

# RECTIFIER ASSEMBLIES

## High Voltage Doorbell® Modules, Standard and Fast Recovery

UDA, UDB, UDC, UDD ,  
UDE, UDF SERIES

### FEATURES

- PIV: from 2.5kV to 15kV
- Stackable to 600kV
- Current Ratings: to 7.7A
- Controlled Avalanche Characteristics
- Only Fused-in-Glass Diodes Used
- Recovery Time: to 500ns
- Modular Package For Easy Stacking

### DESCRIPTION

This series of high-voltage, high-current stacks that incorporate a unique modular design makes it ideally suited for high power applications such as in radar systems as charger, hold-off and clipper diodes.

### ABSOLUTE MAXIMUM RATINGS

Peak Inverse Voltage

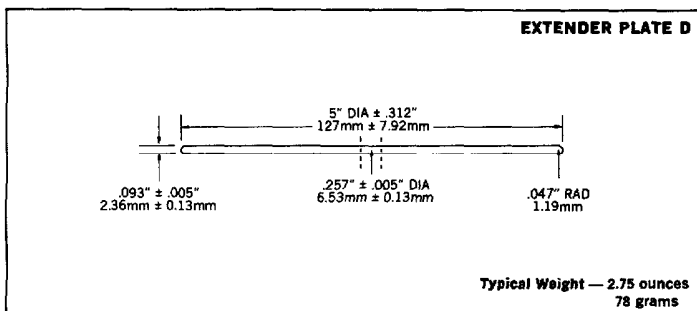
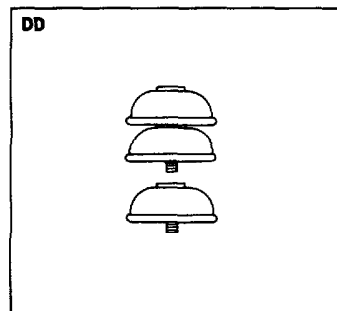
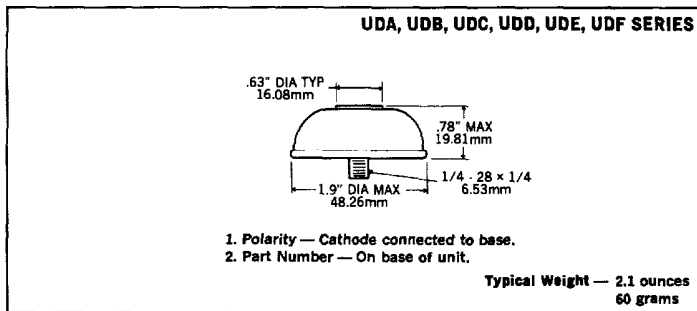
|                 |                |
|-----------------|----------------|
| UDA, UDC Series | 5kV to 15kV    |
| UDB, UDD Series | 2.5kV to 7.5kV |
| UDE, UDF Series | 2.5kV to 5kV   |

Maximum Average D.C. Output Current ..... See Electrical Specifications

Non-Repetitive Sinusoidal Surge (8.3ms) ..... See Electrical Specifications

Operating and Storage Temperature Range,  $T_C$  .....  $-65^\circ\text{C}$  to  $+150^\circ\text{C}$

### MECHANICAL SPECIFICATIONS



**Microsemi Corp.**  
**Watertown**  
The diode experts

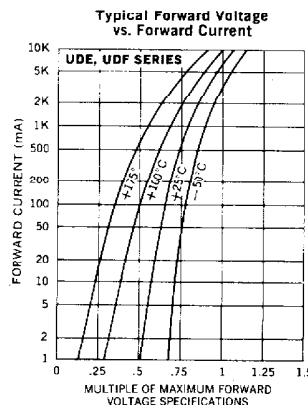
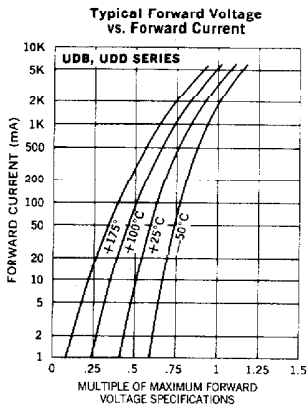
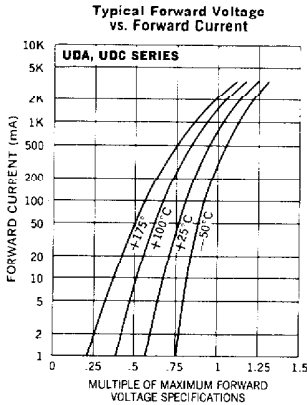
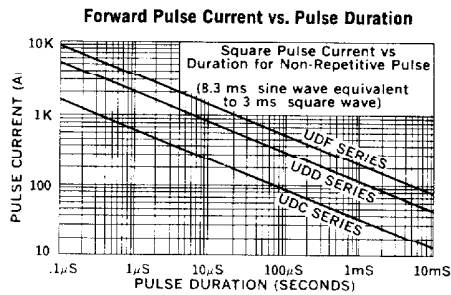
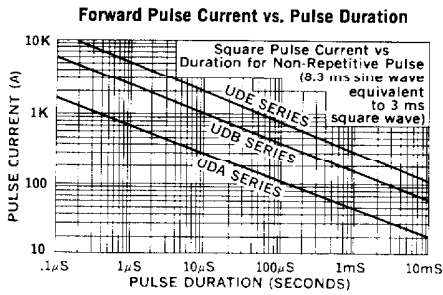
| Electrical Specifications (at 25°C unless noted) |         |                              |                               |                               | Maximum Ratings                     |   |                           |  |   |     |
|--|---------|------------------------------|-------------------------------|-------------------------------|-------------------------------------|---|---------------------------|--|---|-----|
| Type   | PIV     | Maximum Forward Voltage Drop | Maximum Leakage Current @ PIV | Maximum Reverse Recovery Time | Maximum Average D.C. Output Current |   |                           | Non-Repetitive Sinusoidal Surge (8.3ms) T <sub>C</sub> = 100°C | Maximum Reverse Transient Energy Absorption |     |
|  |         |                              |                               |                               | T <sub>C</sub> = 75°C Air           | T <sub>C</sub> = 60°C Air with Extender Plate** | T <sub>C</sub> = 50°C Oil |  |   |     |
|  | kV      |                              | μA                            | ns                            | Amps                                | Amps  | Amps                      | Amps   | joules                                      |     |
| Standard Recovery                                | UDE-2.5 | 2.5                          | 5V @ 3.00A                    | 10                            |                                     | ‡ 6.00  | 7.00                      | 7.70   | 200   | 8   |
|  | UDB-2.5 | 2.5                          | 4V @ 1.50A                    | 5                             |                                     | 3.00  | 3.75                      | 4.25   | 100   | 4   |
|  | UDE-5   | 5                            | 10V @ 2.20A                   | 10                            |                                     | ‡ 4.50  | 5.00                      | 5.50   | 200   | 14  |
|  | UDB-5   | 5                            | 8V @ 1.00A                    | 5                             |                                     | 2.00  | 2.50                      | 2.75   | 100   | 8   |
|  | UDA-5   | 5                            | 8V @ 0.82A                    | 2                             | —                                   | 1.65  | 2.00                      | 2.20   | 30  | 1.5 |
|  | UDB-7.5 | 7.5                          | 12V @ 0.70A                   | 5                             |                                     | 1.33  | 1.65                      | 2.00   | 100   | 12  |
|  | UDA-7.5 | 7.5                          | 12V @ 0.60A                   | 2                             |                                     | 1.25  | 1.55                      | 1.75   | 30  | 2.5 |
|  | UDA-10  | 10                           | 16V @ 0.50A                   | 2                             |                                     | 1.00  | 1.25                      | 1.40   | 30  | 3   |
|  | UDA-15  | 15                           | 25V @ 0.33A                   | 2                             |                                     | 0.67  | 0.80                      | 0.90   | 30  | 5   |
| Fast Recovery                                    | UDF-2.5 | 2.5                          | 6V @ 2.20A                    | 10                            |                                     | 4.50  | 5.00                      | 5.30   | 150   | 8   |
|  | UDD-2.5 | 2.5                          | 6V @ 1.20A                    | 5                             |                                     | 2.25  | 2.80                      | 3.30   | 80  | 4   |
|  | UDF-5   | 5                            | 11V @ 1.60A                   | 10                            |                                     | 3.30  | 4.00                      | 4.40   | 150   | 14  |
|  | UDD-5   | 5                            | 11V @ 0.75A                   | 5                             |                                     | 1.50  | 1.85                      | 2.00   | 80  | 8   |
|  | UDC-5   | 5                            | 10V @ 0.70A                   | 2                             | 500*                                | 1.20  | 1.50                      | 1.70   | 25  | 1.5 |
|  | UDD-7.5 | 7.5                          | 17V @ 0.50A                   | 5                             | 350†                                | 1.00  | 1.25                      | 1.50   | 80  | 12  |
|  | UDC-7.5 | 7.5                          | 15V @ 0.50A                   | 2                             |                                     | 0.90  | 1.10                      | 1.25   | 25  | 2.5 |
|  | UDC-10  | 10                           | 20V @ 0.37A                   | 2                             |                                     | 0.75  | 0.90                      | 1.00   | 25  | 3   |
|  | UDC-15  | 15                           | 30V @ 0.25A                   | 2                             |                                     | 0.50  | 0.60                      | 0.70   | 25  | 5   |

\*Measured in a reverse recovery circuit switching from 1.0A forward to 1.0A reverse current recovering to 0.5A.

†Measured in a reverse recovery circuit switching from 0.5A forward to 1.0A reverse current recovering to 0.25A.

\*\*These ratings are based on using "extender plates" that provide additional surface area to radiate heat. Because of possible corona effects caused by scratches on these plates, extreme care is necessary in their handling and they are not recommended where the working voltage exceeds 7.5kV/module. They should be carefully polished prior to installation.

‡These ratings are based on T<sub>C</sub> = 100°C.



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