

Product Summary

| V_R (V) | I_F (A) | V_F MAX (V) @ +25°C | I_R MAX (mA) @ +25°C |
|-----------|-----------|--------------------------|---------------------------|
| 60 | 2.0 | 0.62 | 0.1 |

Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Description and Applications

This Schottky barrier rectifier is designed to meet the stringent requirements of automotive applications. It is ideally suited to use as :

- Polarity Protection Diode
- Recirculating Diode
- Switching Diode

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 (e3)
- Weight: 0.01 grams (Approximate)

PowerDI123



Top View

Ordering Information (Note 5)

| Part Number | Compliance | Case | Packaging |
|-------------|------------|------------|------------------|
| DFLS260Q-7 | Automotive | 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. Automotive products are AEC-Q101 qualified and are PPAP capable. 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



F17A = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: B = 2014)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------|------|------|------|------|------|------|------|------|
| Code | B | 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 capacitance load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|--|---------------------|-------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 60 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 42 | V |
| Average Forward Current | I _{F(AV)} | 2.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 50 | A |

| Characteristic | Symbol | Ratings | Unit |
|--------------------------------|---------|---------|------|
| Human Body Mode ESD Protection | ESD HBM | 4000 | V |
| Machine Model ESD Protection | ESD MM | 400 | V |
| Charged Device Model | ESD CDM | 1 | kV |

Thermal Characteristics

| Characteristic | Symbol | Typ | Max | Unit |
|---|-----------------------------------|-------------|-----|------|
| Thermal Resistance Junction to Soldering Point (Note 7) | R _{θJS} | — | 6 | °C/W |
| Thermal Resistance Junction to Ambient (Note 6) | R _{θJA} | 125 | — | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | | °C |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|-----|--------------|------|---|
| Reverse Breakdown Voltage (Note 8) | V _{(BR)R} | 60 | — | — | V | I _R = 0.2mA |
| Forward Voltage | V _F | — | — | 0.62 0.56 | V | I _F = 2.0A, T _A = +25°C I _F = 2.0A, T _A = +125°C |
| Leakage Current (Note 8) | I _R | — | □ | 0.1 | mA | V _R = 60V, T _A = +25°C |
| Total Capacitance | C _T | — | 67 | — | pF | V _R = 10V, f = 1.0MHz |
| Switching Speed t _{RR} | t _{RR} | — | 12 | — | ns | I _F =0.5A, I _R =1A, I _{RR} =0.25A (RG1) |

- Notes:
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. Theoretical R_{θJS} calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
 8. Short duration pulse test to minimize self-heating effect.

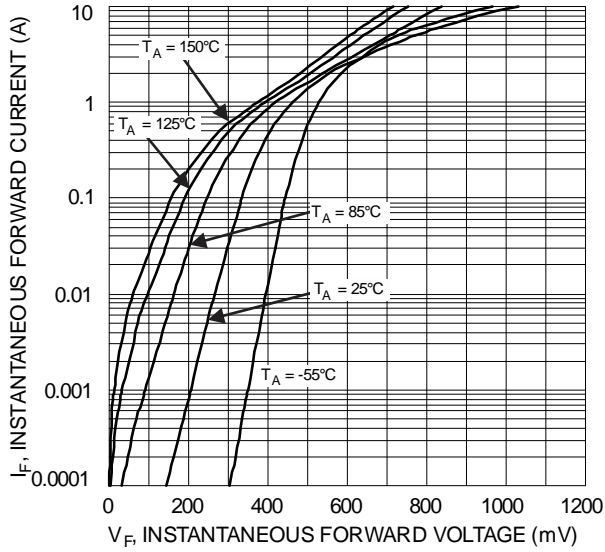


Figure 1 Typical Forward Characteristics

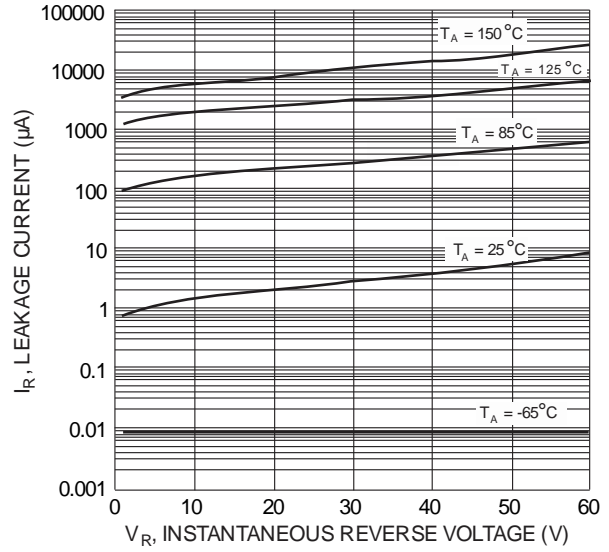


Figure 2 Typical Reverse Characteristics

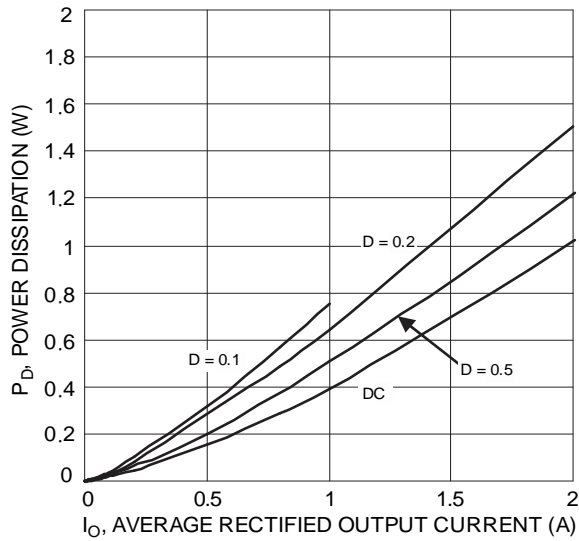


Figure 3 Forward Power Dissipation $T_J = 125^\circ\text{C}$

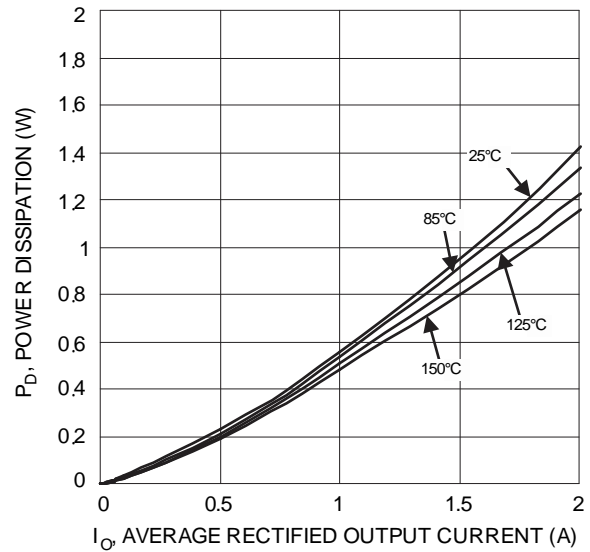


Figure 4 Forward Power Dissipation $D = 0.5$

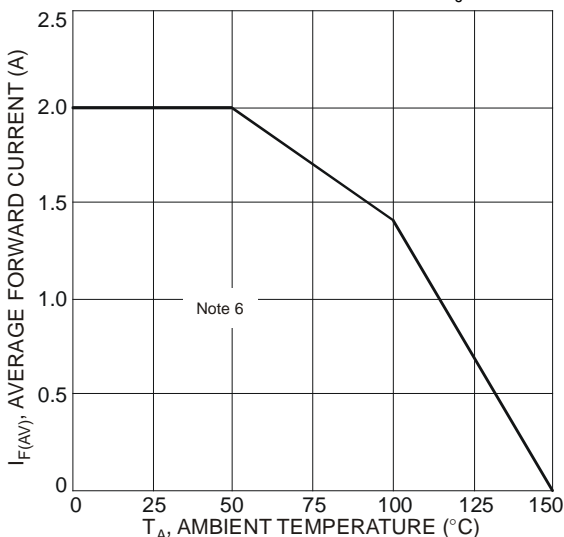


Figure 5 Forward Current Derating Curve

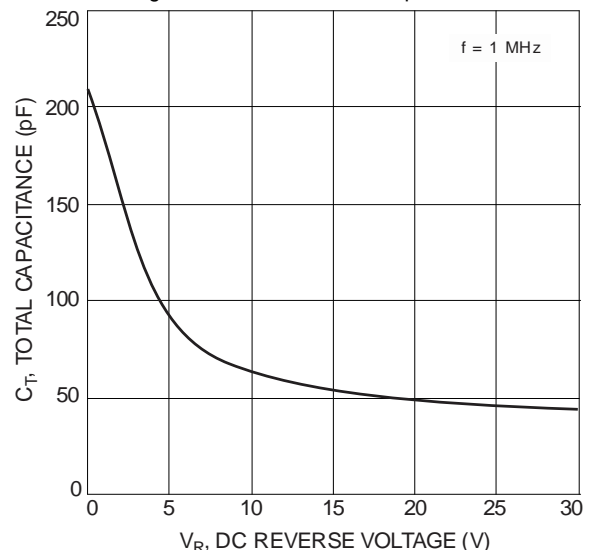
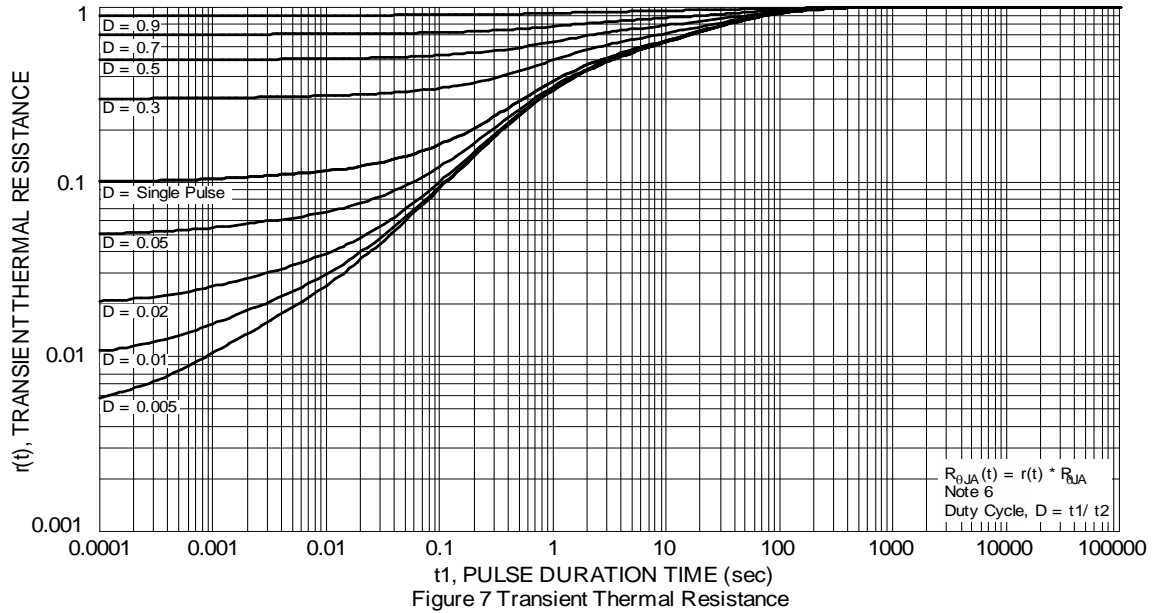


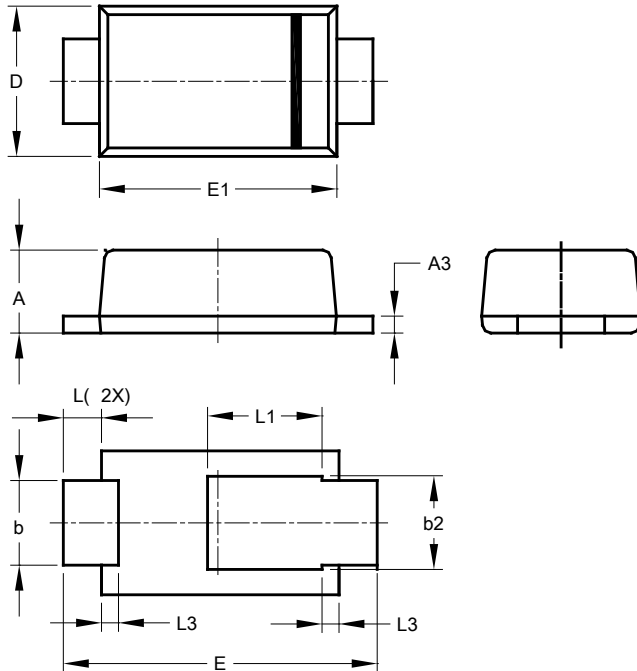
Figure 6 Total Capacitance vs. Reverse Voltage



Package Outline Dimensions

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

PowerDI123

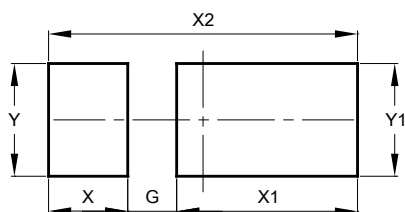


| PowerDI123 | | | |
|----------------------|-------|-------|------|
| Dim | Min | Max | Typ |
| A | 0.93 | 1.00 | 0.98 |
| A3 | 0.15 | 0.25 | 0.20 |
| b | 0.85 | 1.25 | 1.00 |
| b2 | 1.025 | 1.125 | 1.10 |
| D | 1.63 | 1.93 | 1.78 |
| E | 3.50 | 3.90 | 3.70 |
| E1 | 2.60 | 3.00 | 2.80 |
| L | 0.40 |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