DFLR1200/DFLR1400/DFLR1600

1.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER
POWERDI®123

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	$V_{F(MAX)}$ (V)	$I_{R(MAX)}$ (µA)
200, 400, 600	1	1.1	3

Features and Benefits

- Glass Passivated Die Construction
- Ideally Suited for Automated Assembly
- Low Forward Voltage Drop
- Low Profile Design, Package Height Less than 1.1mm
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- Patented Interlocking Clip Design for High Surge Capacity, US Patent #7,095,113

Description and Applications

This series is packaged in the compact, low profile PowerDI®123 package. Providing low forward voltage drop, this device is ideal for use in general rectification applications such as:

- Power Supply Applications
- DC-DC Converters
- AC-DC Adaptors/Chargers
- Freewheeling Diodes
- Inverters

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 e3
- Terminal Connections: Cathode Band
- Weight: 0.01 grams (Approximate)

PowerDI123

Top View

Ordering Information (Note 4)

Part Number	Qualification	Marking Code	Case	Packaging
DFLR1200-7	Commercial	F12	PowerDI123	3,000/Tape & Reel
DFLR1400-7	Commercial	F14	PowerDI123	3,000/Tape & Reel
DFLR1600-7	Commercial	F18	PowerDI123	3,000/Tape & Reel

Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
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. 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: C = 2015)
M = Month (ex: 9 = September)

Date Code Key

Year	2011	…	2015	2016	2017	2018	2019	2020	2021
Code	Y	…	C	D	E	F	G	H	I

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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} 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 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 5)	$R_{\theta JA}$	134	—	°C/W
Thermal Resistance, Junction to Soldering Point (Note 6)	$R_{\theta JS}$	—	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	DFLR1200	DFLR1400	DFLR1600	Unit
Minimum Reverse Breakdown Voltage (Note 7) @I_R=10μA	$V_{(BR)R}$	200	400	600	V
Maximum Forward Voltage Drop @ I_F = 1.0A	V_F	1.1			V
Peak Reverse Leakage Current @ T_A = +25°C at Rated DC Blocking Voltage @ T_A = +125°C	I_R	3.0 100			μA
Typical Total Capacitance (f = 1MHz, V_R= 4.0VDC)	C_T	10			pF

Notes: 5. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
6. Device mounted on 1in x 1in, FR-4 PCB; 2 oz Cu pad layout as shown on Diodes Incorporated's suggested pad layout document AP02001.pdf.
7. Short duration pulse test used to minimize self-heating effect.

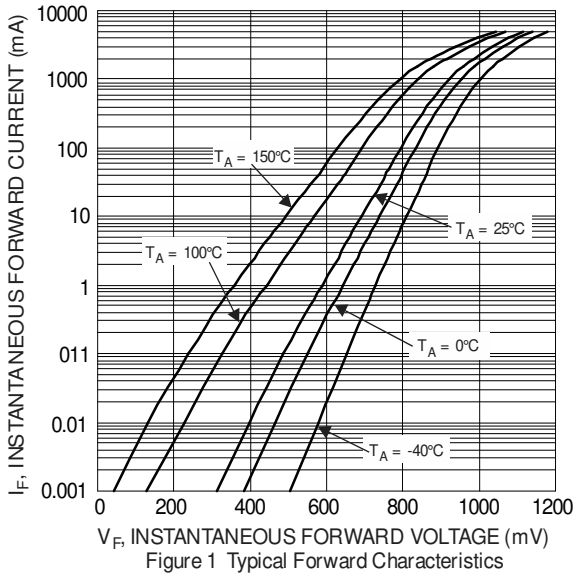


Figure 1 Typical Forward Characteristics

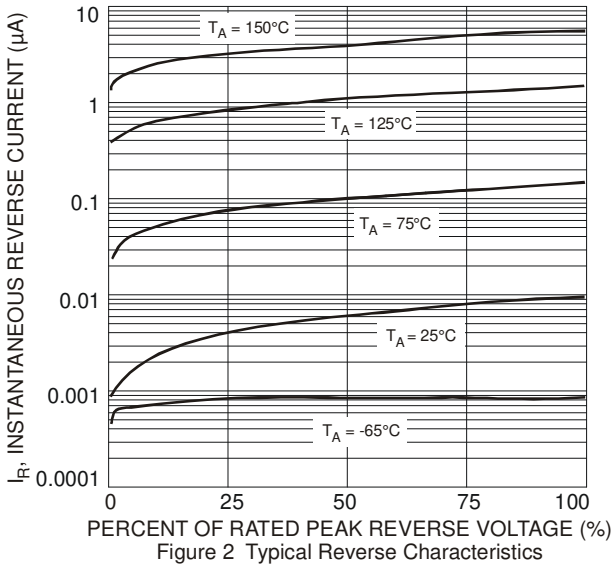


Figure 2 Typical Reverse Characteristics

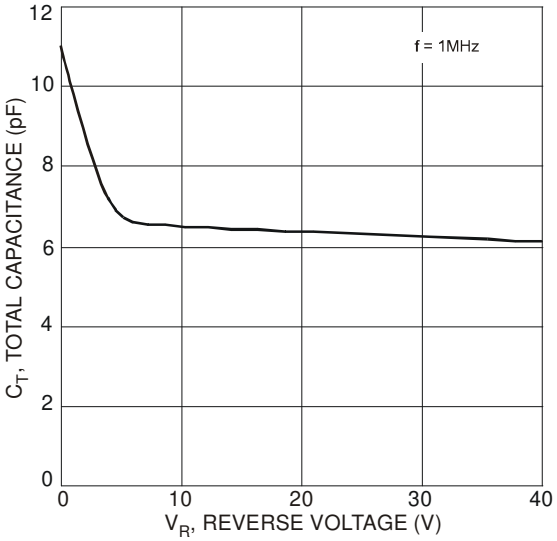


Figure 3 Typical Total Capacitance

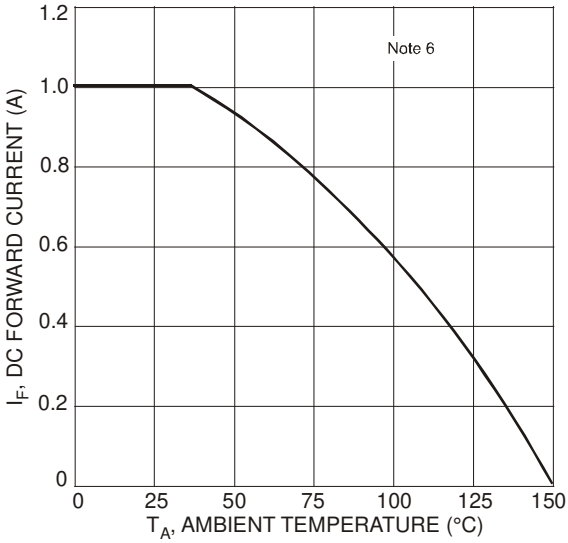
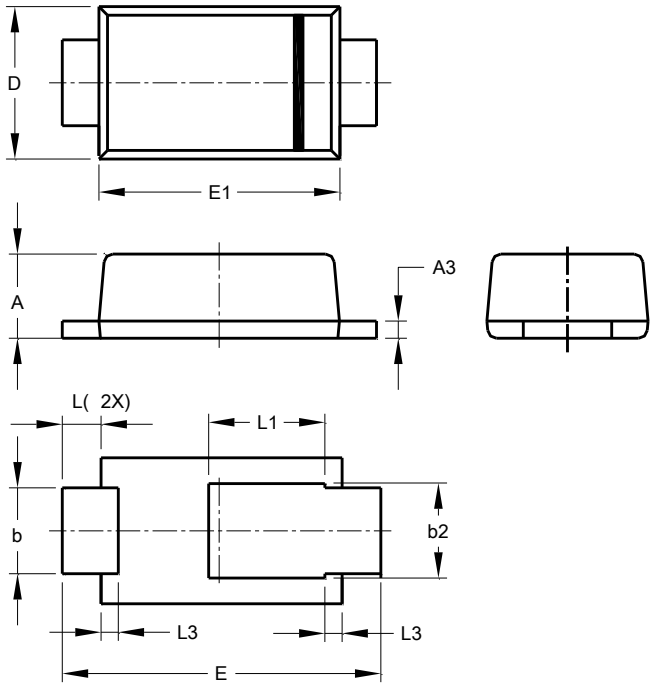


Figure 4 DC Forward Current Derating

Package Outline Dimensions

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

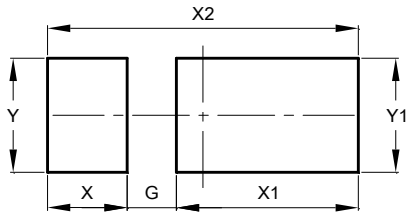


POWERDI®123			
Dim	**Min**	**Max**	**Typ**
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

Suggested Pad Layout

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

POWERDI®123



Dimensions	Value (in mm)
G	0.65
X	1.05
X1	2.40
X2	4.10
Y	1.50
Y1	1.50