



# THE DATASHEET OF RDBF38-13

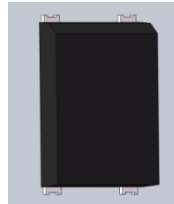


**3.0A SURFACE MOUNT FAST GLASS PASSIVATED BRIDGE RECTIFIER**
**NEW PRODUCT**
**Product Summary** (@T<sub>A</sub> = +25°C)

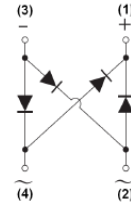
V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>FM</sub> (V)	I <sub>R</sub> (µA)
1000,800,600, 400,200,100	3.0	1.3	5

**Description and Applications**

Suitable for AC to DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.



Top View



Internal Schematic

**Features and Benefits**

- Glass Passivated Die Construction
- Miniature Package Saves Space on PC Boards
- Low Leakage Current
- Ideal for SMT Manufacturing
- Low Forward Voltage Drop
- Fast Recovery Time for Higher Efficiency
- Surge Overload Rating to 100A Peak
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

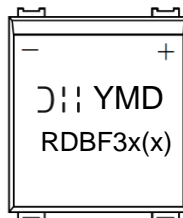
**Mechanical Data**

- Case: DBF
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 **Ⓜ3**
- Polarity: As Marked on Body
- Weight: 0.02 grams (Approximate)

**Ordering Information** (Note 4)

Part Number	Compliance	Case	Packaging
RDBF310-13	Commercial	DBF	3,000/Tape & Reel
RDBF38-13	Commercial	DBF	3,000/Tape & Reel
RDBF36-13	Commercial	DBF	3,000/Tape & Reel
RDBF34-13	Commercial	DBF	3,000/Tape & Reel
RDBF32-13	Commercial	DBF	3,000/Tape & Reel
RDBF31-13	Commercial	DBF	3,000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**


RDBF3x(x) = Product Type Marking Code  
 YMD = Manufacturers' Code Marking  
 YMD = Date Code Marking  
 Y = Last Digit of Year (ex: 8 = 2018)  
 M = See Month/Code Table Below  
 D = Day 1 to 9 = 1 to 9; Day 10 to 31 = A to V

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Maximum Ratings and Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristic	Symbol	RDBF31	RDBF32	RDBF34	RDBF36	RDBF38	RDBF310	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	100	200	400	600	800	1000	V
Working Peak Reverse Voltage	V <sub>RWM</sub>							
DC Blocking Voltage	V <sub>R</sub>							
RMS Reverse Voltage	V <sub>R(RMS)</sub>	70	140	280	420	560	700	V
Average Rectified Output Current (Note 5) @ T <sub>C</sub> = +120°C	I <sub>O</sub>	3.0						A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	100						A
I <sup>2</sup> t Rating for Fusing (1ms < t < 8.3ms)	I <sup>2</sup> t	41.5						A <sup>2</sup> S
Maximum Forward Voltage (Per Element) @ I <sub>F</sub> =2.5A	V <sub>FM</sub>	1.3						V
Maximum Reverse Recovery Time (Note 7)	t <sub>RR</sub>	150			250	500		ns
Peak Reverse Current @ T <sub>A</sub> =+25°C	I <sub>R</sub>	5.0						μA
At Rated DC Blocking Voltage @ T <sub>A</sub> =+125°C		500						
Typical Total Capacitance (Per Element) (Note 8)	C <sub>T</sub>	45						pF

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 6) (Per Element)	R <sub>θJA</sub>	15	°C/W
Typical Thermal Resistance, Junction to Case (Per Element)	R <sub>θJC</sub>	5	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

- Notes:
- Device mounted on glass epoxy PC board with 1.3mm<sup>2</sup> solder pad.
  - Device mounted on 15mmx12mmx1.6mm Al pad attach 195mmx110mmx10mm steel plate.
  - Reverse recovery test conditions: I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A
  - Measured at 1.0MHz and applied reverse voltage of 4.0V D.C.

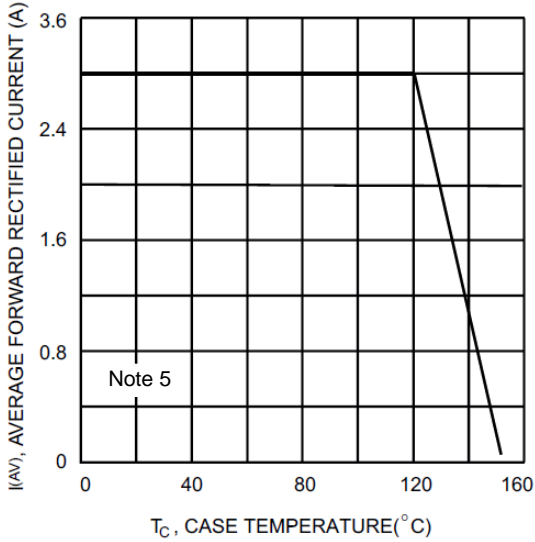


Fig. 1 Output Current Derating Curve

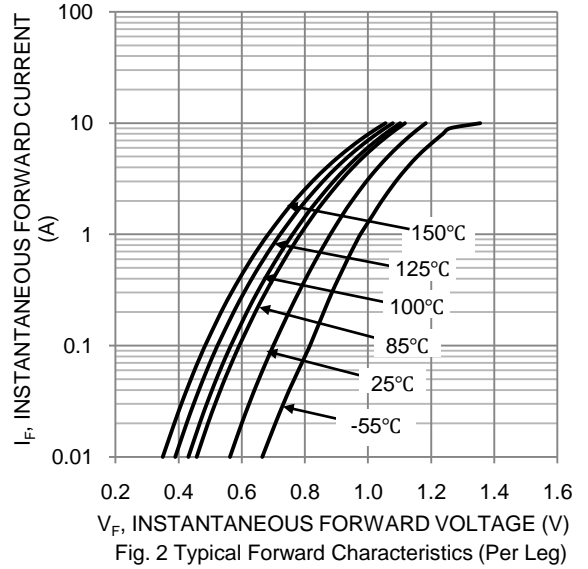


Fig. 2 Typical Forward Characteristics (Per Leg)

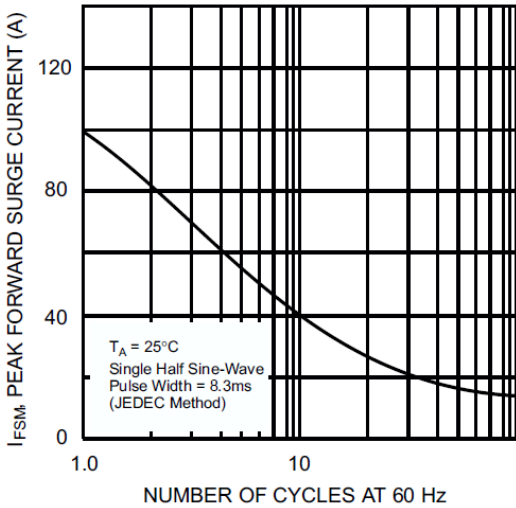


Fig.3 Maximum Non-Repetitive Surge Current

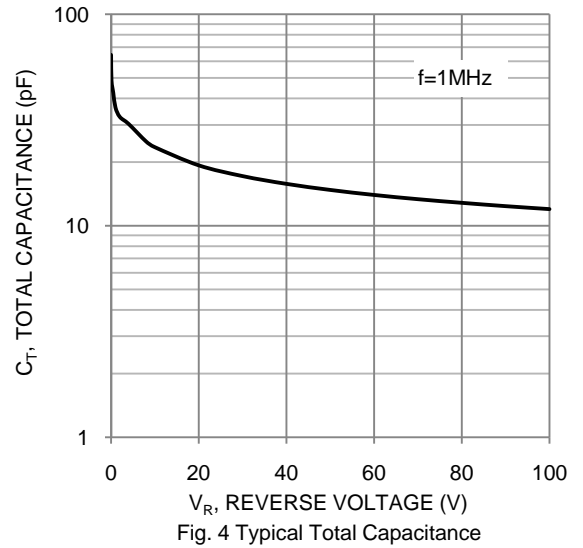


Fig. 4 Typical Total Capacitance

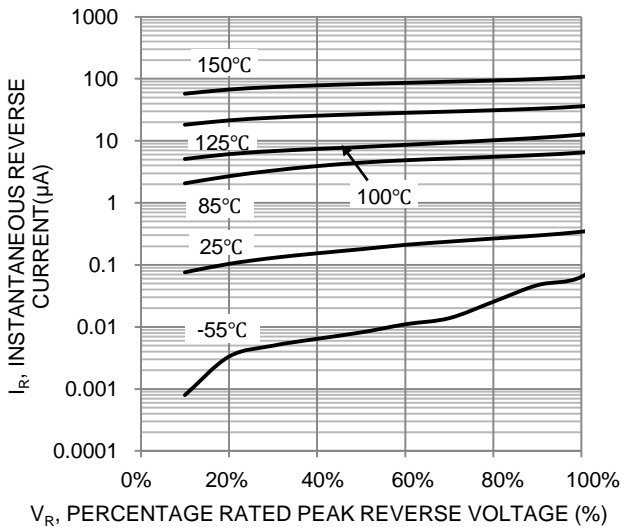
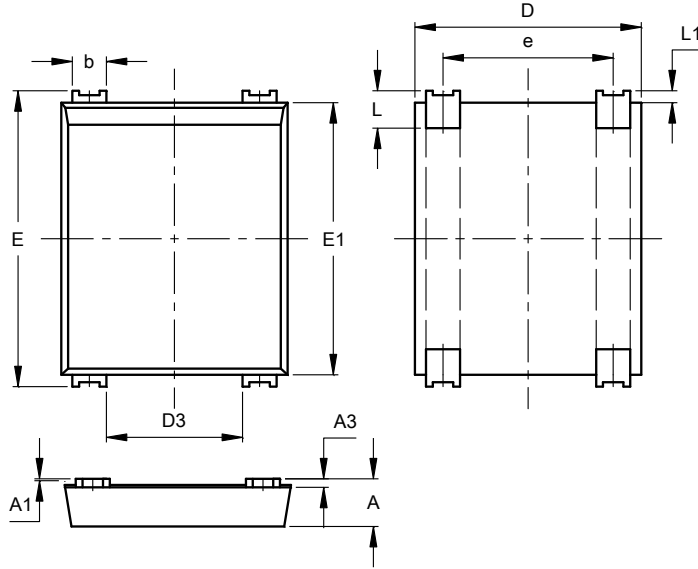


Fig.5 Typical Reverse Characteristics

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

DBF

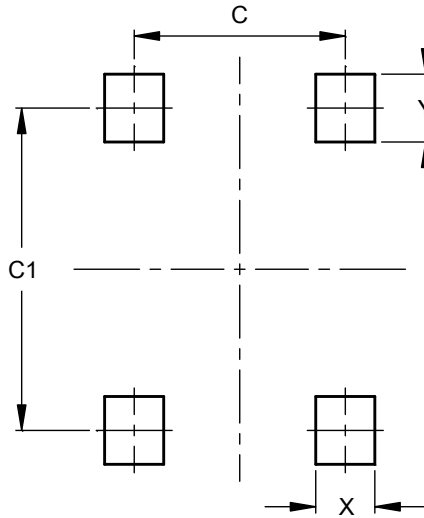


DBF			
Dim	Min	Max	Typ
A	1.30	1.50	--
A1	0.04	0.12	--
A3	0.15	0.35	--
b	0.80	1.20	--
D	6.45	6.85	--
D3	3.80	4.20	--
E	8.50	8.90	--
E1	7.80	8.20	--
e	4.80	5.20	--
L	0.80	1.40	--
L1	0.30	0.40	--
All Dimensions in mm			

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

DBF



Dimensions	Value (in mm)
C	5.00
C1	7.60
X	1.40
Y	1.60

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