

Product Summary

| V _{RRM} (V) | I _o (A) | V _F (MAX) (V) @+25°C | I _R (MAX) (μA) @+25°C |
|----------------------|--------------------|---------------------------------|----------------------------------|
| 100 | 2.0 | 0.86 | 1 |

Description and Applications

These devices are rectifiers packaged in PowerDI®123. Offering low V_F and excellent high-temperature stability, they are ideal for use in general rectification applications as:

- Boost diodes
- Reverse protection diodes
- Blocking diodes

Features and Benefits

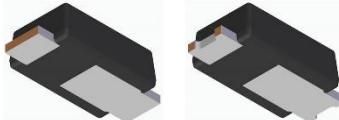
- Low-Forward Voltage (V_F) Minimizes Conduction Losses and Improving Efficiency
- Reduced High-Temperature Reverse Leakage; Increased Reliability against Thermal Runaway Failure in High-Temperature Operation
- Patented Interlocking Clip Design for High Surge Current Capacity
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- The DFLS2100Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.

<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: PowerDI123
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.01 grams (Approximate)

PowerDI123



Bottom View

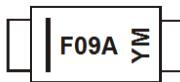
Ordering Information (Note 4)

| Orderable Part Number | Package | Packing | |
|-----------------------|------------|---------|-------------|
| | | Qty. | Carrier |
| DFLS2100Q-7 | PowerDI123 | 3000 | 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



F09A = Product Type Marking Code

YM = Date Code Marking

Y = Year (ex: M = 2025)

M = Month (ex: 9 = September)

Date Code Key

| Year | 2016 | - | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 |
|-------|------|-----|------|------|------|------|------|------|------|------|------|------|
| Code | D | - | M | N | P | R | S | T | U | V | W | X |
| 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 (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|--|-------------------|-------|------|
| Peak Repetitive Reverse Voltage | V_{RRM} | | |
| Working Peak Reverse Voltage | V_{RWM} | 100 | V |
| DC Blocking Voltage | V_R | | |
| RMS Reverse Voltage | $V_R(\text{RMS})$ | 71 | V |
| Average Rectified Output Current | I_O | 2.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms | I_{FSM} | 50 | A |
| Single Half Sine Wave Superimposed on Rated Load | | | |
| Electrostatic Discharge | HBM | 6000 | V |
| Electrostatic Discharge | CDM | 1000 | V |

Thermal Characteristics

| Characteristic | Symbol | Typ | Max | Unit |
|--|-----------------|-------------|-----|------|
| Thermal Resistance Junction to Soldering (Note 5) | $R_{\theta JS}$ | — | 7 | °C/W |
| Thermal Resistance Junction to Ambient ($T_A = +25^\circ\text{C}$) | $R_{\theta JA}$ | 125 | — | °C/W |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +175 | | °C |

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

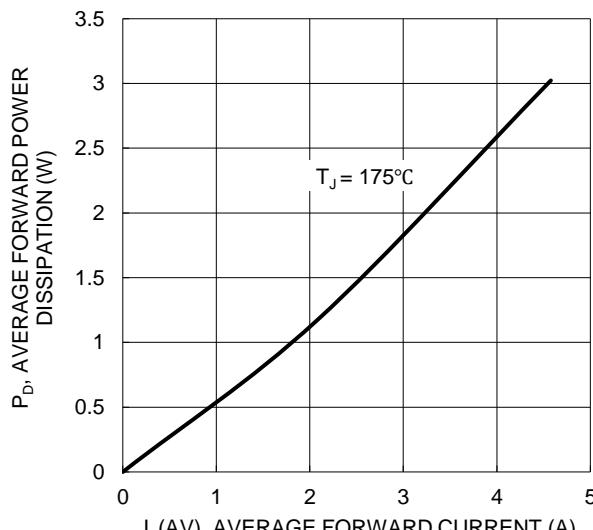
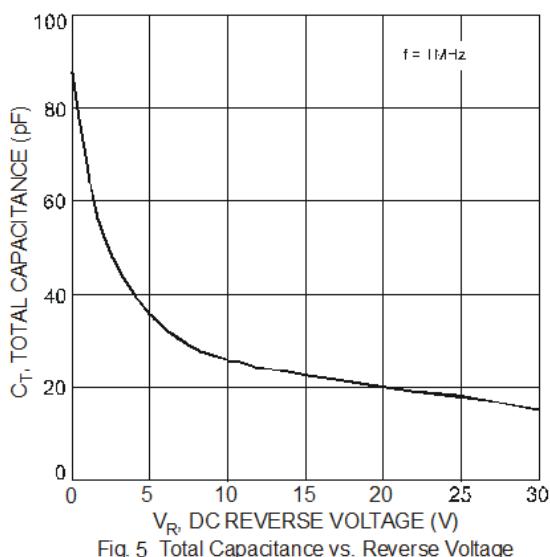
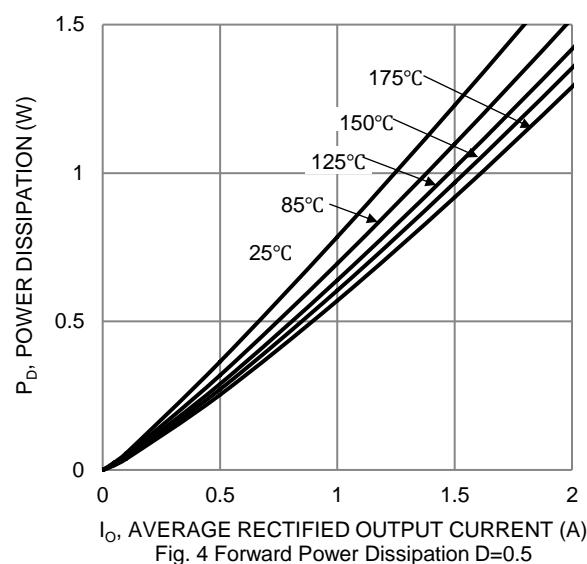
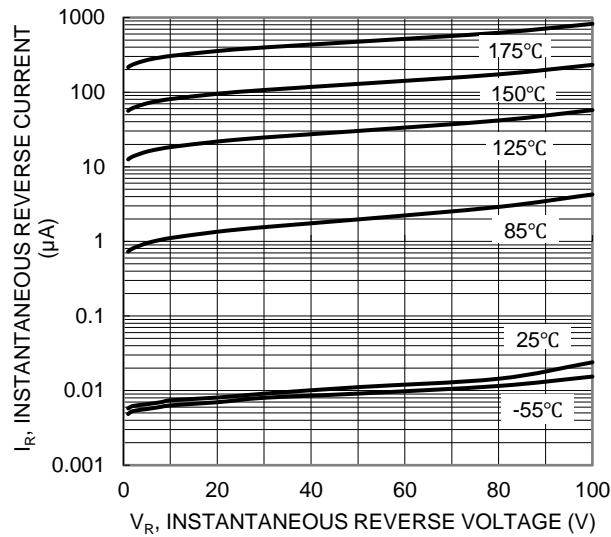
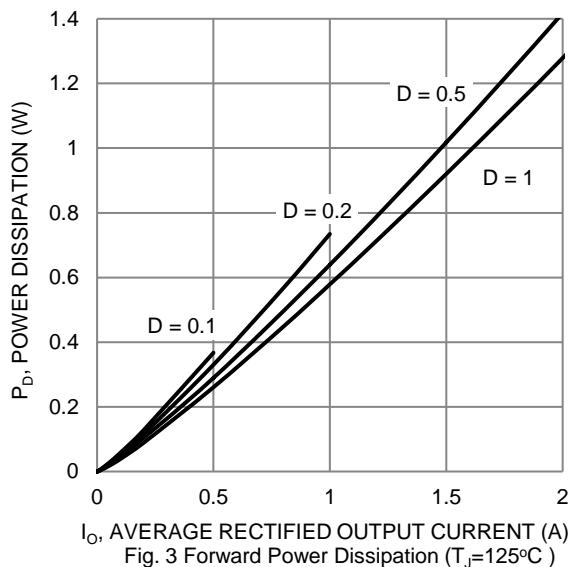
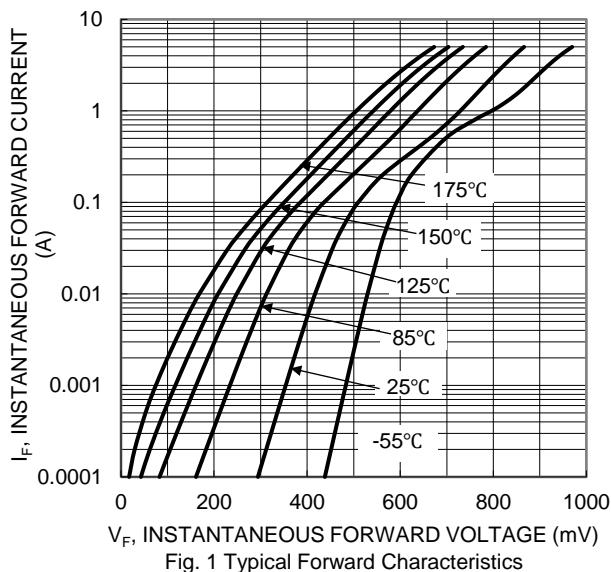
| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|-------------|-----|-----|--------------|---------------|--|
| Reverse Breakdown Voltage (Note 7) | $V_{(BR)R}$ | 100 | — | — | V | $I_R = 1\mu\text{A}$ |
| Forward Voltage | V_F | — | — | 0.77 0.86 | V | $I_F = 1.0\text{A}$ $I_F = 2.0\text{A}$ |
| Leakage Current (Note 7) | I_R | — | — | 1 | μA | $V_R = 100\text{V}$ |
| Total Capacitance | C_T | — | 36 | — | pF | $V_R = 5\text{VDC}$, $f = 1\text{MHz}$ |
| Switching Speed | t_{RR} | — | 9 | — | ns | $I_F = 0.5\text{A}$, $I_R = 1.0\text{A}$, $I_{RR} = 0.25\text{A}$ (RG1) |

Notes:

- 5. Theoretical $R_{\theta JS}$ calculated from the top center of the die straight down to the PCB/cathode tab solder junction.

- 6. Part mounted on FR-4 board with 2 oz. minimum recommended copper pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.

- 7. Short duration pulse test used to minimize self-heating effect.



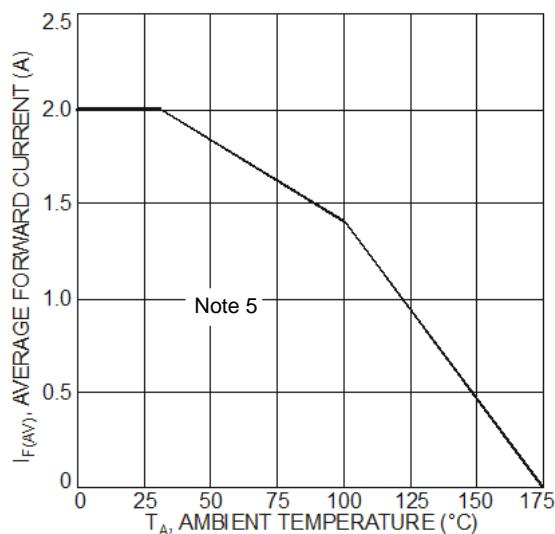


Fig. 7 Forward Current Derating Curve

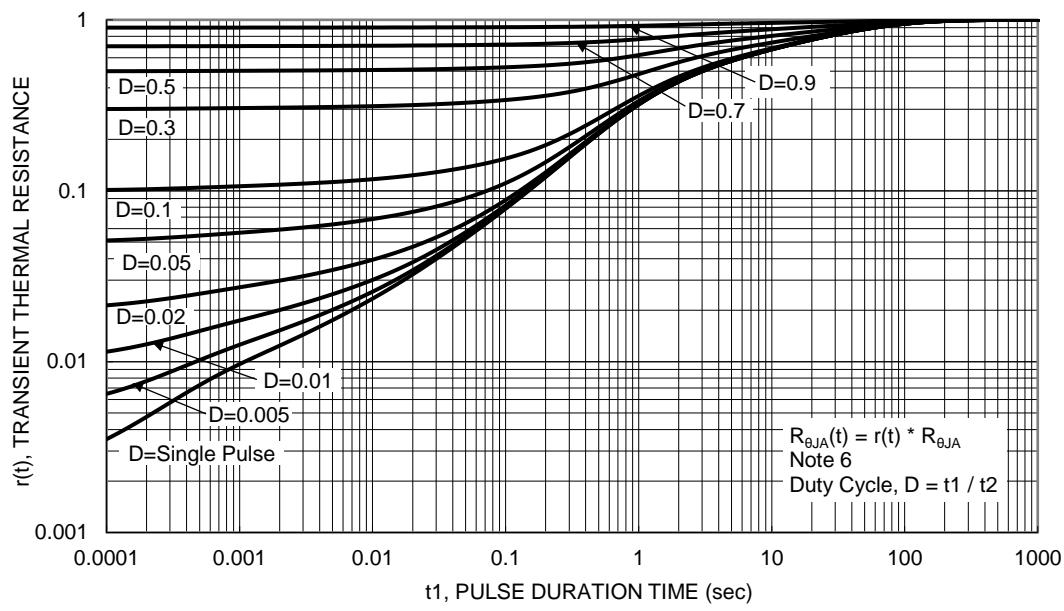
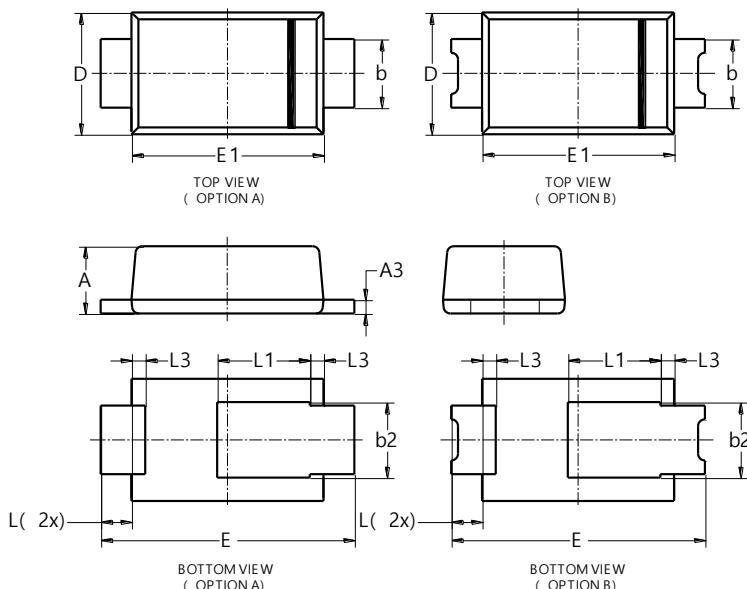


Fig. 8 Transient Thermal Resistance

Package Outline Dimensions

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

PowerDI123



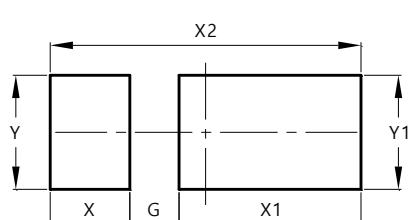
| PowerDI123 | | | |
|------------|-------|-------|------|
| Dim | Min | Max | Typ |
| A | 0.93 | 1.00 | 0.98 |
| A3 | 0.15 | 0.25 | 0.20 |
| b | 0.85 | 1.25 | 1.00 |
| b2 | 1.025 | 1.125 | 1.10 |
| D | 1.63 | 1.93 | 1.78 |
| E | 3.50 | 3.90 | 3.70 |
| E1 | 2.60 | 3.00 | 2.80 |
| L | 0.40 | 0.50 | 0.45 |
| L1 | 1.25 | 1.40 | 1.35 |
| L3 | 0.125 | 0.275 | 0.20 |

All Dimensions in mm

Suggested Pad Layout

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

PowerDI123



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

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