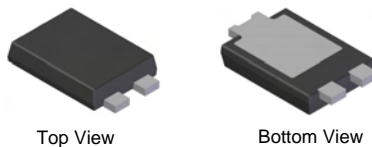


Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Forward Voltage Drop
- Very Low Reverse Leakage Current
- For Use in Low Voltage, High Frequency Inverters, OR'ing, and Polarity Protection Applications
- High Forward Surge Current Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**



Top View

Bottom View

Mechanical Data

- Case: PowerDI^{®5}
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.096 grams (approximate)



Note: Pins Left & Right must be electrically connected at the printed circuit board.

Maximum Ratings @T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
 For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	40	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	28	V
Average Rectified Output Current (See also Figure 5)	I _O	5	A
per element		10	
per total device			
Non-Repetitive Peak Forward Surge Current, per element	I _{FSM}	110	A
8.3ms Single half sine-wave Superimposed on Rated Load			

Thermal Characteristics

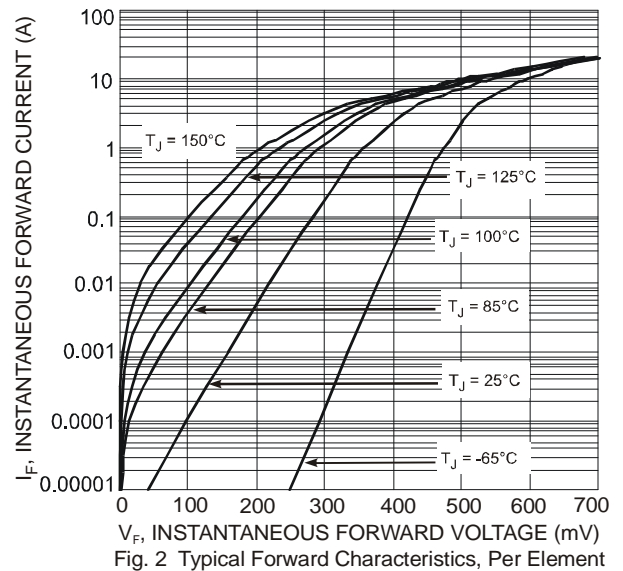
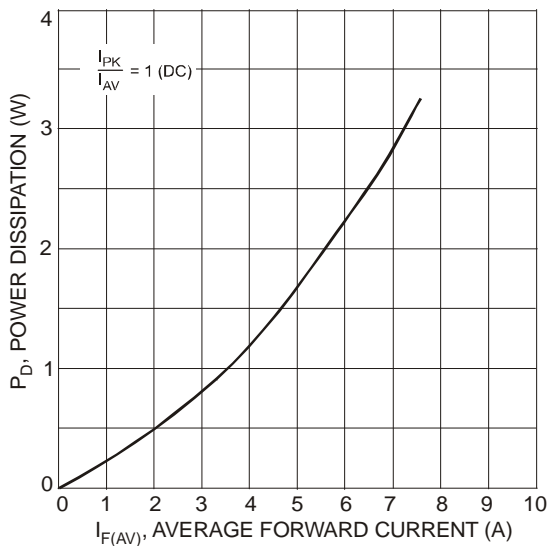
Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R _{θJS}	—	2.0	°C/W
Thermal Resistance Junction to Ambient Air (Note 2)	R _{θJA}	95	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 3)	R _{θJA}	75	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 4)	R _{θJA}	50	—	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150		°C

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/products/lead_free.html.
 2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 3. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 4. Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 9.4mm x 7.2mm. Anode pad dimensions 2.7mm x 1.6mm.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
Reverse Breakdown Voltage (Note 5)	V _{(BR)R}	40	—	—	V	I _R = 500μA	
Forward Voltage	Per Element	V _F	—	0.465	0.50	V	I _F = 5A, T _S = 25°C
			—	0.41	0.45		I _F = 5A, T _S = 100°C
			—	0.39	0.43		I _F = 5A, T _S = 125°C
			—	0.55	0.60		I _F = 10A, T _S = 25°C
			—	0.53	0.57		I _F = 10A, T _S = 100°C
			—	0.52	0.56		I _F = 10A, T _S = 125°C
Reverse Leakage Current (Note 5)	Per Element	I _R	—	20	200	μA	V _R = 40V, T _S = 25°C
			—	3	25	mA	V _R = 40V, T _S = 100°C
			—	15	150	μA	V _R = 35V, T _S = 25°C
			—	2.5	10	mA	V _R = 35V, T _S = 100°C
			—	6	80	μA	V _R = 17.5V, T _S = 25°C
			—	1	5	mA	V _R = 17.5V, T _S = 100°C

Notes: 5. Short duration pulse test used to minimize self-heating effect.



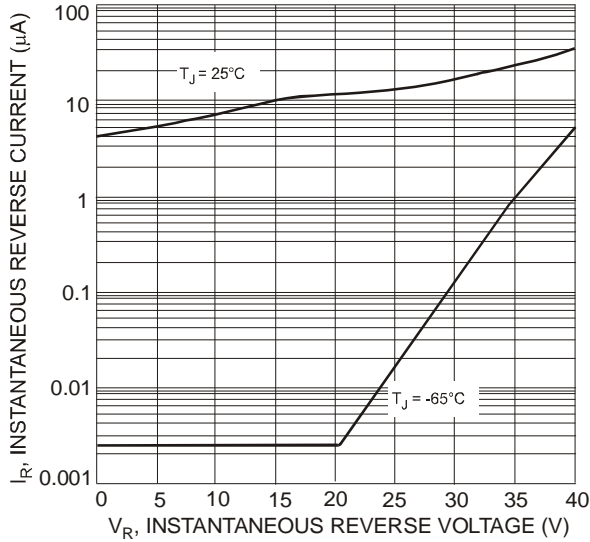


Fig. 3 Typical Reverse Characteristics, Per Element

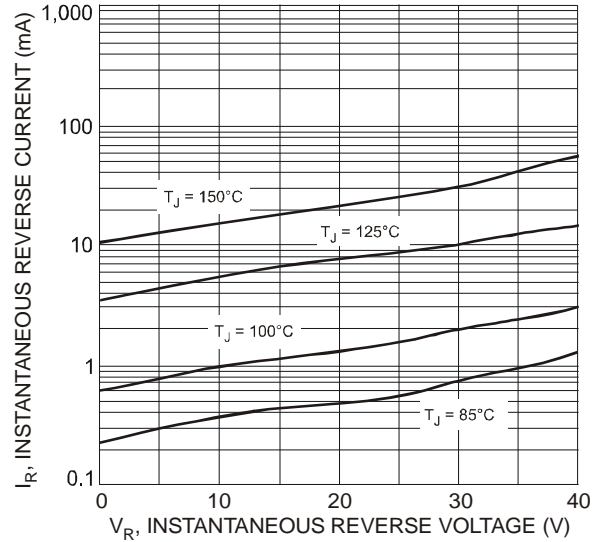


Fig. 4 Typical Reverse Characteristics, Per Element

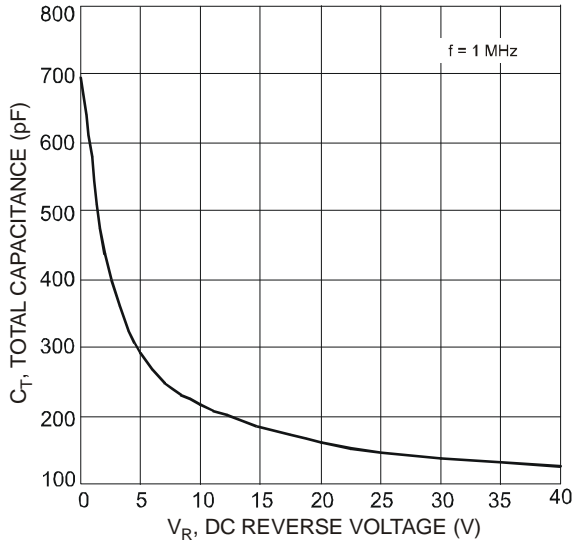


Fig. 5 Total Capacitance vs. Reverse Voltage, Per Element

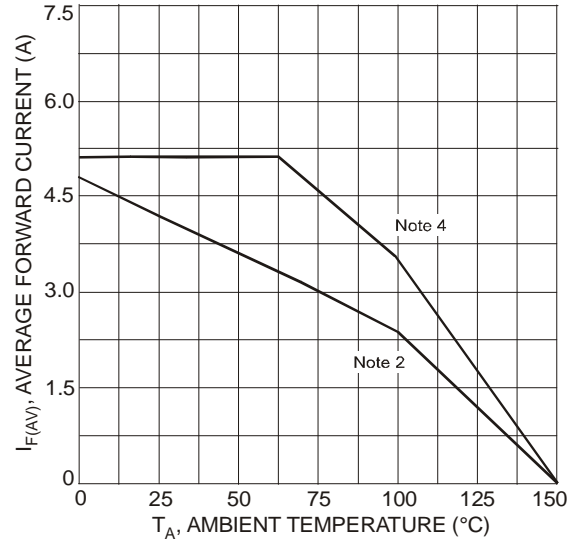


Fig. 6 Forward Current Derating Curve, Per Element

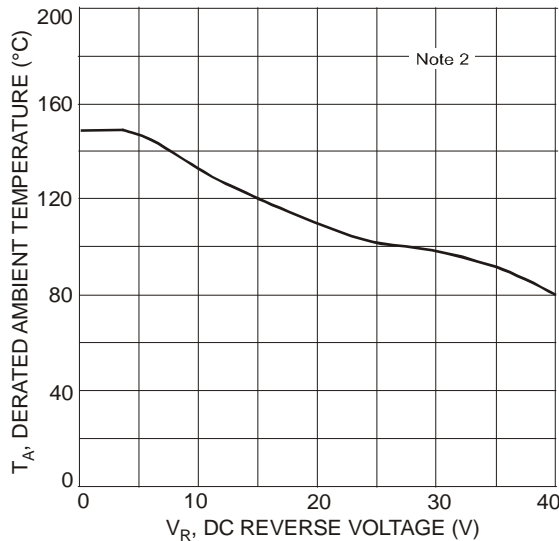


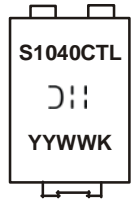
Fig. 7 Operating Temperature Derating, Per Element

Ordering Information (Note 5)

Part Number	Case	Packaging
PDS1040CTL-13	PowerDI [®] 5	5000/Tape & Reel

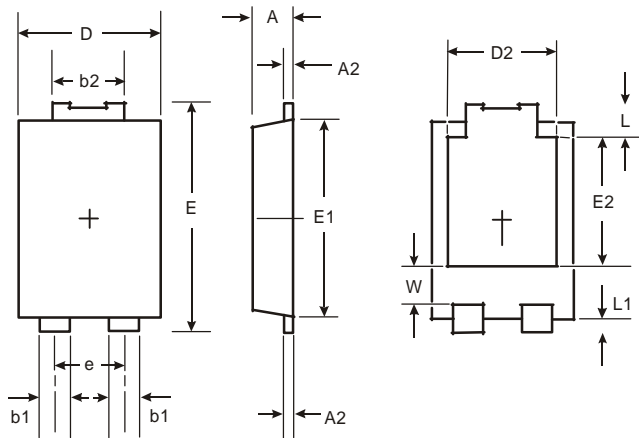
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



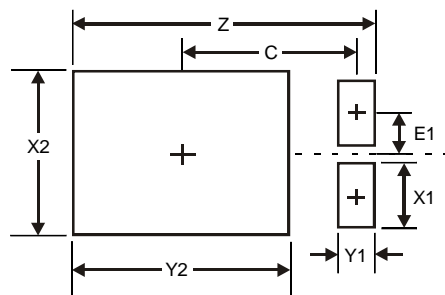
S1040CTL = Product type marking code
 DII = Manufacturers' code marking
 YYWW = Date code marking
 YY = Last digit of year (ex: 04 for 2004)
 WW = Week code 01 to 52
 K = Factory Designator Code

Package Outline Dimensions



PowerDI [®] 5		
Dim	Min	Max
A	1.05	1.15
A2	0.33	0.43
b1	0.80	0.99
b2	1.70	1.88
D	3.90	4.05
D2	3.054 Typ	
E	6.40	6.60
e	1.84 Typ	
E1	5.30	5.45
E2	3.549 Typ	
L	0.75	0.95
L1	0.50	0.65
W	1.10	1.41
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	6.6
X1	1.4
X2	3.6
Y1	0.8
Y2	4.7
C	3.87
E1	0.9

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