



**THE DATASHEET OF
DFLZ9V1Q-7**



Features

- 1W Power Dissipation on FR-4 PCB
- Large, Exposed Pad and Heat Sink Designed for Superior Thermal Performance
- Patented Interlocking Clip Design for High-Surge Capacity, US Patent #7,095,113
- **Lead-Free Finish; 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
- Terminal Connections: Cathode Band
- Terminals: Finish—Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 ③
- Weight: 0.01 grams (Approximate)



Top View

Ordering Information (Note 5)

| Part Number | Qualification | Case | Packaging |
|-------------------|---------------|--------------------------|------------------|
| (Type Number)Q-7* | Automotive | PowerDI [®] 123 | 3000/Tape & Reel |

* Add "-7" to the appropriate type number in Electrical Characteristics Table. Example: 6.2V Zener = DFLZ6V2Q-7

- 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



Fxx = Product Type Marking Code
(See Electrical Characteristics Table)
YM = Date Code Marking
Y = Year (ex: A = 2013)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | B | C | D | E | F | G | H | I | J | K | L | M |

| 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.)

| Characteristic | Symbol | Value | Unit |
|--|----------------|-------|------|
| Forward Voltage @ I _F = 200mA | V _F | 1.2 | V |

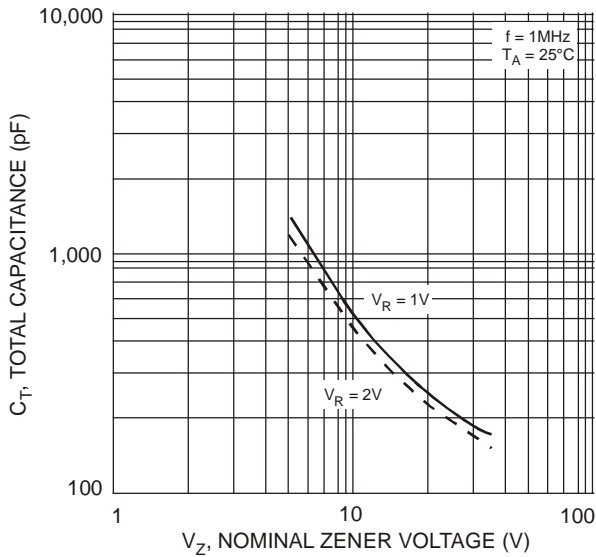
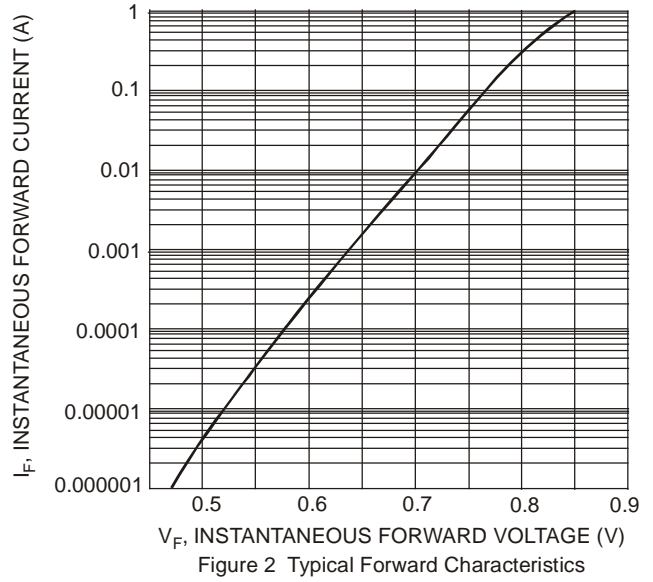
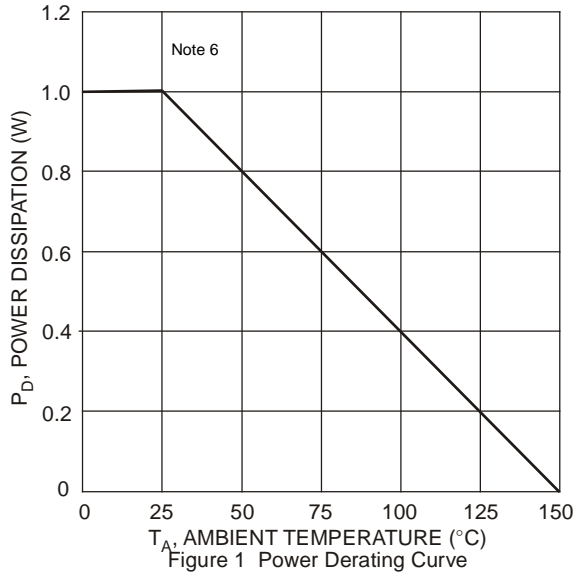
Thermal Characteristics

| Characteristic | Symbol | Typ | Value | Unit |
|---|-----------------------------------|-----|-------------|------|
| Power Dissipation (Note 6) | P _D | — | 1.0 | W |
| Thermal Resistance Junction to Ambient Air (Note 6) | R _{θJA} | 110 | — | °C/W |
| Thermal Resistance Junction to Soldering Point (Note 7) | R _{θJS} | — | 9 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | — | -55 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Type Number | Marking Codes | Zener Voltage Range (Note 8) | | | | Zener Impedance (Note 9) | | Maximum Reverse Current (Note 8) | | Temperature Coefficient @ I _{ZTC} %/°C | |
|-------------|---------------|----------------------------------|---------|---------|-----------------|-----------------------------------|---------|----------------------------------|------------------|---|------|
| | | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} @ I _{ZT} | | I _R | @ V _R | Min | Max |
| | | Nom (V) | Min (V) | Max (V) | mA | Typ (Ω) | Max (Ω) | μA | V | | |
| DFLZ5V1Q | FHK | 5.1 | 4.8 | 5.4 | 100 | 2 | 6 | 2.5 | 1 | -0.08 | 0.02 |
| DFLZ5V6Q | FHL | 5.6 | 5.2 | 6.0 | 100 | 1 | 4 | 10 | 2 | -0.04 | 0.04 |
| DFLZ6V2Q | FHN | 6.2 | 5.8 | 6.6 | 100 | 1 | 3 | 5 | 2 | -0.01 | 0.06 |
| DFLZ6V8Q | FHO | 6.8 | 6.4 | 7.2 | 100 | 1 | 3 | 5 | 3 | 0 | 0.07 |
| DFLZ7V5Q | FHQ | 7.5 | 7.0 | 7.9 | 100 | 1 | 2 | 5 | 3 | 0 | 0.07 |
| DFLZ8V2Q | FHR | 8.2 | 7.7 | 8.7 | 100 | 1 | 2 | 5 | 3 | 0.03 | 0.08 |
| DFLZ9V1Q | FHT | 9.1 | 8.5 | 9.6 | 50 | 1 | 4 | 5 | 5 | 0.03 | 0.08 |
| DFLZ10Q | FHU | 10 | 9.4 | 10.6 | 50 | 1 | 4 | 5 | 7.5 | 0.05 | 0.09 |
| DFLZ11Q | FHV | 11 | 10.4 | 11.6 | 50 | 1 | 7 | 4 | 8.2 | 0.05 | 0.10 |
| DFLZ12Q | FHW | 12 | 11.4 | 12.7 | 50 | 1 | 7 | 3 | 9.1 | 0.05 | 0.10 |
| DFLZ13Q | FHX | 13 | 12.4 | 14.1 | 50 | 1 | 10 | 2 | 10 | 0.05 | 0.10 |
| DFLZ15Q | FHZ | 15 | 13.8 | 15.6 | 50 | 1 | 10 | 1 | 11 | 0.05 | 0.10 |
| DFLZ16Q | FJA | 16 | 15.3 | 17.1 | 25 | 1 | 15 | 1 | 12 | 0.06 | 0.11 |
| DFLZ18Q | FJF | 18 | 16.8 | 19.1 | 25 | 2 | 15 | 1 | 13 | 0.06 | 0.11 |
| DFLZ20Q | FJG | 20 | 18.8 | 21.2 | 25 | 3 | 15 | 1 | 15 | 0.06 | 0.11 |
| DFLZ22Q | FJK | 22 | 20.8 | 23.3 | 25 | 3 | 15 | 1 | 16 | 0.06 | 0.11 |
| DFLZ24Q | FJL | 24 | 22.8 | 25.6 | 25 | 2 | 15 | 1 | 18 | 0.06 | 0.11 |
| DFLZ27Q | FJN | 27 | 25.1 | 28.9 | 25 | 3 | 15 | 1 | 20 | 0.06 | 0.11 |
| DFLZ30Q | FJQ | 30 | 28 | 32 | 25 | 8 | 15 | 1 | 22 | 0.06 | 0.11 |
| DFLZ33Q | FJR | 33 | 31 | 35 | 25 | 5 | 15 | 1 | 24 | 0.06 | 0.11 |
| DFLZ36Q | FJS | 36 | 34 | 38 | 10 | 5 | 40 | 1 | 27 | 0.06 | 0.11 |
| DFLZ39Q | FJT | 39 | 37 | 41 | 10 | 5 | 40 | 1 | 30 | 0.06 | 0.11 |

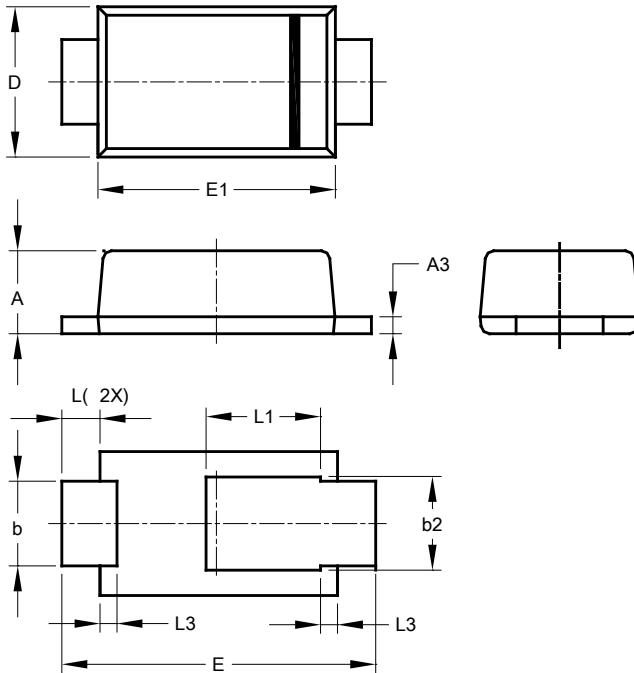
- Notes:
- Device mounted on 1.5" x 1.5", FR-4 PCB; 2 oz. Cu with 1" x 1" pad layout.
 - Theoretical R_{θJS} calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
 - Short duration pulse test used to minimize self-heating effect.
 - The Zener impedance (Z_{ZT}) is measured by superimposing a minute alternating current on the regulated current (I_{ZT}).



Package Outline Dimensions

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

PowerDI123

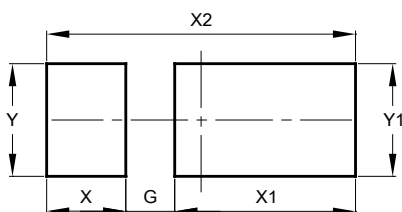


| PowerDI123 | | | |
|----------------------|-------|-------|------|
| Dim | Min | Max | Typ |
| A | 0.93 | 1.00 | 0.98 |
| A3 | 0.15 | 0.25 | 0.20 |
| b | 0.85 | 1.25 | 1.00 |
| b2 | 1.025 | 1.125 | 1.10 |
| D | 1.63 | 1.93 | 1.78 |
| E | 3.50 | 3.90 | 3.70 |
| E1 | 2.60 | 3.00 | 2.80 |
| L | 0.40 |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