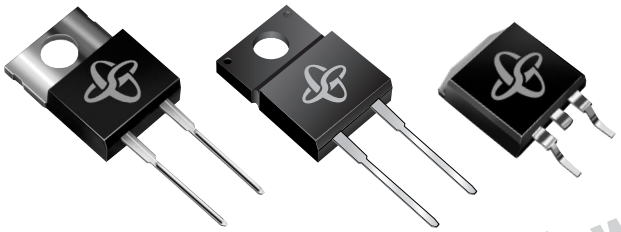
GENERAL SEMICONDUCTOR®

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

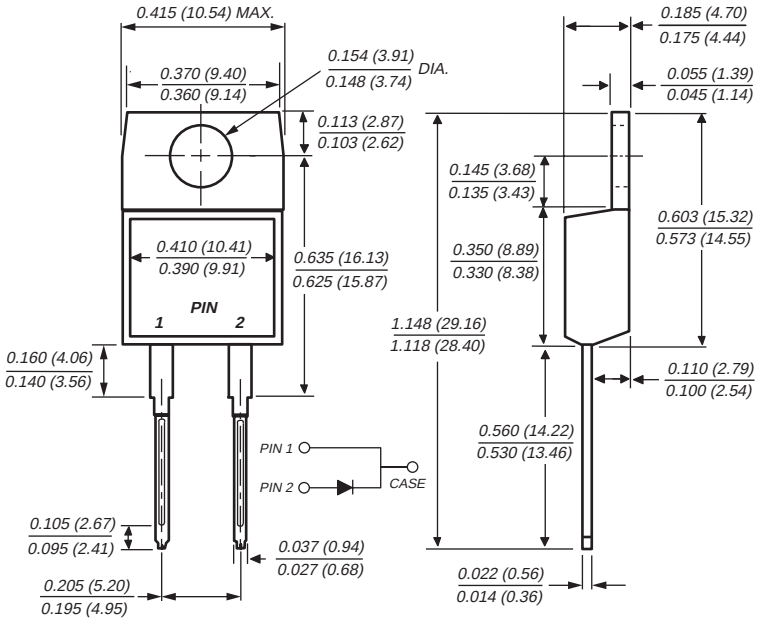
High Voltage Damper Diodes

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

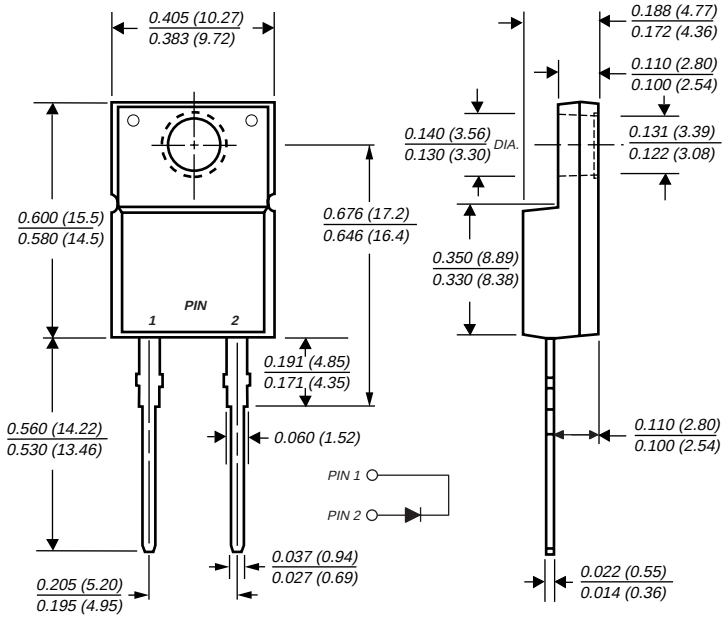
New Product



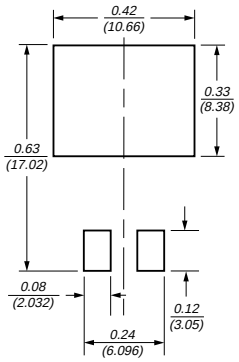
TO-220AC (BYS459)



ITO-220AC (BYS459F)

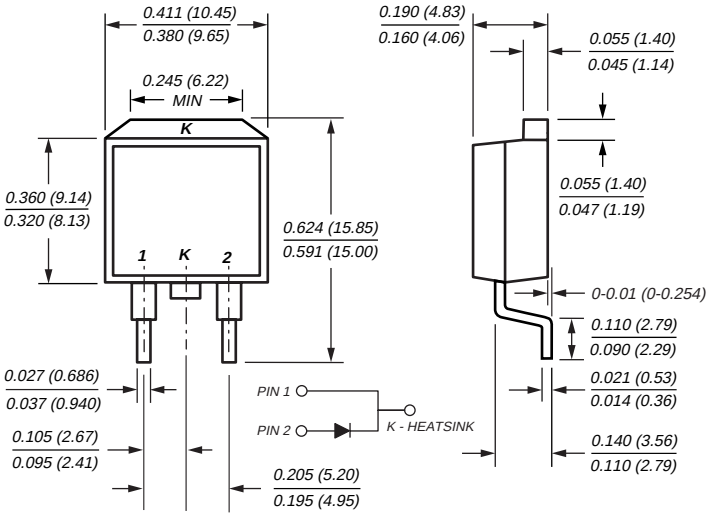


Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

TO-263AB (BYS459B)



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 ounce, 2.24 grams

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

5/9/01

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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 (see fig. 1)	$I_{F(AV)}$	10	A
Peak working forward current at f = 82 kHz	$I_{F(peak)}$	10	A
Peak forward surge current 8.3ms single half sine-wave superimposed 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) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V_{ISOL}	4500(1) 3500(2) 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 I_F = 6.5A, T_J = 125°C	V_F	1.35 1.25	V
Maximum DC reverse current at V_{RWM}	T_J = 25°C T_J = 125°C	I_R	250 1.0	μA mA
Maximum reverse recovery time at I_F = 1.0A, di/dt = 50A/μs, V_R = 30V		t_{rr}	220	ns
Maximum reverse recovery charge at I_F = 2.0A, di/dt = 20A/μs, V_R = 30V		Q_{rr}	0.95	μC
Maximum forward recovery time I_F = 6.5A, di/dt = 52A/μs, V_{FR} = 5V		t_{fr}	300	ns
Peak forward recovery overshoot voltage I_F = 6.5A, di/dt = 52A/μs		V_{FP}	27	V

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

Parameter	Symbol	BYS459	BYS459F	BYS459B	Unit
Typical thermal resistance from junction to case	$R_{\theta JC}$	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 45 81	13" reel, 800/reel, 4.8K/carton Anti-Static tube, 50/tube, 2K/carton Anti-Static 13" reel, 800/reel, 4.8K/carton

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

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Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Fig. 1 – Forward Current Derating Curve

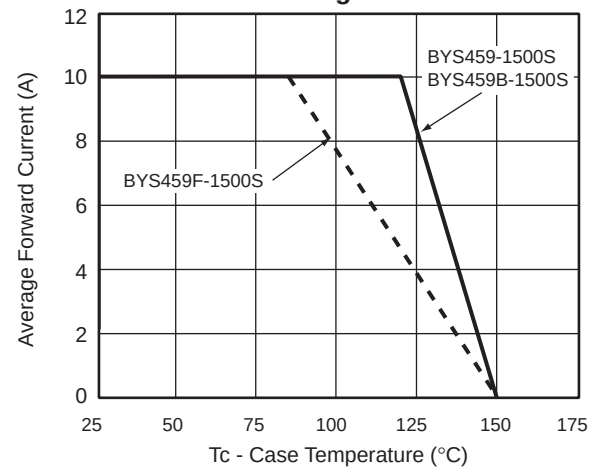

Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current

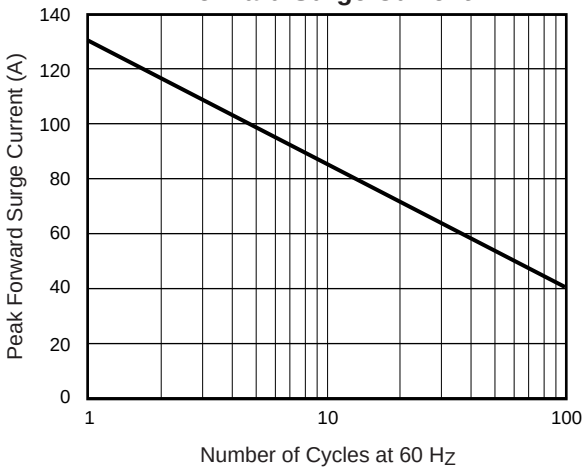

Fig. 3 – Typical Forward Voltage

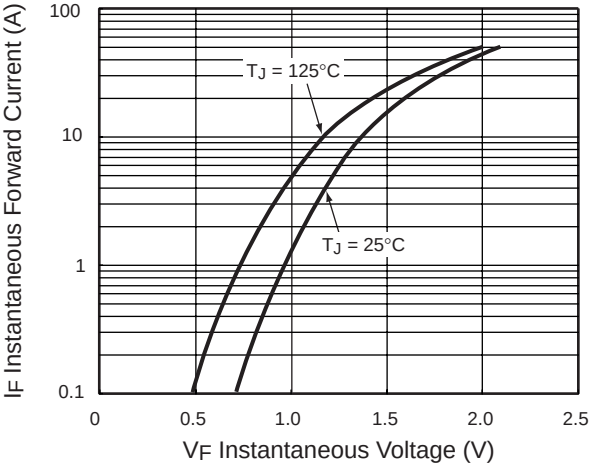

Fig. 4 – Typical Reverse Current

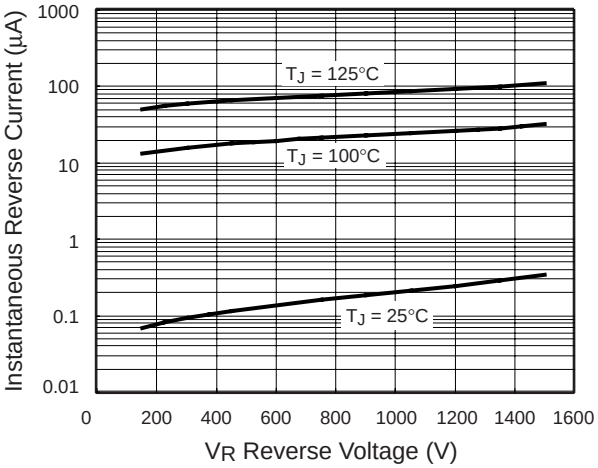

Fig. 5 – Typical Capacitance

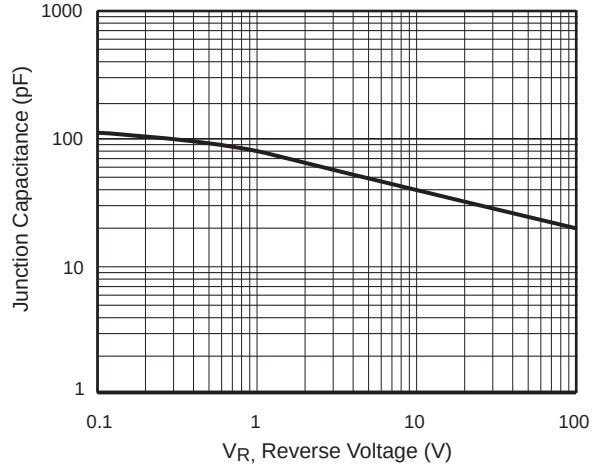

Fig. 6 – Typical Reverse Recovery Time