


## Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Patented Interlocking Clip Design for High Surge Current Capacity
- High Current Capability and Low Forward Voltage Drop
- **Lead Free Finish, RoHS Compliant (Note 5)**
- **"Green" Molding Compound (No Br, Sb)**

## 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-020D
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin Annealed Over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.01 grams (approximate)



Top View

## Maximum Ratings @T<sub>A</sub> = 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 <sub>RRM</sub>    | 30    | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub>    |       |      |
| DC Blocking Voltage   | V <sub>R</sub>      |       |      |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub> | 21    | V    |
| Average Forward Current @ T <sub>T</sub> = 121°C  | I <sub>F(AV)</sub>  | 2.0   | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>    | 33    | A    |

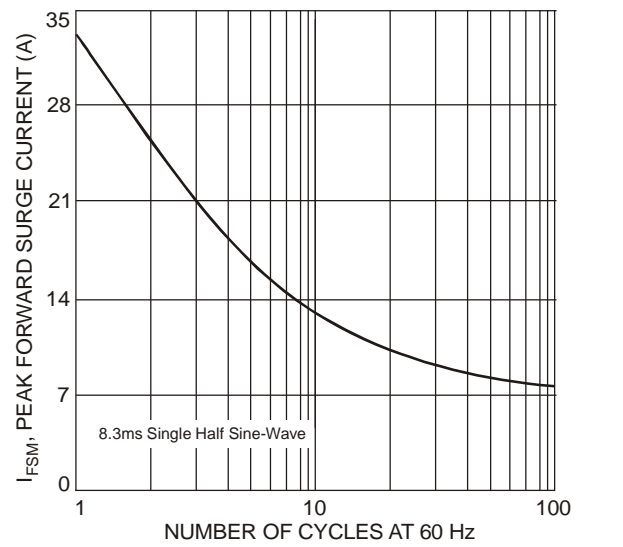
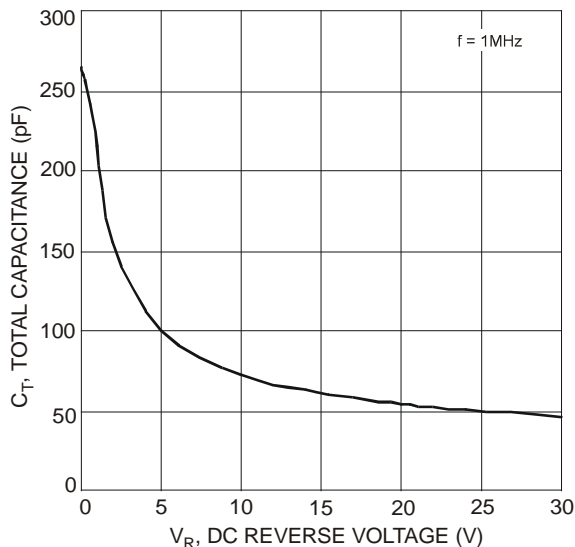
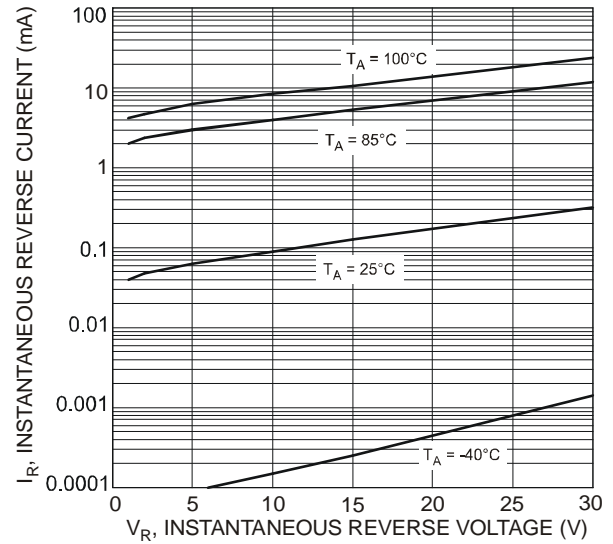
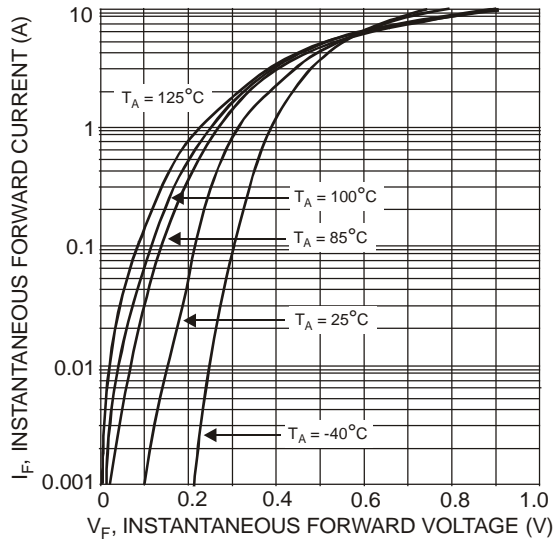
## Thermal Characteristics

| Characteristic                                    | Symbol           | Value       | Unit |
|---|------------------|-------------|------|
| Power Dissipation (Note 1)                        | P <sub>D</sub>   | 1.67        | W    |
| Power Dissipation (Note 2)                        | P <sub>D</sub>   | 556         | mW   |
| Thermal Resistance Junction to Ambient (Note 1)   | R <sub>θJA</sub> | 60          | °C/W |
| Thermal Resistance Junction to Ambient (Note 2)   | R <sub>θJA</sub> | 180         | °C/W |
| Thermal Resistance Junction to Soldering (Note 3) | R <sub>θJS</sub> | 10          | °C/W |
| Operating Temperature Range                       | T <sub>J</sub>   | -40 to +125 | °C   |
| Storage Temperature Range                         | T <sub>STG</sub> | -40 to +150 | °C   |

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                     | Symbol             | Min | Typ   | Max   | Unit | Test Condition                              |
|------------------------------------|--------------------|-----|-------|-------|------|---|
| Reverse Breakdown Voltage (Note 4) | V <sub>(BR)R</sub> | 30  | —     | —     | V    | I <sub>R</sub> = 1.0mA                      |
| Forward Voltage                    | V <sub>F</sub>     | —   | 0.310 | —     | V    | I <sub>F</sub> = 1.0A                       |
|                                    |                    | —   | 0.375 | 0.420 |      | I <sub>F</sub> = 2.0A                       |
| Leakage Current (Note 4)           | I <sub>R</sub>     | —   | 0.260 | —     | mA   | V <sub>R</sub> = 5V, T <sub>A</sub> = 25°C  |
|                                    |                    | —   | —     | 1.0   |      | V <sub>R</sub> = 30V, T <sub>A</sub> = 25°C |
| Total Capacitance                  | C <sub>T</sub>     | —   | 76    | —     | pF   | V <sub>R</sub> = 10V, f = 1.0MHz            |

- Notes:
1. Part mounted on 2"x2" GETEK board with 1"x1" copper pad, 25% anode, 75% cathode. T<sub>A</sub> = 25°C.
  2. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001>.
  3. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
  4. Short duration pulse test used to minimize self-heating effect.
  5. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.

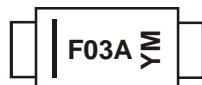


**Ordering Information** (Note 6)

| Part Number | Case                     | Packaging        |
|-------------|--------------------------|------------------|
| DFLS230L-7  | PowerDI <sup>®</sup> 123 | 3000/Tape & Reel |

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



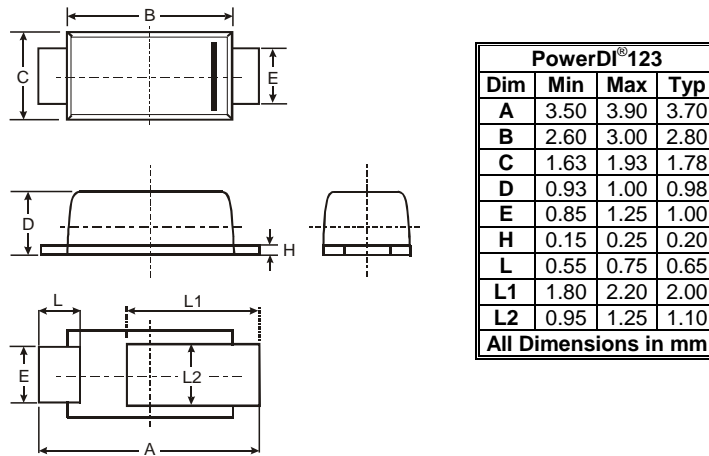
F03A = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: T = 2006)  
 M = Month (ex: 9 = September)

Date Code Key

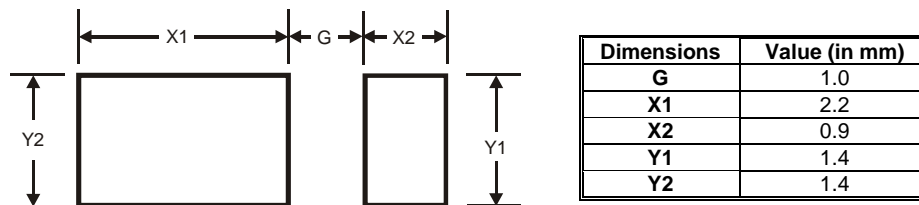
| Year  | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |     |     |     |
|-------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
| Code  | R    | S    | T    | U    | V    | W    | X    | Y    | Z    |     |     |     |
| Month | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct | Nov | Dec |
| Code  | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | O   | N   | D   |

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## Package Outline Dimensions



## Suggested Pad Layout



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