

## 1.0A SURFACE MOUNT SUPER-FAST RECTIFIER PowerDI™ 123

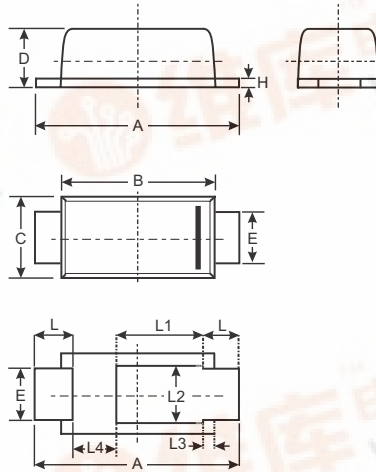
NEW PRODUCT

### Features

- Glass Passivated Die Construction
- Super-Fast Recovery Time for High Efficiency
- Low Forward Voltage Drop and High Current Capability
- **Lead Free Finish, RoHS Compliant (Note 2)**
- **Green Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### 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-020C
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Marking & Type Code Information: See Last Page
- Ordering Information: See Last Page
- Weight: 0.01 grams (approximate)



PowerDI™ 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	0.45	0.85	0.65
L1	—	—	1.35
L2	—	—	1.10
L3	—	—	0.20
L4	0.90	1.30	1.05
All Dimensions in mm			

### Maximum Ratings and Electrical Characteristics 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	DFLU1200	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	V
Average Rectified Output Current	$I_O$	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	$I_{FSM}$	30	A
Forward Voltage Drop (Note 5)	$V_{FM}$	0.90 0.98	V
Peak Reverse Current at Rated DC Blocking Voltage (Note 5)	$I_{RM}$	5.0 200	$\mu$ A
Reverse Recovery Time (Note 4)	$t_{rr}$	25	ns
Typical Total Capacitance (f = 1MHz, $V_R = 4VDC$ )	$C_T$	27	pF
Operating and Storage Temperature Range	$T_j, T_{STG}$	-65 to +150	°C

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

Characteristic	Symbol	Typ	Max	Unit
Power Dissipation (Note 1)	$P_D$	—	1.0	W
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	116	—	°C/W
Thermal Resistance Junction to Soldering (Note 3)	$R_{\theta JS}$	—	6	°C/W

- Notes:
1. Device mounted on 1" x 1", Polyimide PCB; 2 oz. Cu pad layout as shown on Diodes Inc. suggested pad layout document AP02001.pdf.
  2. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.
  3. Theoretical  $R_{\theta JS}$  calculated from the top center of the die straight down to the PCB cathode tab solder junction.
  4. Measured with  $I_F = 0.5A$ ,  $I_R = 1.0A$ ,  $I_{rr} = 0.25A$ . See figure 5.
  5. Short duration pulse test to minimize self-heating effect.

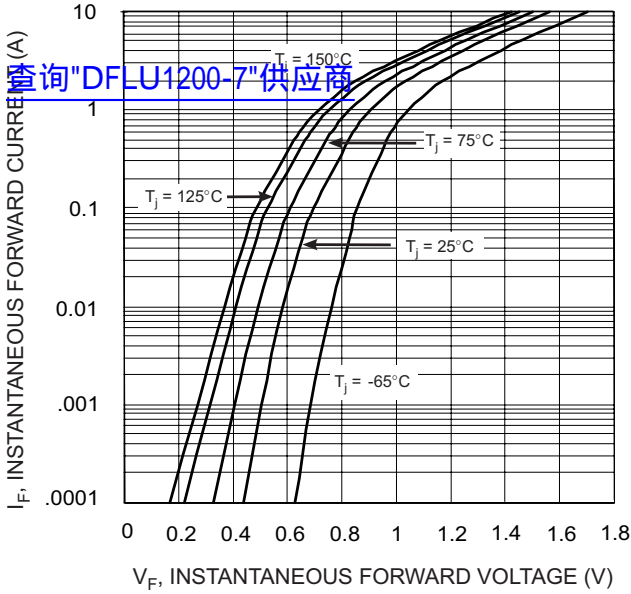


Fig. 1 Typical Forward Characteristics

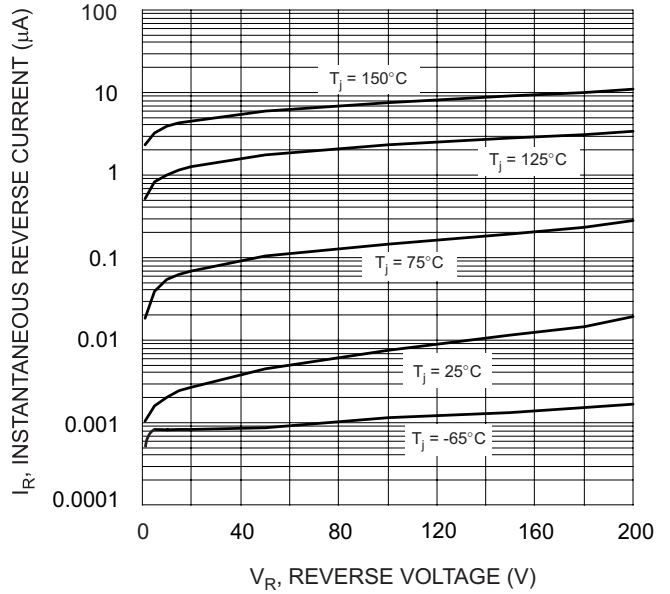
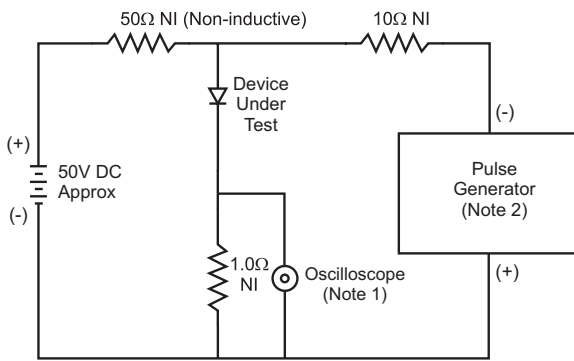
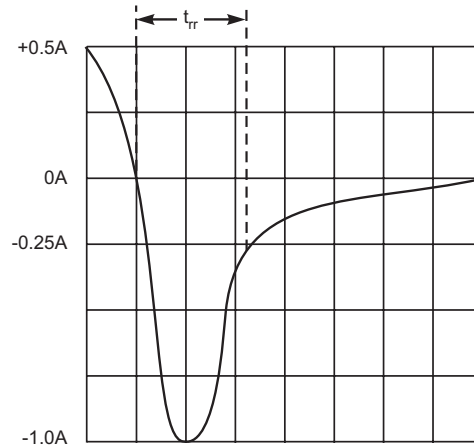


Fig. 2 Typical Reverse Characteristics



- Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
  2. Rise Time = 10ns max. Input Impedance = 50Ω.



Set time base for 50/100 ns/cm

Fig. 3 Reverse Recovery Time Characteristic and Test Circuit

**Ordering Information** (Note 6)

[查询“DFLU1200-7”供应商](#)

Device	Marking Code	Packaging	Shipping
DFLU1200-7	F15	PowerDI™ 123	3000/Tape & Reel

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

**Marking Information**



F15 = Product Type Marking Code (See Table Above)  
 YM = Date Code Marking  
 Y = Year (ex: S = 2005)  
 M = Month (ex: 9 = September)

Date Code Key

Year	2005		2006		2007		2008		2009	
Code	S		T		U		V		W	

Month	Jan	Feb	March	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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