

1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

PowerDI™ 323

Features

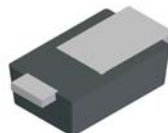
- Guard Ring Die Construction for Transient Protection
- High Surge Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **Ultra-Small Surface Mount Package**

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: 37
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)



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	60	V
RMS Reverse Voltage	V _{R(RMS)}	42	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	°C/W
Thermal Resistance Junction to Ambient Air (Note 2)	R _{θJA}	173	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 3)	R _{θJA}	125	—	°C/W
Operating Temperature Range	T _J	-65 to +150		°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.
 3. Polyimide 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 4)	V _{(BR)R}	60	—	—	V	I _R = 100μA
Forward Voltage	V _F	—	0.40 0.55 —	0.45 0.58 0.64	V	I _F = 0.1A I _F = 0.7A I _F = 1.0A
Leakage Current (Note 4)	I _R	—	0.3 3	5 100	μA	V _R = 5V, T _A = 25°C V _R = 60V, T _A = 25°C
Total Capacitance (See also figure 3)	C _T	—	38	—	pF	V _R = 10V, f = 1.0MHz

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

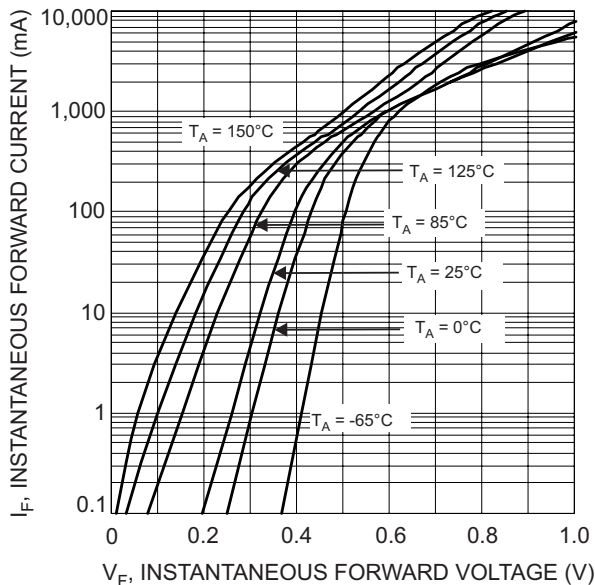


Fig. 1, Typical Forward Characteristics

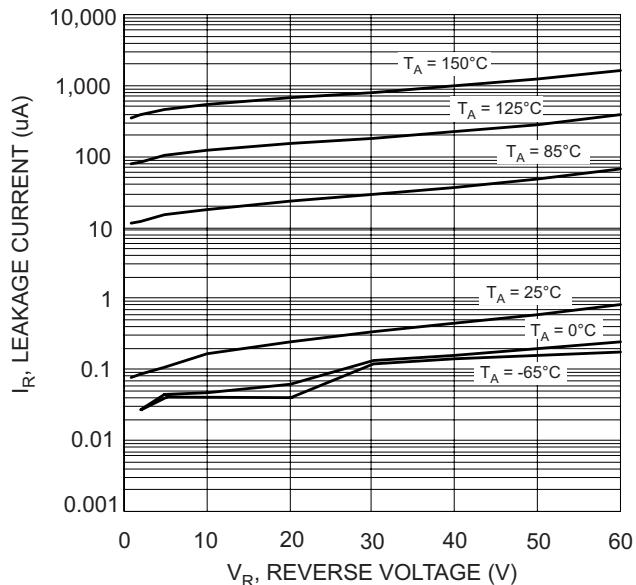


Fig. 2, Typical Reverse Characteristics

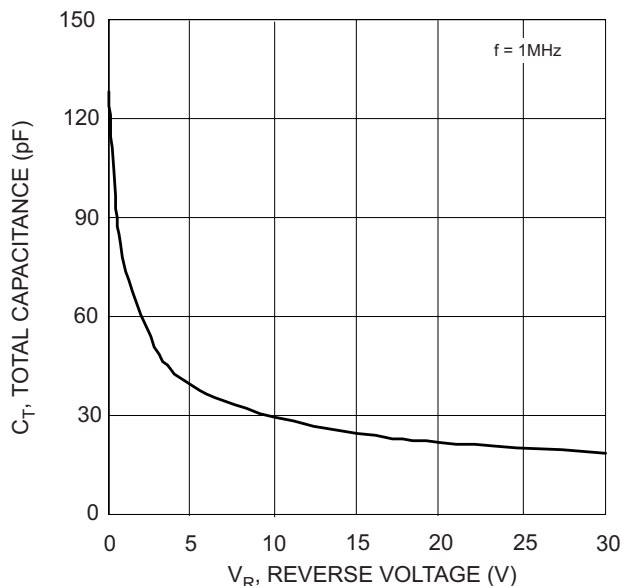


Fig. 3, Typical Total Capacitance

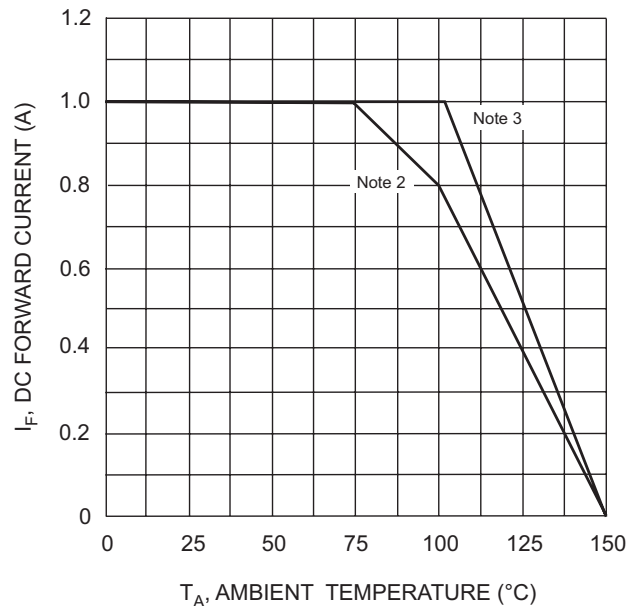


Fig. 4, DC Forward Current Derating

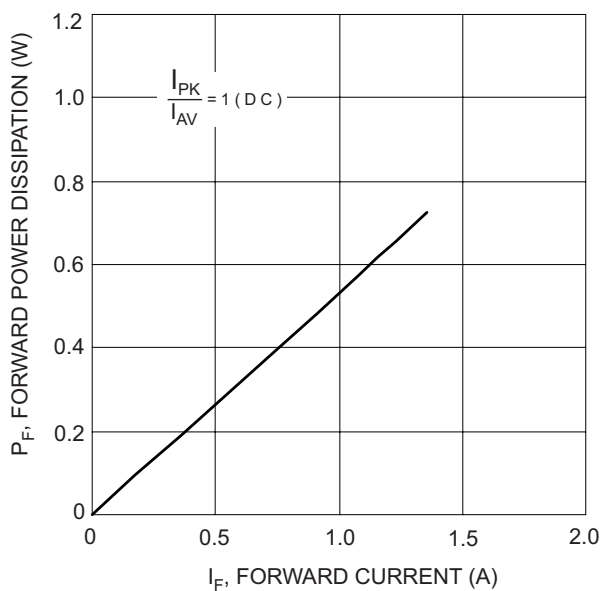


Fig. 5, Forward Power Dissipation

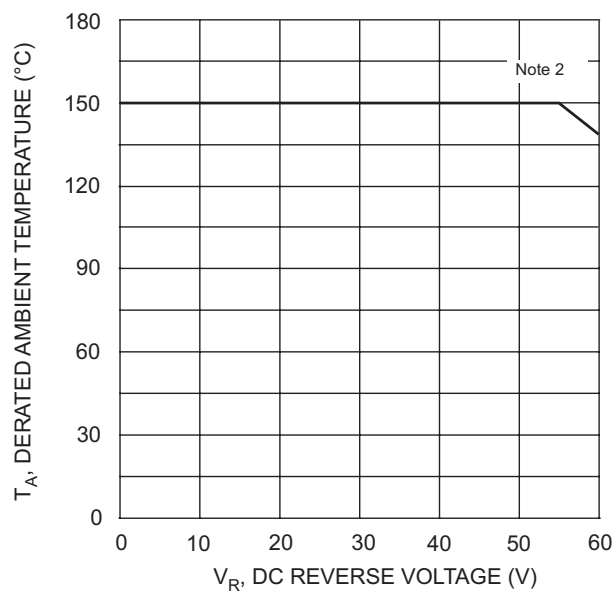
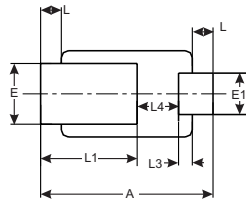
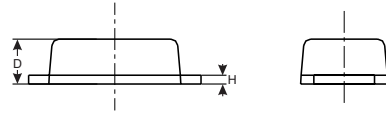
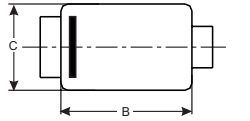


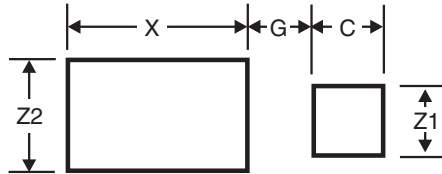
Fig. 6, Operating Temperature Derating

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
PD3S160-7	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



37 = 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	2010	2011	2012
Code	T	U	V	W	X	Y	Z

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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