

**Features**

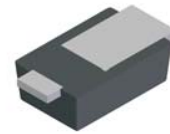
- Guard Ring Die Construction for Transient Protection
- High Surge Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- "Green" Molding Compound (No Br, Sb)
- **Qualified to AEC-Q101 Standards for High Reliability**
- **Ultra-Small Surface Mount Package**

**Mechanical Data**

- Case: PowerDI™ 323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Polarity: Cathode Band
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Marking: Date Code & Type Code, See Page 3
- Type Code: 31
- Ordering Information: See Page 3
- Weight: 0.006 grams (approx.)



TOP VIEW



BOTTOM VIEW

**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 <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 (See also figure 4)	I <sub>F(AV)</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	22	A

**Thermal Characteristics**

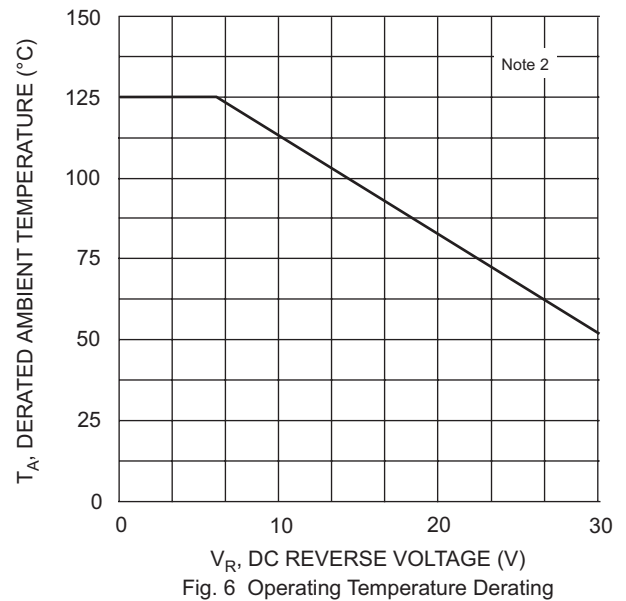
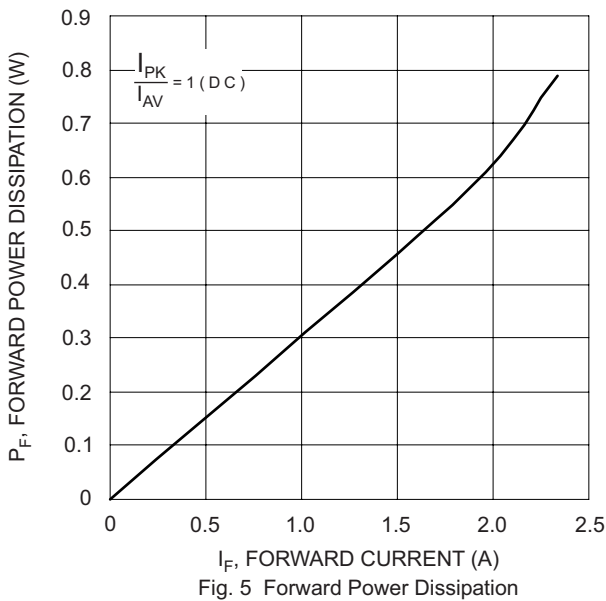
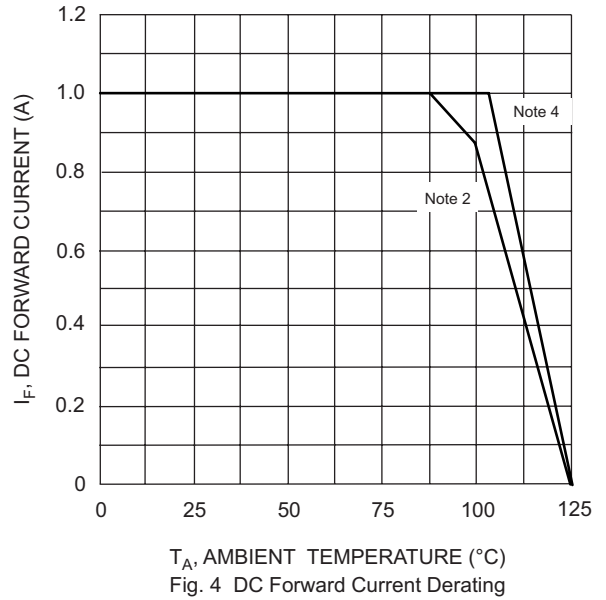
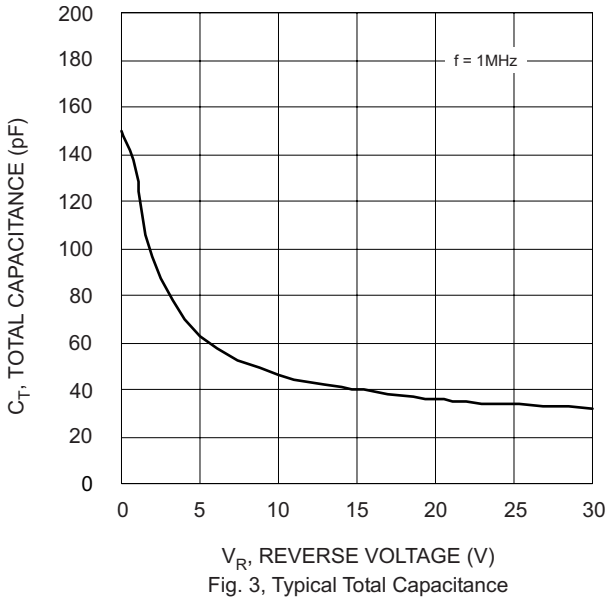
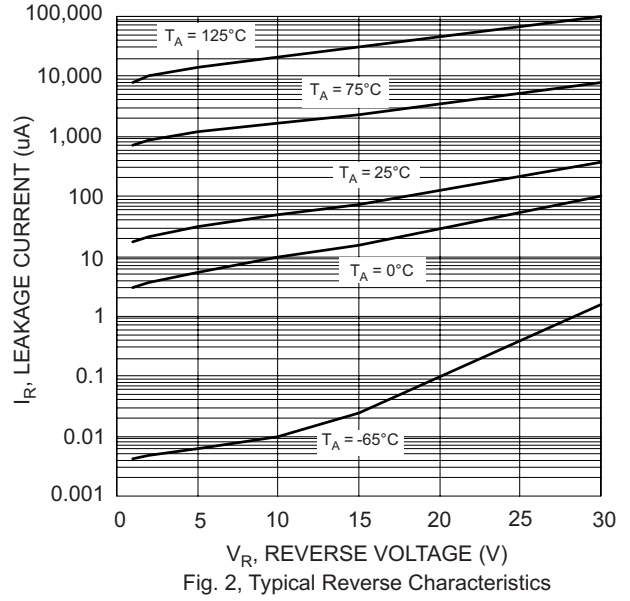
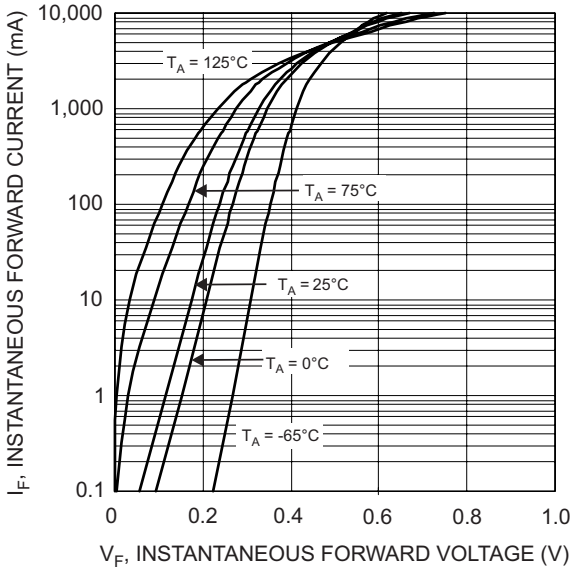
Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R <sub>θJS</sub>	—	6.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 2)	R <sub>θJA</sub>	177	—	°C/W
Operating Temperature Range	T <sub>J</sub>	-65 to +125		°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150		°C

- Notes: 1. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.  
2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>. T<sub>A</sub> = 25°C.

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

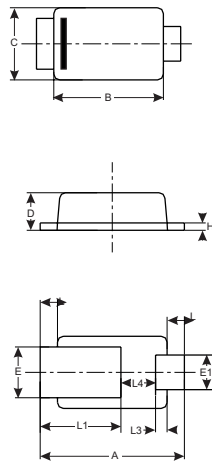
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 3)	V <sub>(BR)R</sub>	30	—	—	V	I <sub>R</sub> = 1.5mA
Forward Voltage	V <sub>F</sub>	—	0.25 0.33 0.39	0.33 0.37 0.42	V	I <sub>F</sub> = 0.1A I <sub>F</sub> = 0.7A I <sub>F</sub> = 1.0A
Leakage Current (Note 3)	I <sub>R</sub>	—	40 0.37	250 1.5	μA 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>	—	40	—	pF	V <sub>R</sub> = 10V, f = 1.0MHz

- Notes: 3. Short duration pulse test to minimize self-heating effect.



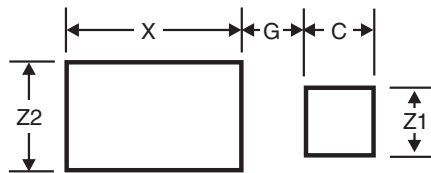
Notes: 4. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.

**Package Outline Dimensions**



PowerDI™ 323			
Dim	Min	Max	Typ
A	2.40	2.60	2.50
B	1.85	1.95	1.90
C	1.20	1.30	1.25
D	0.60	0.70	0.65
E	0.78	0.98	0.88
E1	0.50	0.70	0.60
H	0.08	0.18	0.13
L	0.20	0.40	0.30
L1	—	—	1.40
L3	—	—	0.20
L4	0.40	0.80	0.60
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z1	0.8
Z2	1.1
G	0.5
X	2.0
C	0.8

**Ordering Information** (Note 5)

Device	Packaging	Shipping
PD3S130L-7	PowerDI™ 323	3,000/Tape & Reel

Notes: 5. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



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

Date Code Key

Year	2006	2007	2008	2009
Code	T	U	V	W

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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