

Miniature Surface Mount High Voltage Bridge Rectifiers for Power Adaptor Applications

Diodes Incorporated announces the introduction of a glass passivated miniature surface mount bridge rectifier series, designed in small form factor DBF and ABF packages. This bridge series enables 50% less utilization of PCB space, low profile design and provides low cost solutions for LED lighting and Power adaptors.

These bridge rectifiers have a high reverse breakdown voltage ($V_{RRM} \geq 1000V$) and a high forward current surge capability up to $I_{FSM} = 100A$. RABF and RDBF bridges have $t_{RR} = 160ns \sim 500ns$ fast to ultrafast reverse recovery time help to improve efficiency. The glass passivated die construction provides robustness and high reliability.

The low typical V_F and I_R characteristic help to improve efficiency, which is ideal for LED power supplies, PoE and adaptor applications.

Delivering superior performance, these devices are ideally suited for modern, high speed automated assembly processes.

Our DBF and ABF packages are green and RoHS-compliant. (See diodes.com for further details).



The Diodes Advantage

▪ Miniature Bridge Package and Low Profile Design (height<1.5mm)

The small form factor of the DBF and ABF packages utilize 50% less PC board space than 4 individual SMA rectifier in a bridge configuration.

▪ Low Reverse Leakage Current

These devices have low reverse leakage current ($I_R < 5\mu A$ @ $V_R = 1,000V$), which helps to improve the efficiency of the rectifier for reverse mode and switch-mode operation.

▪ High Forward Surge Current Capability

The clip die attach structure of the device enables it to withstand high surge currents (up to 100A), resulting in improved reliability and product lifetime.

▪ Ultrafast to Fast Recovery Time Improves Power Efficiency

RABF and RDBF bridges have 160ns ~ 500ns (t_{RR}) fast to ultrafast reverse recovery time, which helps to improve switching and thermal efficiency.

Circuit Functions

- AC-DC rectification
- Reverse Polarity Protection

Target Markets

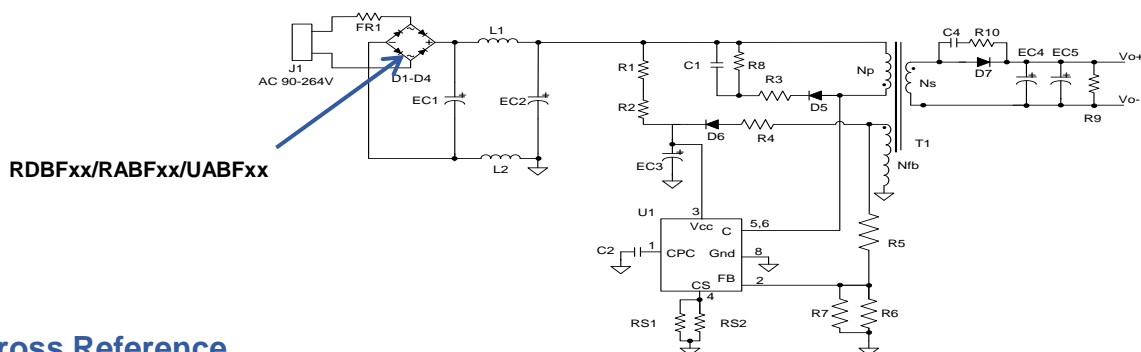
- SMPS for PC and servers
- LED lighting
- Power supplies
- Charger/adaptors
- TV & monitor power supplies
- Power over Ethernet (PoE)

Product Portfolio

Part Number	Package	Max Average Rectified Current I_O (A)	Peak Repetitive Reverse Voltage V_{RRM} (V)	Maximum Forward Voltage Drop V_F (V)	Maximum Reverse Current I_R (μ A)	Maximum Peak Forward Surge Current I_{FSM} (A)	Maximum Reverse Recovery Time t_{rr} (ns)	Typical Total Capacitance C_T (pF)	Maximum Power Dissipation P_d (W)
DBF310-13	DBF	3.0	1000	1.0	5	110	N/A	35	3.0
DBF2510-13	DBF	2.5	1000	1.0	5	80	N/A	30	2.5
DBF210-13	DBF	2.0	1000	1.0	5	70	N/A	25	2.0
DBF1510U-13	DBF	1.5	1000	1.0	5	70	N/A	25	1.5
RDBF310-13	DBF	3.0	1000	1.3	5	100	500	45	3.9
RDBF2510-13	DBF	2.5	1000	1.3	5	75	500	30	3.25
RDBF1510U-13	DBF	1.5	1000	1.3	5	70	500	25	1.95
UABF1510-13	ABF	1.5	1000	1.3	5	50	160	17	1.7
RABF210-13	ABF	2.0	1000	1.3	5	60	500	17	2.6
RABF1510-13	ABF	1.5	1000	1.3	5	50	500	17	1.95

Note: Lower voltage parts also are available for RDBF and RABF bridges, please refer to the product datasheet for details

Application Circuits (PD/QC charger)



Cross Reference

Diodes Device	Competitors	Cross Reference
RABF1510-13 RDBF1510U-13	Panjit, Taiwan Semi, Top Dynamic, Good-Ark	TR10F-15, RABS15M, TDF1510RM-HAF, LBR1510S
RABF210-13 RDBF2510-13	Taiwan Semi, Top Dynamic, Star Sea	RDBLS207G, TDF210M-HAF, RABF210

Deviations may exist between the specifications of the Diodes devices and the specifications of the competitor devices listed above. The customer is encouraged to carefully review the Diodes Inc. and competitor datasheets to verify the suitability of the Diodes device as a cross for any given competitor product. It is solely the responsibility of the customer to determine whether the Diodes device is suitable for any given application.