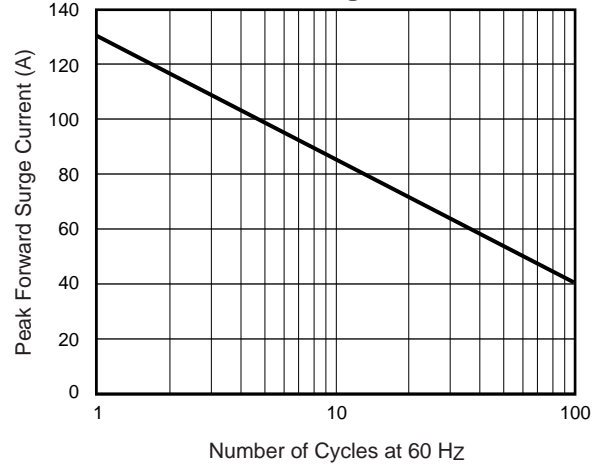


**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

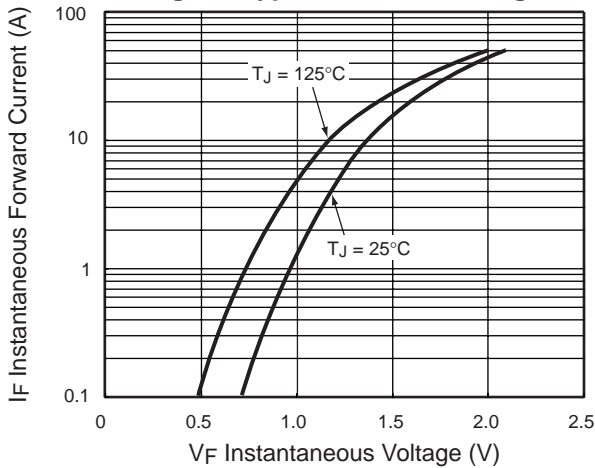
**Fig. 1 – Forward Current Derating Curve**



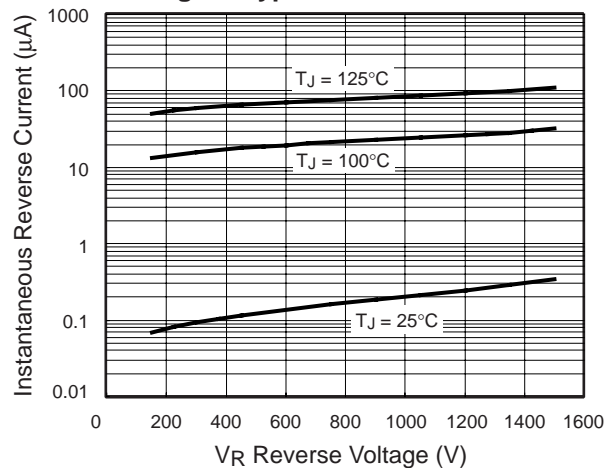
**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**



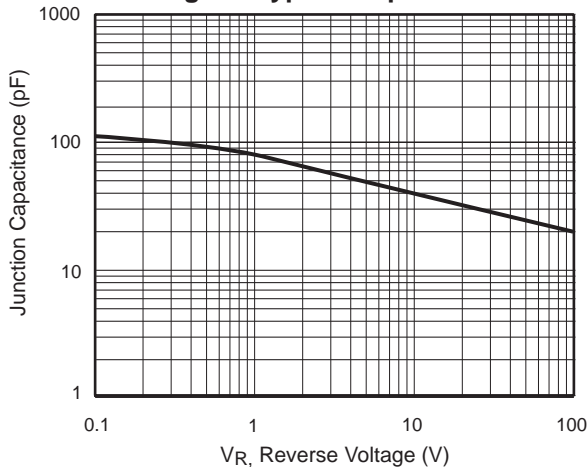
**Fig. 3 – Typical Forward Voltage**



**Fig. 4 – Typical Reverse Current**



**Fig. 5 – Typical Capacitance**



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

