# DFLR1200/DFLR1400/DFLR1600

## 1.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER

## Features

- Ideally Suited for Automated Assembly
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP capable (Note 4)**

## Mechanical Data

- Case: PowerDI®123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Terminal Connections: Cathode Band
- Weight: 0.01 grams (approximate)

PowerDI123

Top View

## Ordering Information (Note 5)

| Part Number | Compliance | Marking Code | Case | Packaging |
|---|---|---|---|---|
| DFLR1200-7 | AEC-Q101 | F12 | PowerDI123 | 3,000/Tape & Reel |
| DFLR1400-7 | AEC-Q101 | F14 | PowerDI123 | 3,000/Tape & Reel |
| DFLR1600-7 | AEC-Q101 | F18 | PowerDI123 | 3,000/Tape & Reel |
| DFLR1600Q-7 | Automotive | F18 | PowerDI123 | 3,000/Tape & Reel |

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html 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. Automotive products are AEC-Q10x qualified and are PPAP capable. Automotive, AEC-Q10x and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

## Marking Information


Fxx = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: Y = 2013)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|
| Code | Y | Z | A | B | C | D | E |

| 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 (@$T_A$ = +25°C, unless otherwise specified.)

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

| Characteristic | Symbol | DFLR1200 | DFLR1400 | DFLR1600 | Units |
|---|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 200 | 400 | 600 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 140 | 280 | 420 | V |
| Average Rectified Output Current (see figure 4) | $I_O$ | 1.0 | | | A |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 25 | | | A |

## Thermal Characteristics

| Characteristic | Symbol | Typ | Max | Unit |
|---|---|---|---|---|
| Thermal Resistance, Junction to Ambient Air (Note 6) | $R_{\theta JA}$ | 134 | — | mW |
| Thermal Resistance, Junction to Soldering Point (Note 7) | $R_{\theta JS}$ | — | 6 | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | — | -65 to +150 | °C |

## Electrical Characteristic (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | | Symbol | Value | Unit |
|---|---|---|---|---|
| Forward Voltage | @ $I_F$ = 1.0A | $V_{FM}$ | 1.1 | V |
| Peak Reverse Leakage Current<br>at Rated DC Blocking Voltage | @ $T_A$ = +25°C<br>@ $T_A$ = +125°C | $I_{RM}$ | 3.0<br>100 | μA |
| Typical Total Capacitance (f = 1MHz, $V_R$ = 4.0VDC) | | $C_T$ | 10 | pF |

Notes: 6. Device mounted on 1" x 1", FR-4 PCB; 2 oz. Cu pad layout as shown on Diodes Inc. suggested pad layout document AP02001.pdf. $T_A$ = +25□C
7. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB/cathode tab solder junction.

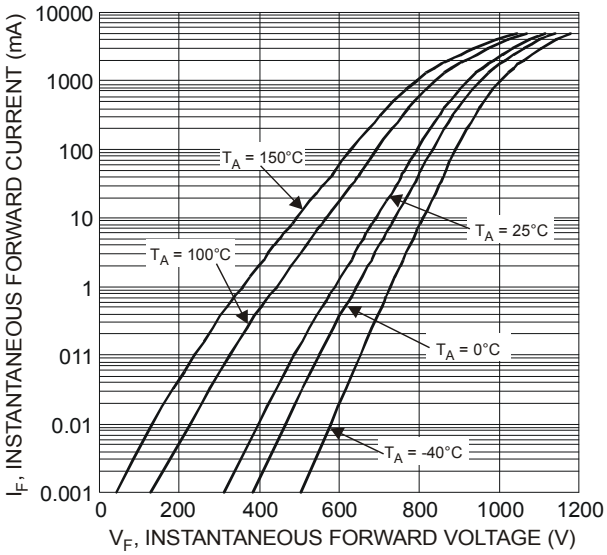


Figure 1 Typical Forward Characteristics

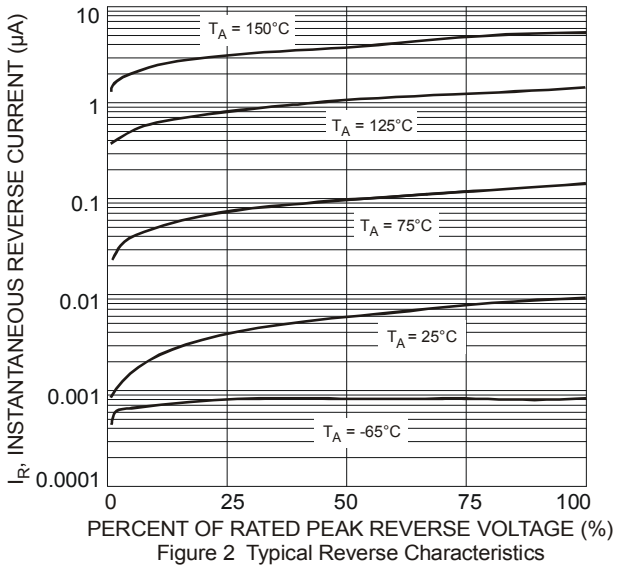


Figure 2 Typical Reverse Characteristics

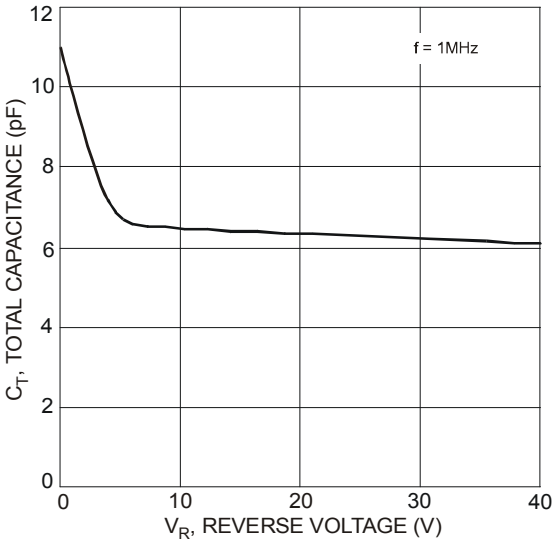


Figure 3 Typical Total Capacitance

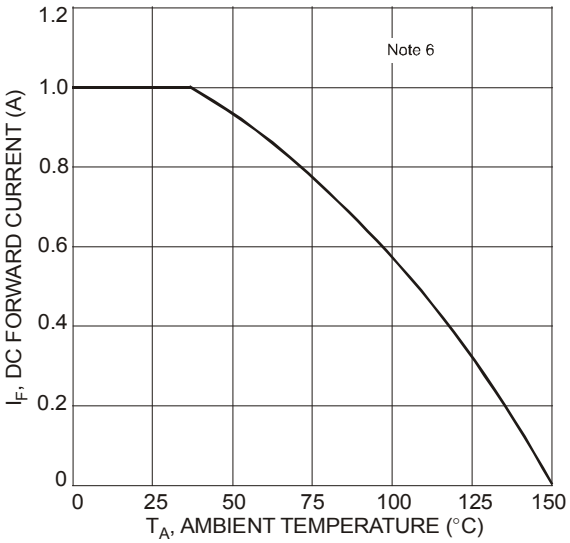
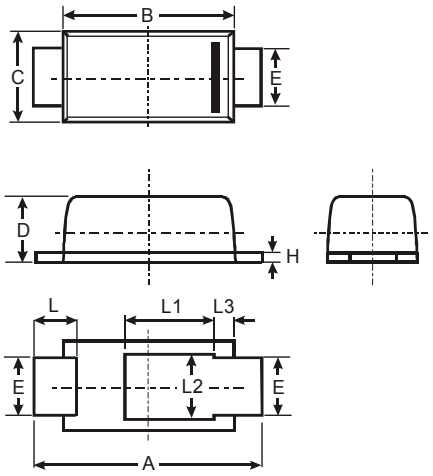


Figure 4 DC Forward Current Derating

## Package Outline Dimensions

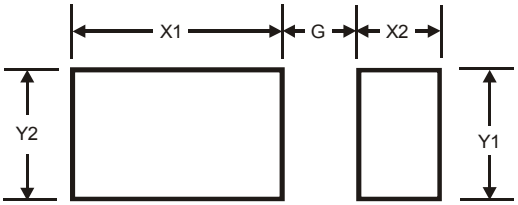
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.




| POWERDI®123 | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 3.50 | 3.90 | 3.70 |
| **B** | 2.60 | 3.00 | 2.80 |
| **C** | 1.63 | 1.93 | 1.78 |
| **D** | 0.93 | 1.00 | 0.98 |
| **E** | 0.85 | 1.25 | 1.00 |
| **H** | 0.15 | 0.25 | 0.20 |
| **L** | 0.40 | 0.50 | 0.45 |
| **L1** | - | - | 1.35 |
| **L2** | - | - | 1.10 |
| **L3** | - | - | 0.20 |
| **All Dimensions in mm** | | | |

## Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.




| Dimensions | Value (in mm) |
|---|---|
| **G** | 1.0 |
| **X1** | 2.2 |
| **X2** | 0.9 |
| **Y1** | 1.4 |
| **Y2** | 1.4 |

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