

## Product Summary

$V_R$ (V)	$I_F$ (A)	$V_F$ MAX (V) @ +25°C	$I_R$ MAX (mA) @ +25°C
30	2.0	0.42	1.0

## Description and Applications

This Schottky Barrier Rectifier has been designed to meet the stringent requirements of Automotive Applications. It is ideally suited to use as:

- Polarity Protection Diode
- Re-circulating Diode
- Switching Diode

## Features and Benefits

- 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 (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 (E3)
- Weight: 0.01 grams (approximate)



Top View

## Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
DFLS230LQ-7	Automotive	PowerDI®123	3000/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](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. 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 [http://www.diodes.com/quality/product\\_compliance\\_definitions/](http://www.diodes.com/quality/product_compliance_definitions/).
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



F03A = 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	2022
Code	B	C	D	E	F	G	H	I	J

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<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 Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	30	V
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 Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	33	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P <sub>D</sub>	1.67	W
Power Dissipation (Note 7)	P <sub>D</sub>	556	mW
Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	60	°C/W
Thermal Resistance Junction to Ambient (Note 7)	R <sub>θJA</sub>	180	°C/W
Thermal Resistance Junction to Soldering (Note 8)	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 9)	V <sub>(BR)R</sub>	30	—	—	V	I <sub>R</sub> = 1.0mA
Forward Voltage	V <sub>F</sub>	—	0.310 0.375	— 0.42	V	I <sub>F</sub> = 1.0A I <sub>F</sub> = 2.0A
Leakage Current (Note 9)	I <sub>R</sub>	—	0.260 —	— 1.0	mA	V <sub>R</sub> = 5V, T <sub>A</sub> = +25°C 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:
6. Part mounted on 2"x2" GETEK board with 1"x1" copper pad, 25% anode, 75% cathode. T<sub>A</sub> = +25°C.
  7. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.
  8. Theoretical R<sub>θJS</sub> calculated from the top center of the die straight down to the PCB/cathode tab solder junction.
  9. Short duration pulse test used to minimize self-heating effect.

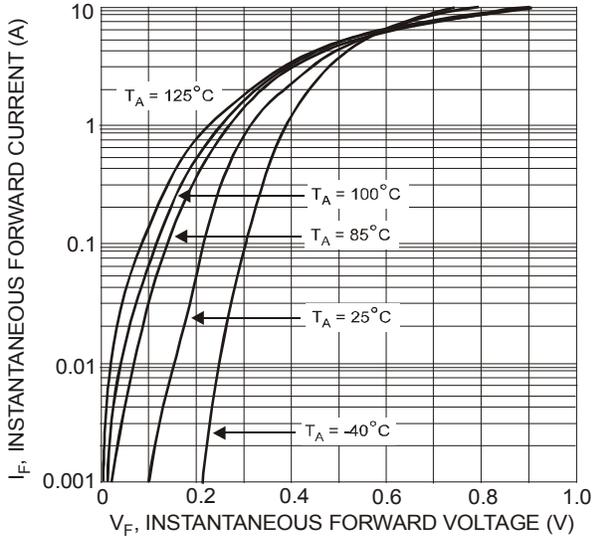


Figure 1 Typical Forward Characteristics

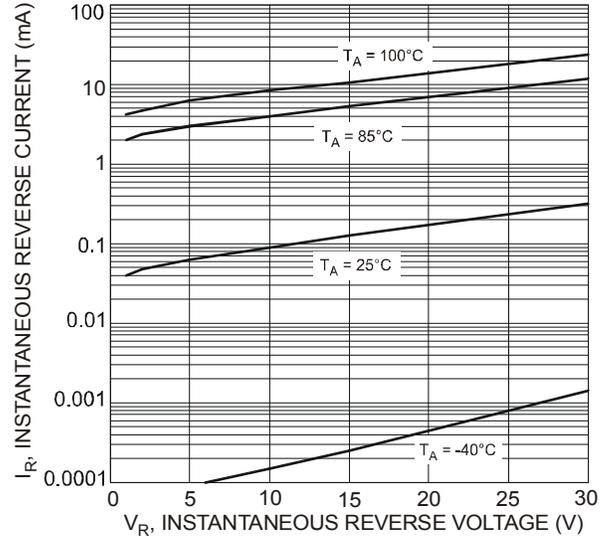


Figure 2 Typical Reverse Characteristics

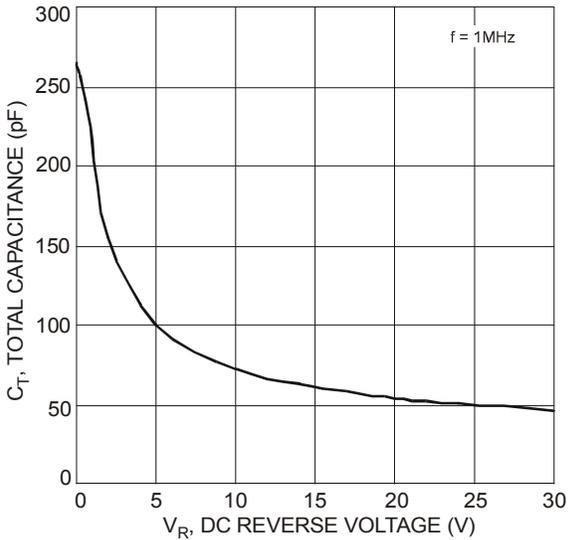


Figure 3 Total Capacitance vs. Reverse Voltage

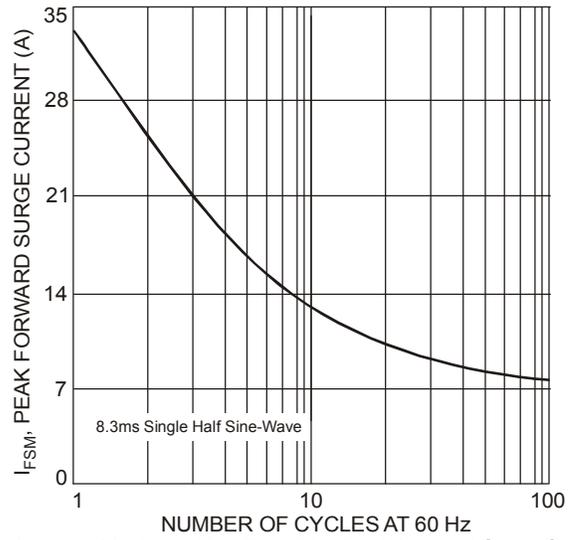
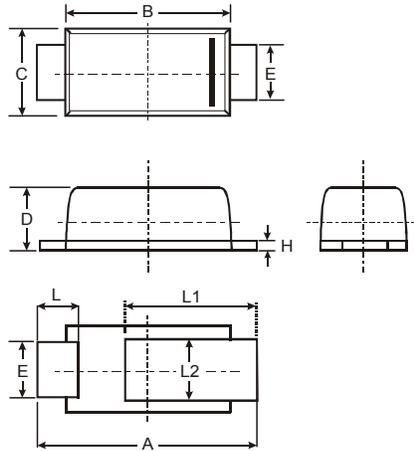


Figure 4 Maximum Non-Repetitive Peak Forward Surge Current

## Package Outline Dimensions

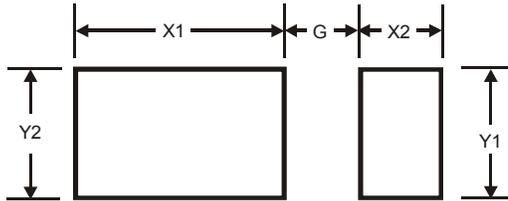
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



PowerDI <sup>®</sup> 123			
Dim	Min	Max	Typ
A	3.50	3.90	3.70
B	2.60	3.00	2.80
C	1.63	1.93	1.78
D	0.93	1.00	0.98
E	0.85	1.25	1.00
H	0.15	0.25	0.20
L	0.55	0.75	0.65
L1	1.80	2.20	2.00
L2	0.95	1.25	1.10
<b>All Dimensions in mm</b>			

## Suggested Pad Layout

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



Dimensions	Value (in mm)
G	1.0
X1	2.2
X2	0.9
Y1	1.4
Y2	1.4

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