

## Product Summary

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ max (V)	$I_R$ max (mA)
30	2	0.49	1.0

## Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Patented Interlocking Clip Design for High Surge Current Capacity
- Low Forward Voltage Drop
- **Lead Free Finish, RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Description and Applications

This Schottky Barrier Rectifier is designed to meet the stringent requirements of automotive applications. It is ideally suited for use as:

- Polarity Protection Diode
- Recirculating Diode
- Switching Diode

## Mechanical Data

- Case: PowerDI@123
- Case Material—Molded Plastic  
UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: Cathode Band
- Terminals: Finish—Matte Tin Annealed over Copper Leadframe.  
Solderable per MIL-STD-202, Method 208 (E3)
- Ordering Information: See Last Page
- Weight: 0.01 grams (Approximately)



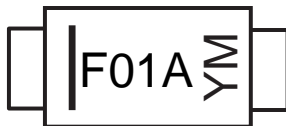
Top View

## Ordering Information (Note 4)

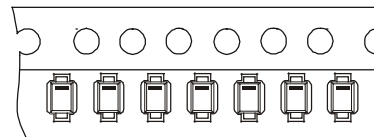
Part Number	Case	Packaging
DFLS230-7	PowerDI123	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  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 <http://www.diodes.com/products/packages.html>.

## Marking Information



F01A = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: G = 2019)  
 M = Month (ex: 9 = September)



### Date Code Key

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Code	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<sub>A</sub> = +25°C, unless otherwise specified.)

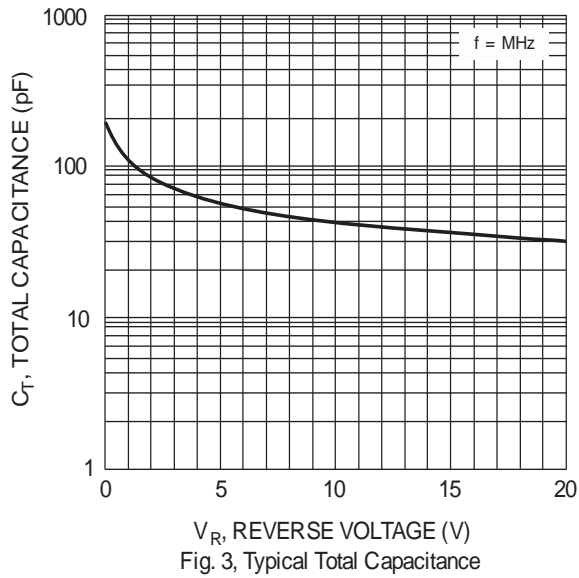
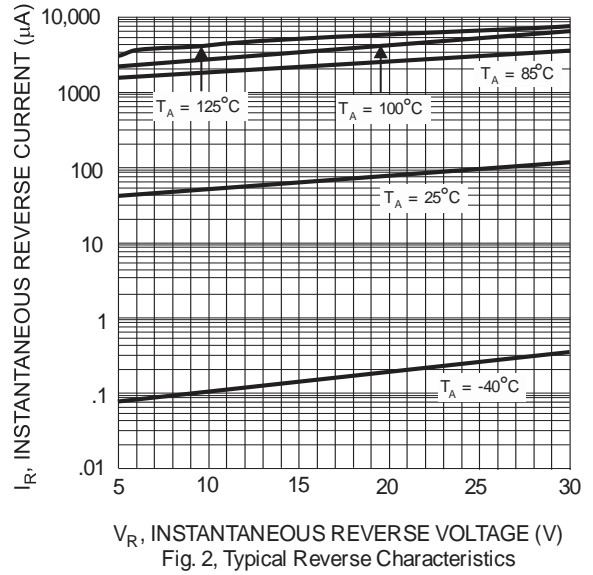
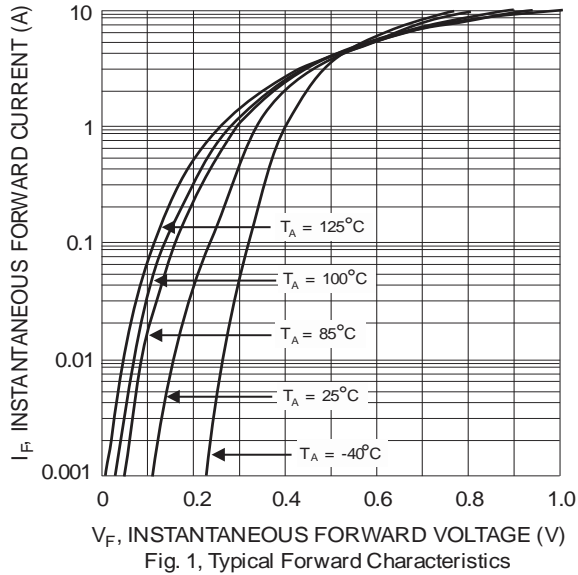
Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	30	V
RMS Reverse Voltage	$V_{R(RMS)}$	21	V
Average Forward Current @ T <sub>T</sub> = 120°C	$I_{F(AV)}$	2.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed On Rated Load	$I_{FSM}$	40	A
Power Dissipation (Note 5)	$P_D$	1.67	W
Power Dissipation (Note 6)	$P_D$	556	mW
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	60	°C/W
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	180	°C/W
Thermal Resistance Junction to Soldering (Note 7)	$R_{\theta JS}$	10	°C/W
Operating Temperature Range	T <sub>j</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +125	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	30	—	—	V	I <sub>R</sub> = 1.5mA
Forward Voltage	$V_F$	—	0.36 0.4	0.42 0.49	V	I <sub>F</sub> = 1.0A I <sub>F</sub> = 2.0A
Leakage Current (Note 8)	$I_R$	—	0.15	1.0	mA	V <sub>R</sub> = 30V, T <sub>A</sub> = 25°C
Total Capacitance	$C_T$	—	75	—	pF	V <sub>R</sub> = 10V, f = 1.0MHz

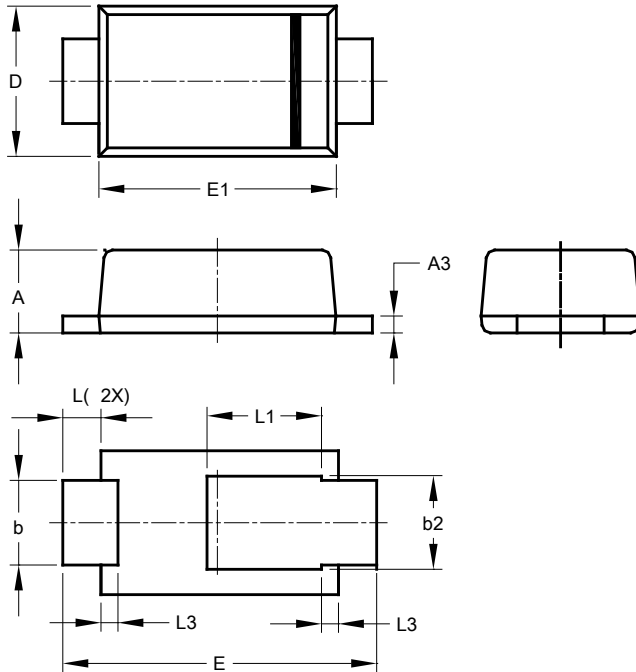
- Notes:
5. Part mounted on 50.8mm × 50.8mm GETEK board with 25.4mm × 25.4mm copper pad, 25% anode, 75% cathode. T<sub>A</sub> = 25°C.
  6. Part mounted on FR-4 board with 1.8mm × 2.5mm cathode and 1.8mm × 1.2mm anode, 1 oz. copper pads. T<sub>A</sub> = 25°C.
  7. Theoretical R<sub>θJS</sub> calculated 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.
  9. RoHS revision 13.2.2003. High Temperature Solder Exemption Applied, see EU Directive Annex Note 7.



**Package Outline Dimensions**

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

**PowerDI123**

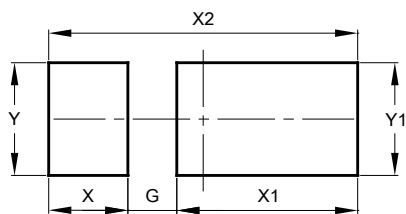


PowerDI123			
Dim	Min	Max	Typ
A	0.93	1.00	0.98
A3	0.15	0.25	0.20
b	0.85	1.25	1.00
b2	1.025	1.125	1.10
D	1.63	1.93	1.78
E	3.50	3.90	3.70
E1	2.60	3.00	2.80
L	0.40	0.50	0.45
L1	1.25	1.40	1.35
L3	0.125	0.275	0.20
All Dimensions in mm			

**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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