

1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER PowerDI™ 323

NEW PRODUCT

Features

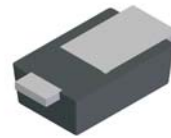
- Guard Ring Die Construction for Transient Protection
- High Surge Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **Ultra-Small Surface Mount Package**

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_A = 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 (See also figure 4)	I _{F(AV)}	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	22	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R _{θJS}	—	6.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 2)	R _{θJA}	177	—	°C/W
Operating Temperature Range	T _J	-65 to +125		°C
Storage Temperature Range	T _{STG}	-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_A = 25°C.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 3)	V _{(BR)R}	30	—	—	V	I _R = 1.5mA
Forward Voltage	V _F	—	0.25 0.33 0.39	0.33 0.37 0.42	V	I _F = 0.1A I _F = 0.7A I _F = 1.0A
Leakage Current (Note 3)	I _R	—	40 0.37	250 1.5	μA mA	V _R = 5V, T _A = 25°C V _R = 30V, T _A = 25°C
Total Capacitance	C _T	—	40	—	pF	V _R = 10V, f = 1.0MHz

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

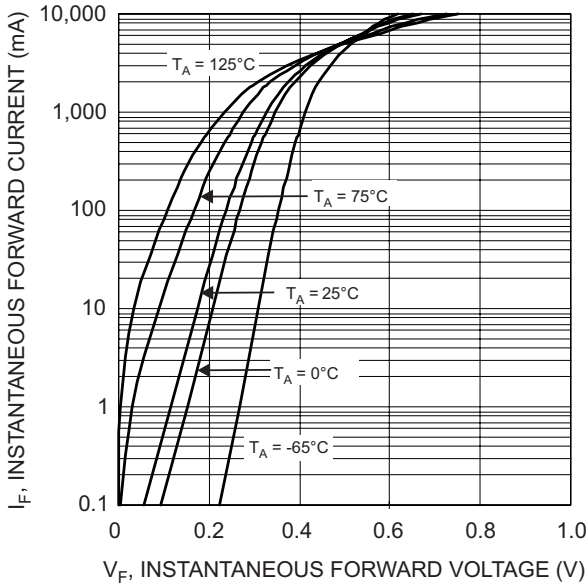


Fig. 1, Typical Forward Characteristics

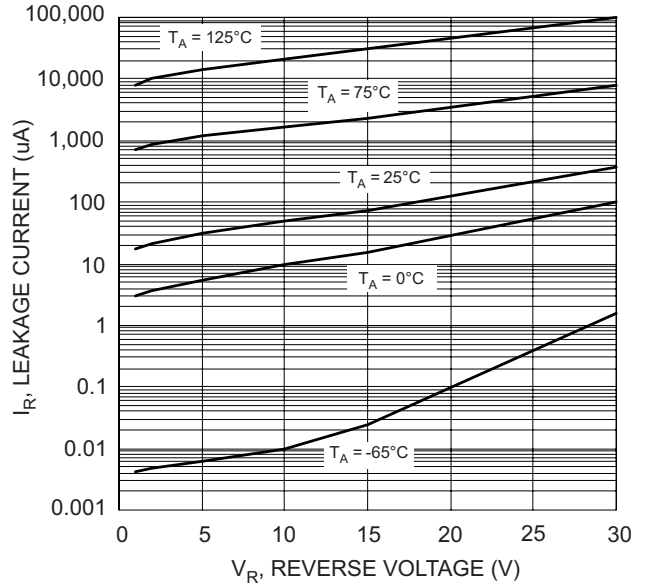


Fig. 2, Typical Reverse Characteristics

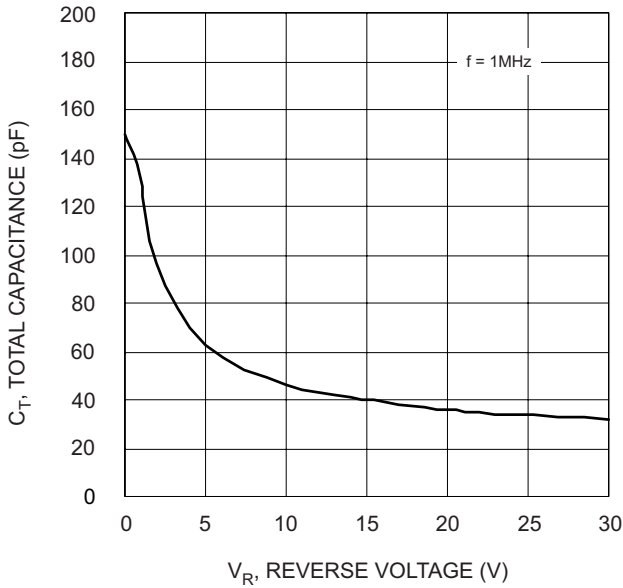


Fig. 3, Typical Total Capacitance

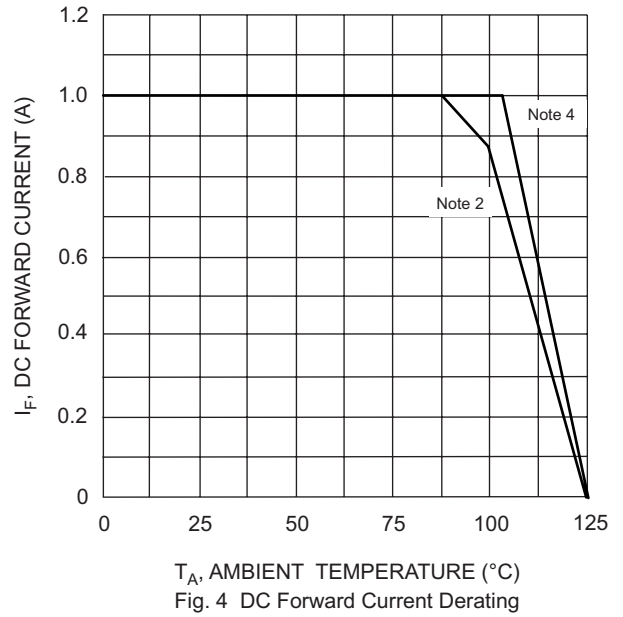


Fig. 4, DC Forward Current Derating

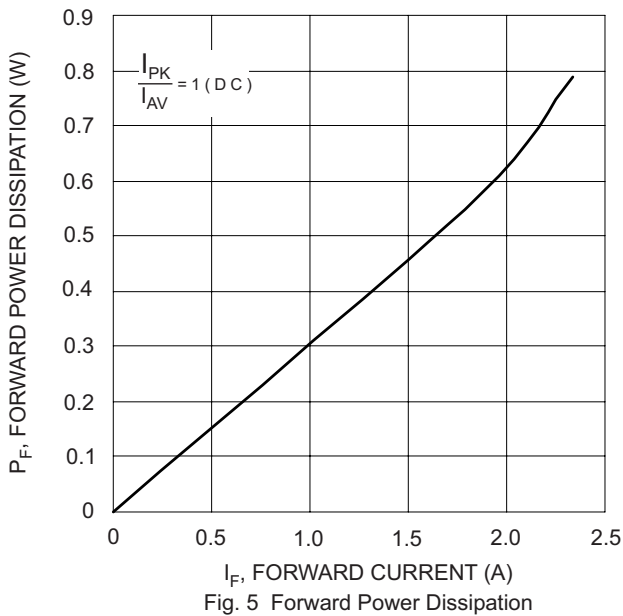


Fig. 5, Forward Power Dissipation

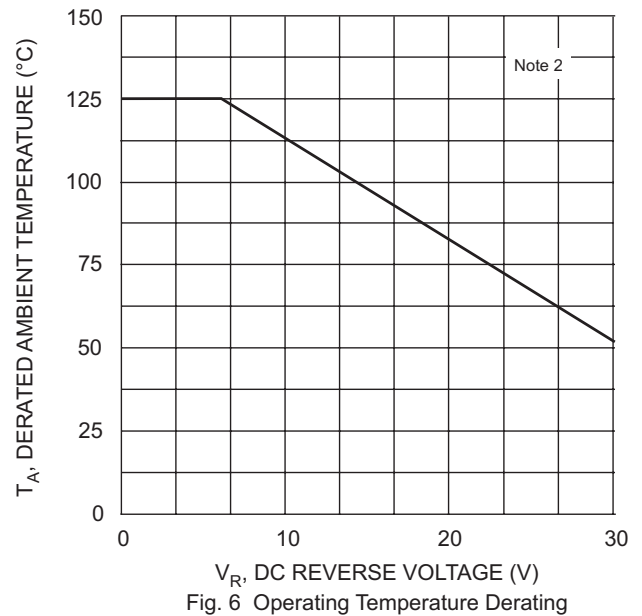
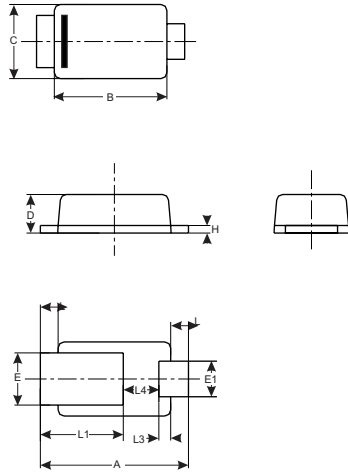


Fig. 6, Operating Temperature Derating

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

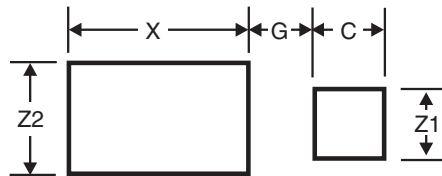
Package Outline Dimensions



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



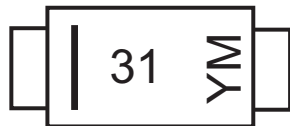
Dimensions	Value (in mm)
Z1	0.8
Z2	1.1
G	0.5
X	2.0
C	0.8

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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