

RECTIFIER ASSEMBLIES

UFB, UFS, USB, USS SERIES

High Voltage Stacks,
Standard and Fast Recovery

3

FEATURES

- Controlled Avalanche Characteristics
- Only Fused-in-Glass Diodes Used
- High Forward and Reverse Surge Capability
- Transfer Molded for Voidless Construction
- Modular for Easy Stacking
- PIV: from 2.5 kV to 15kV
- Recovery Times: to 500ns
- Continuous Ratings: to 2.3A

DESCRIPTION

These assemblies uniquely combine a versatile stackable design with all the requirements for reliable high voltage operation. All modules are suitable for bridge or series operations.

ABSOLUTE MAXIMUM RATINGS

| | |
|---|-------------------------------|
| Peak Inverse Voltage, USS Series | 5.0 kV to 15kV |
| Peak Inverse Voltage, USB Series | 2.5 kV to 10kV |
| Peak Inverse Voltage, UFS Series | 5.0 kV to 10kV |
| Peak Inverse Voltage, UFB Series | 2.5 kV to 7.5 kV |
| Maximum Average D.C. Output Current | See Electrical Specifications |
| Non-Repetitive Sinusoidal Surge (8.3ms) | See Electrical Specifications |
| Operating and Storage Temperature Range | -65°C to +150°C |

MECHANICAL SPECIFICATIONS

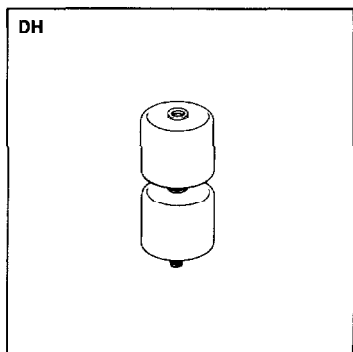
UFB, UFS, USB, USS SERIES

| | ins. | mm. |
|---|-----------|-------------|
| A | .230-.235 | 5.84-5.97 |
| B | .980-1.10 | 24.89-27.94 |
| C | .020-.040 | 0.51-1.02 |
| D | .320-.330 | 8.13-8.38 |
| E | .97-1.00 | 24.64-25.40 |

10-32 THRD. UNF-2A
10-32 THRD. UNF-2B

Typical Weight: USS & UFS Series — 1.0 ounce
28 grams

USB & UFB Series — 1.1 ounce
31 grams

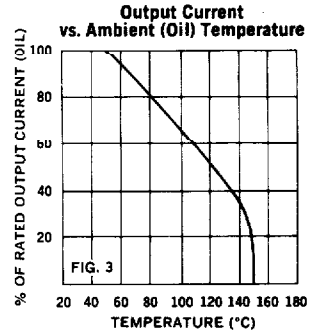
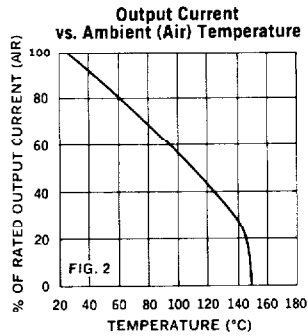
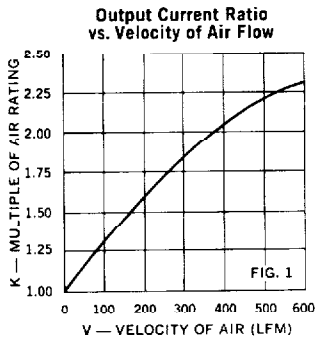


MARKING

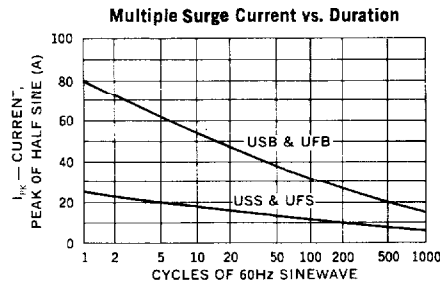
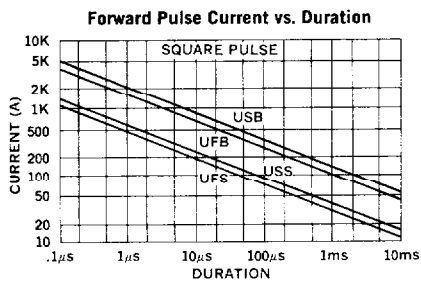
Type number marked on unit.
Polarity — Cathode connected to stud.

| Electrical Specifications (at 25°C unless noted) | | | | | | | Maximum Ratings | | |
|--|-----------|------------------------------|-----------------------------|-------------------------------------|---|-------------------------------------|-----------------------------------|---|--|
| Type | PIV kV | Maximum Forward Voltage Drop | Leakage Current @ PIV μA | Maximum Reverse Recovery Time ns | Maximum Reverse Transient Energy Absorption joules | Maximum Average D.C. Output Current | | Non-Repetitive Sinusoidal Surge (8.3ms) Amps | |
| | | | | | | T _A = 25°C AIR Amps | T _A = 50°C OIL Amps | | |
| Standard Recovery | USS 5 | 5.0 | 9V @ 0.6A | 5 | — | 1.5 | 0.60 | 25 | |
| | USS 7.5 | 7.5 | 13V @ 0.5A | | | 2.5 | 0.45 | | |
| | USS 10 | 10 | 17V @ 0.3A | | | 3.0 | 0.35 | | |
| | USS 15 | 15 | 25V @ 0.2A | | | 5.0 | 0.25 | | |
| Standard Recovery | USB 2.5 | 2.5 | 5V @ 1.1A | 10 | — | 3.0 | 1.1 | 80 | |
| | USB 5 | 5.0 | 9V @ 0.7A | | | 6.0 | 0.68 | | |
| | USB 7.5 | 7.5 | 13V @ 0.5A | | | 9.0 | 0.53 | | |
| | USB 10 | 10 | 17V @ 0.4A | | | 12 | 0.43 | | |
| Fast Recovery | UFS 5 | 5.0 | 12V @ 0.5A | 5 | 500* 350† | 1.5 | 0.50 | 20 | |
| | UFS 7.5 | 7.5 | 18V @ 0.4A | | | 2.5 | 0.38 | | |
| | UFS 10 | 10 | 23V @ 0.3A | | | 3.0 | 0.30 | | |
| Fast Recovery | UFB 2.5 | 2.5 | 6V @ 0.9A | 10 | 500* 350† | 3.0 | 0.90 | 70 | |
| | UFB 5 | 5.0 | 12V @ 0.6A | | | 6.0 | 0.58 | | |
| | UFB 7.5 | 7.5 | 18V @ 0.4A | | | 9.0 | 0.45 | | |

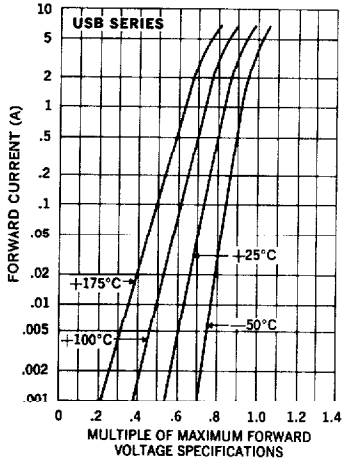
*Measured in a reverse recovery circuit switching from 1A forward to 1A reverse current recovering to 0.5A.
 †Measured in a reverse recovery circuit switching from .5A forward current to 1A reverse current, recovery to .25A.



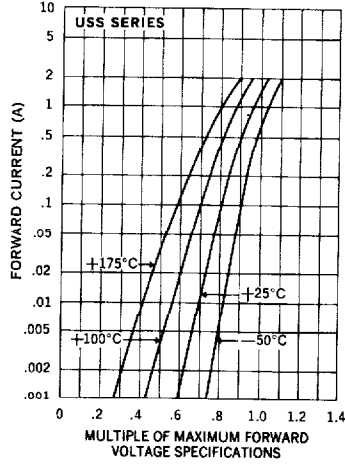
Application example: The rectifier is to be used in a cabinet at 60°C with ambient air moving at 400 LFM. The rating is reduced (Fig. 2) by a factor of 0.81 due to the elevated temperature, but it is enhanced by 2X (Fig. 1) due to the air flow. Hence the DC output current is 0.81 x 2, or 1.6 times the 25°C air rating.



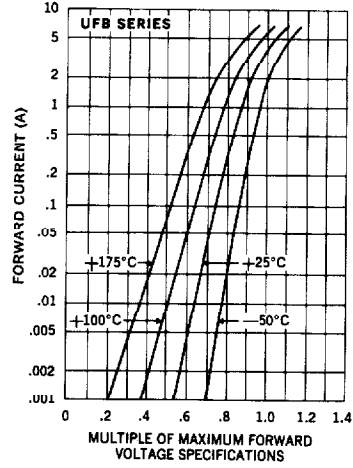
Typical Forward Voltage vs. Forward Current



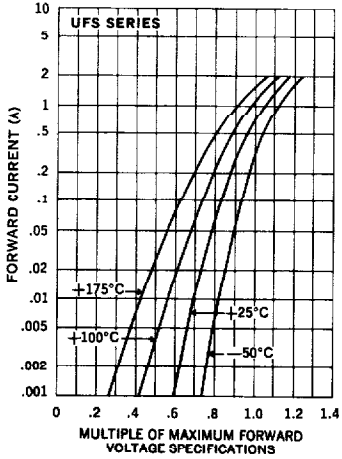
Typical Forward Voltage vs. Forward Current



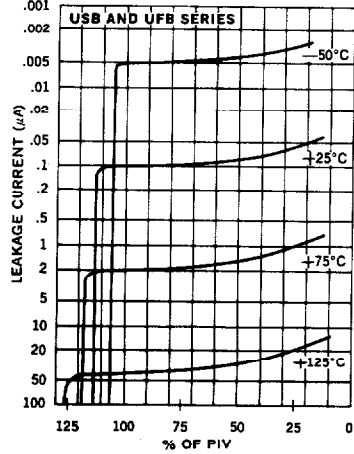
Typical Forward Voltage vs. Forward Current



Typical Forward Voltage vs. Forward Current



Typical Leakage Current vs. PIV



Typical Leakage Current vs. PIV

