

Features

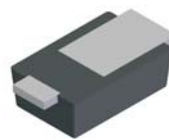
- Guard Ring Die Construction for Transient Protection
- High Surge Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **Ultra-Small Surface Mount Package**

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: 33
- 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	40	V
RMS Reverse Voltage	V _{R(RMS)}	28	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}	25	A
Operating Temperature Range	T _j	-65 to +150	°C
Storage Temperature Range	T _{STG}	-65 to +150	°C

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R _{θJS}	—	15	°C/W
Thermal Resistance Junction to Ambient Air (Note 2)	R _{θJA}	175	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 3)	R _{θJA}	130	—	°C/W

- 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}	40	—	—	V	I _R = 100μA
Forward Voltage	V _F	—	0.37 0.44 0.46 0.49	0.42 0.50 0.52 0.55	V	I _F = 0.1A I _F = 0.5A I _F = 0.7A I _F = 1.0A
Leakage Current (Note 4)	I _R	—	0.3 2	4 50	μA	V _R = 5V, T _A = 25°C V _R = 40V, T _A = 25°C
Total Capacitance	C _T	—	32	—	pF	V _R = 10V, f = 1.0MHz

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

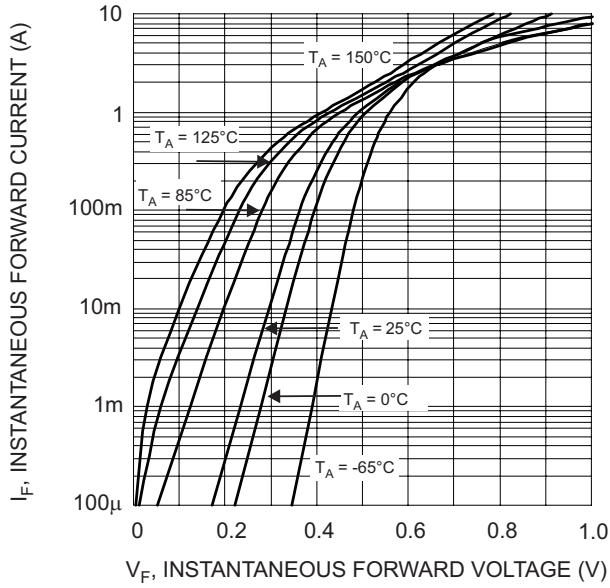


Fig. 1, Typical Forward Characteristics

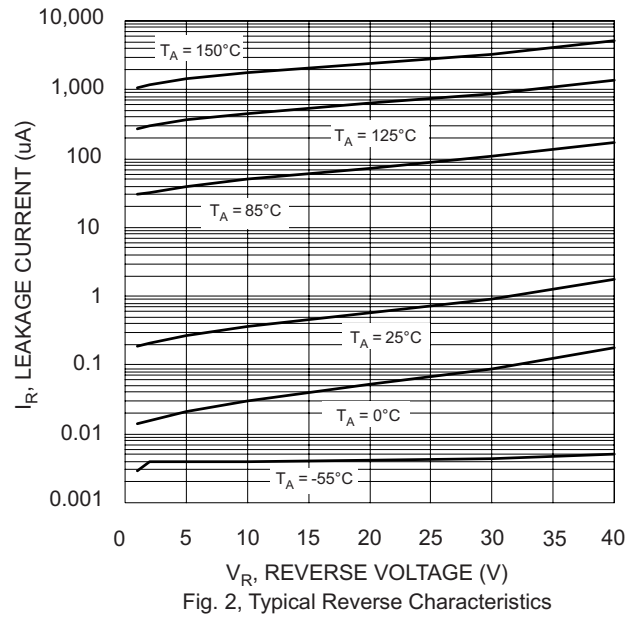


Fig. 2, Typical Reverse Characteristics

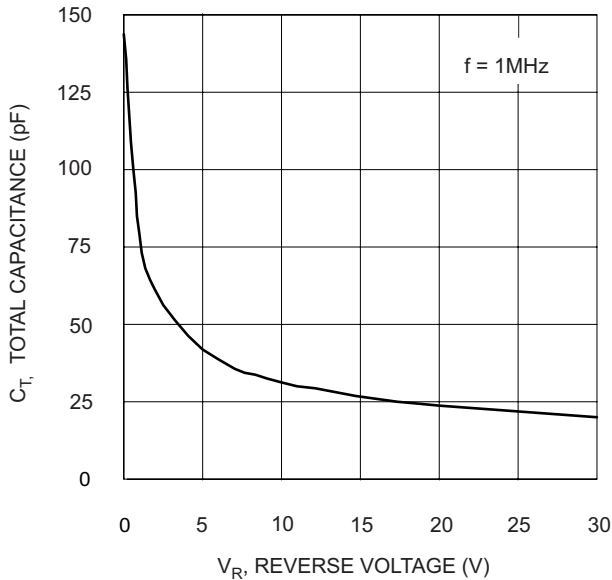


Fig. 3, Typical Total Capacitance

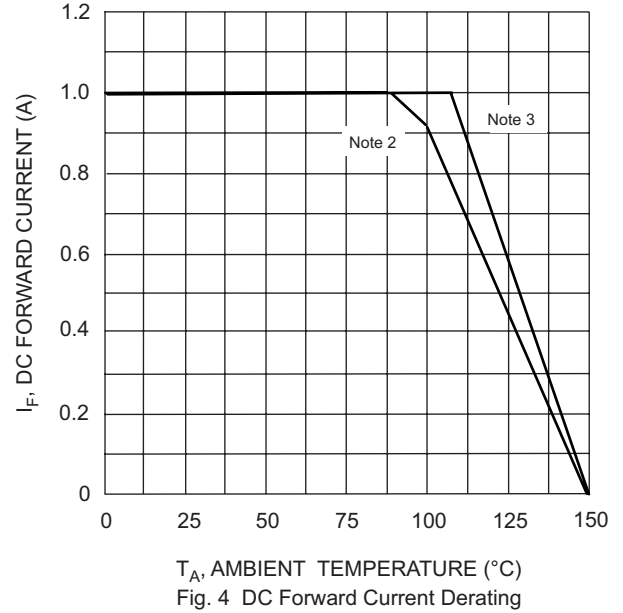


Fig. 4 DC Forward Current Derating

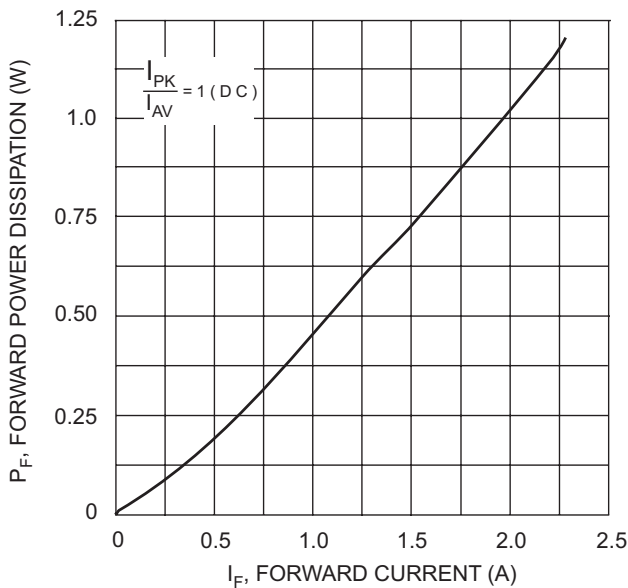


Fig. 5 Forward Power Dissipation

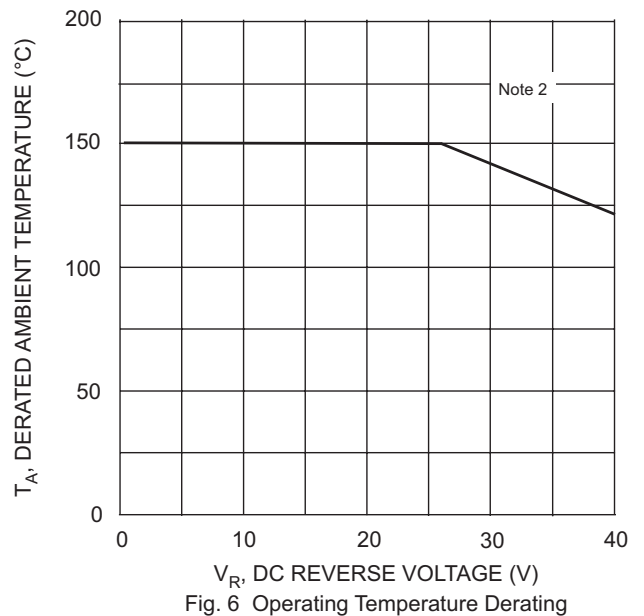
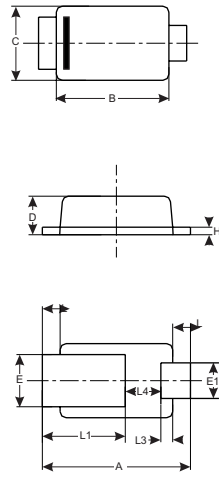


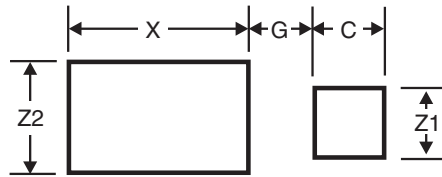
Fig. 6 Operating Temperature Derating

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
PD3S140-7	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



33 = 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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