

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 2.5 kV to 7.5kV

UDE, UDF Series 2.5 kV to 5kV

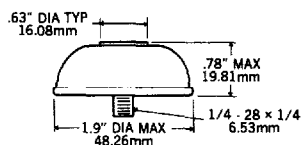
Maximum Average D.C. Output Current See Electrical Specifications

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

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

MECHANICAL SPECIFICATIONS

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



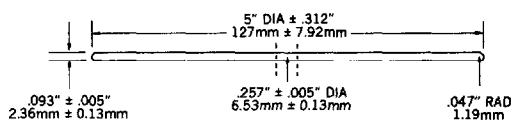
1. Polarity — Cathode connected to base.
2. Part Number — On base of unit.

Typical Weight — 2.1 ounces
60 grams

DD



EXTENDER PLATE D



Typical Weight — 2.75 ounces
78 grams

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) $T_C = 100^\circ\text{C}$	Maximum Reverse Transient Energy Absorption
						$T_C = 75^\circ\text{C}$ Air	$T_C = 60^\circ\text{C}$ Air with Extender Plate**	$T_C = 50^\circ\text{C}$ Oil		
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	500* 350†	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		1.20	1.50	1.70	25	1.5
	UDD-7.5	7.5	17V @ 0.50A	5		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

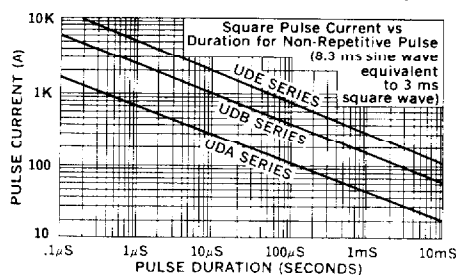
*Measured in a reverse recovery circuit switching from 1.0A forward to 1.0A reverse current recovering to 0.5A.

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

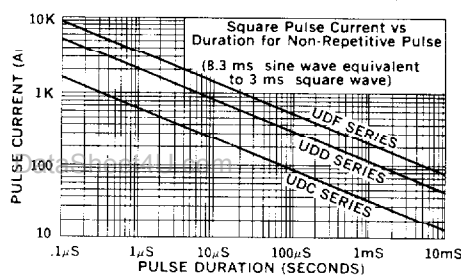
**These ratings are based on using "extender plates" that provide additional surface area to radiate heat. Because of possible corona effects caused by scratches on these plates, extreme care is necessary in their handling and they are not recommended where the working voltage exceeds 7.5KV/module. They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

‡These ratings are based on $T_C = 100^\circ\text{C}$.

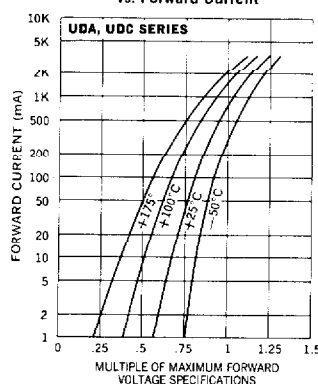
Forward Pulse Current vs. Pulse Duration



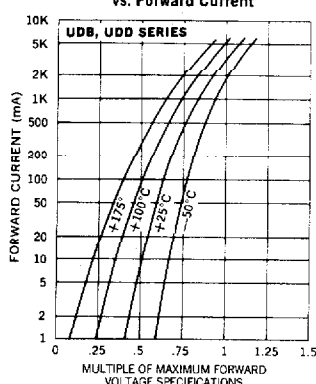
Forward Pulse Current vs. Pulse Duration



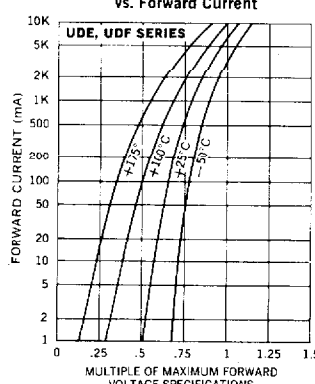
Typical Forward Voltage vs. Forward Current



Typical Forward Voltage vs. Forward Current

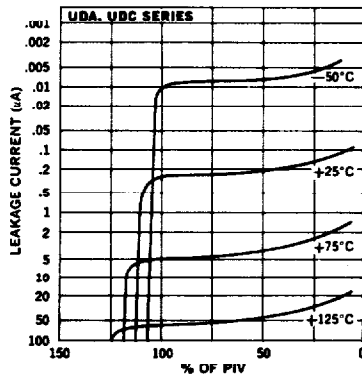


Typical Forward Voltage vs. Forward Current

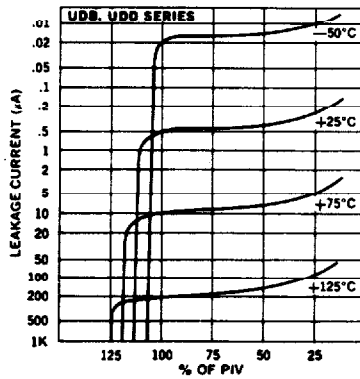


UDA, UDB, UDC, UDD, UDE, UDF SERIES

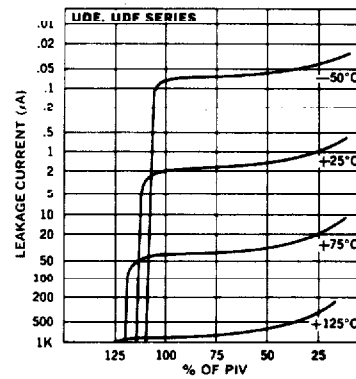
Typical Leakage Current vs. PIV



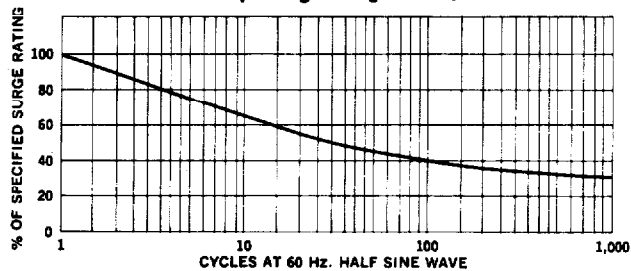
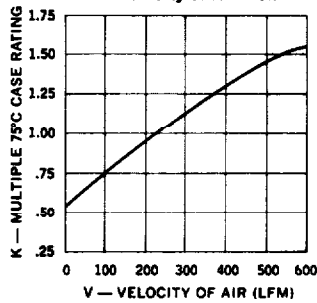
Typical Leakage Current vs. PIV



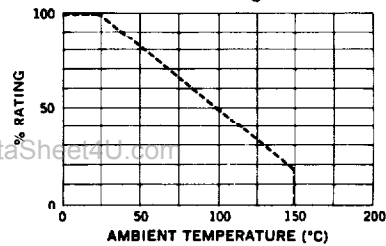
Typical Leakage Current vs. PIV



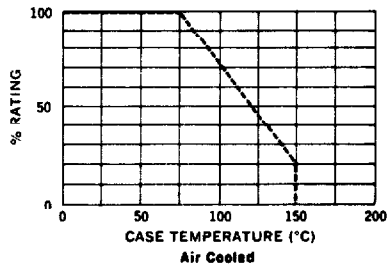
Multiple Surge Rating vs. Duration

Output Current Ratio
vs. Velocity of Air Flow

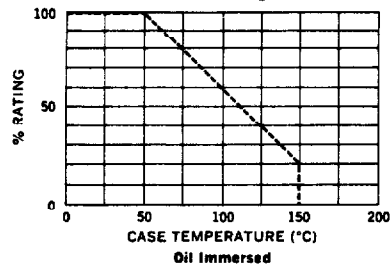
Current Derating Curve



Current Derating Curve



Current Derating Curve



580 PLEASANT STREET • WATERTOWN, MA 02172
TEL. (617) 926-0404 • FAX (617) 924-1235

3-50

PRINTED IN U.S.A.