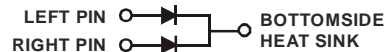
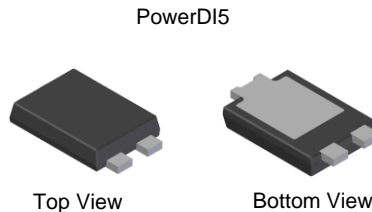


Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low-Forward Voltage Drop
- Low Reverse Leakage Current
- For Use in Low-Voltage, High-Frequency Inverters, ORing, and Polarity Protection Applications
- High Forward Surge Current Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

- Package: PowerDI[®]5
- Package 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
- Weight: 0.096 grams (Approximate)



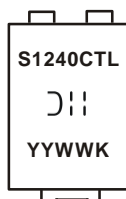
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 4)

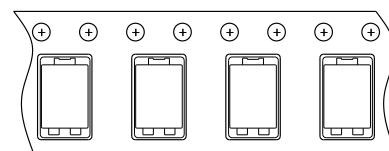
Orderable Part Number	Package	Packing	
		Qty.	Carrier
PDS1240CTL-13	PowerDI5	5,000	13" Tape & Reel
PDS1240CTL-7D (Note 5)	PowerDI5	1,500	7" Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
 5. PowerDI5 available also provides 12mm tape with 7-inch reel, part number suffix "7D".

Marking Information



S1240CTL = Product Type Marking Code
 ⓂⓂ = Manufacturer's Code Marking
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 25 for 2025)
 WW = Week Code (01 to 53)
 K = Factory Designator Code



Direction of feed

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	V _{RRM}	40	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
Average Rectified Output Current	I _O	Per Element 6	A
		Total Device 12	
Non-Repetitive Peak Forward Surge Current, Per Element 8.3ms Single Half Sine-Wave Superimposed On Rated Load	I _{FSM}	150	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Ambient Air Per Leg (Note 6)	R _{θJA}	90	—	°C/W
Thermal Resistance Junction to Ambient Air Per Leg (Note 7)	R _{θJA}	20	—	°C/W
Thermal Resistance Junction to Case Per Leg (Note 6)	R _{θJC}	20	—	°C/W
Thermal Resistance Junction to Case Per Leg (Note 7)	R _{θJC}	3	—	°C/W
Operating and Storage Temperature Range (Note 8)	T _J , T _{STG}	-65 to +150		°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic (Note 9)	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	V _{(BR)R}	40	—	—	V	I _R = 500μA
Forward Voltage (Per Leg)	V _F	—	—	0.52	V	I _F = 6A, T _J = +25°C
		—	—	0.45		I _F = 6A, T _J = +100°C
Reverse Leakage Current (Note 8) Per Leg	I _R	—	—	350	μA	V _R = 40V, T _J = +25°C
		—	—	20		mA

- Notes:
6. 1*MRP FR-4 PC board, 2oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
 7. Device mounted on 2inch*2inch Al board PCB.
 8. Short duration pulse test used to minimize self-heating effect.
 9. The heat generated must be less than the thermal conductivity from junction to case: $dP_D/dT_J < 1/R_{\theta JC}$.

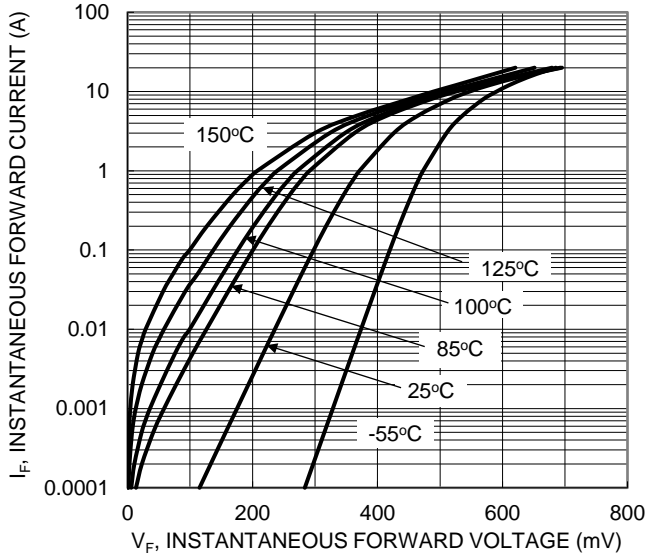


Figure 1. Typical Forward Characteristics (Per Leg)

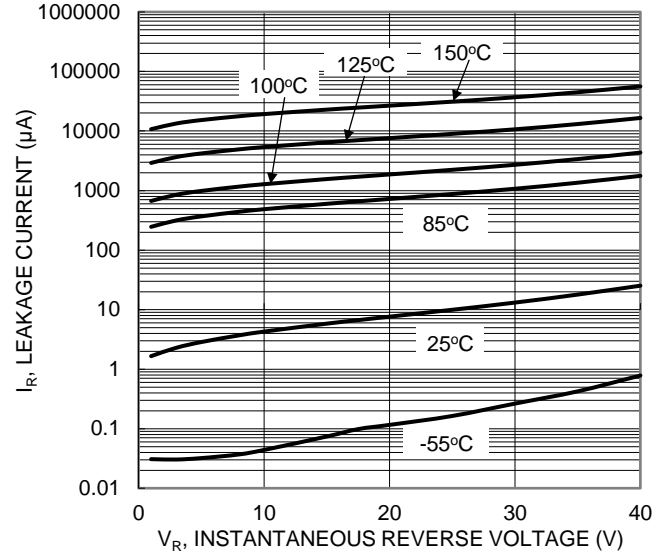


Figure 2. Typical Reverse Characteristics (Per Leg)

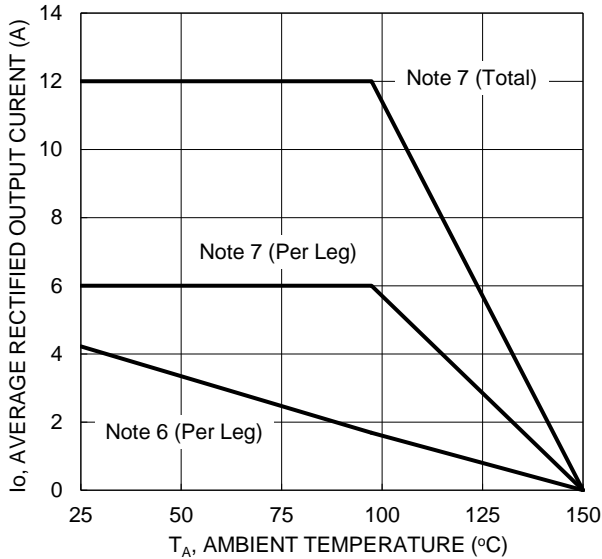


Figure 3. Forward Current Derating Curve

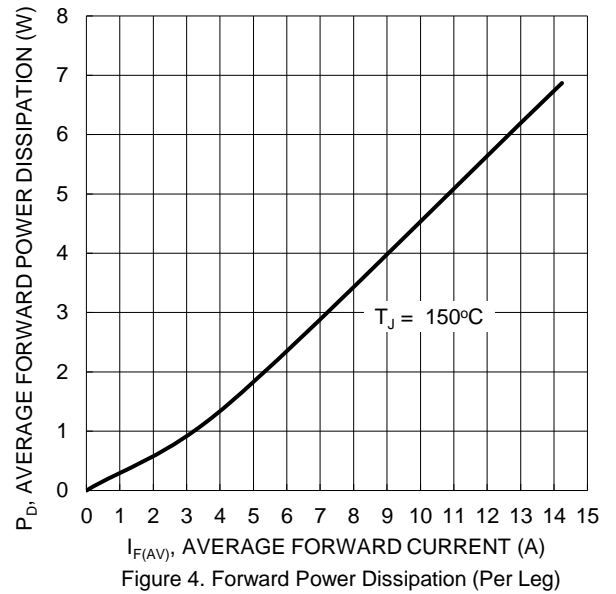


Figure 4. Forward Power Dissipation (Per Leg)

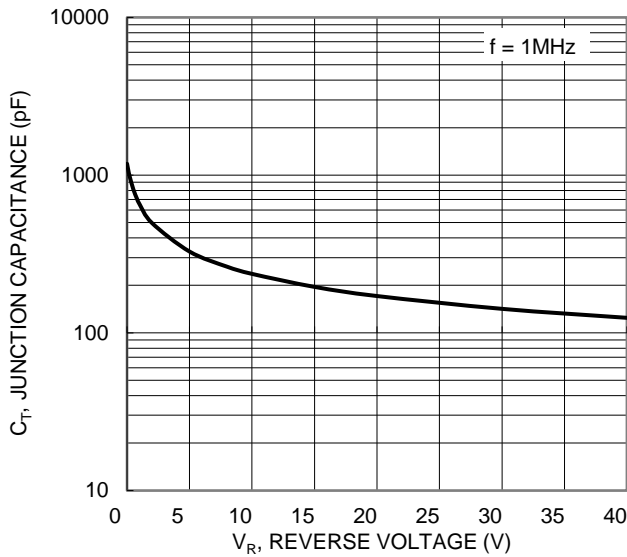


Figure 5. Typical Junction Capacitance

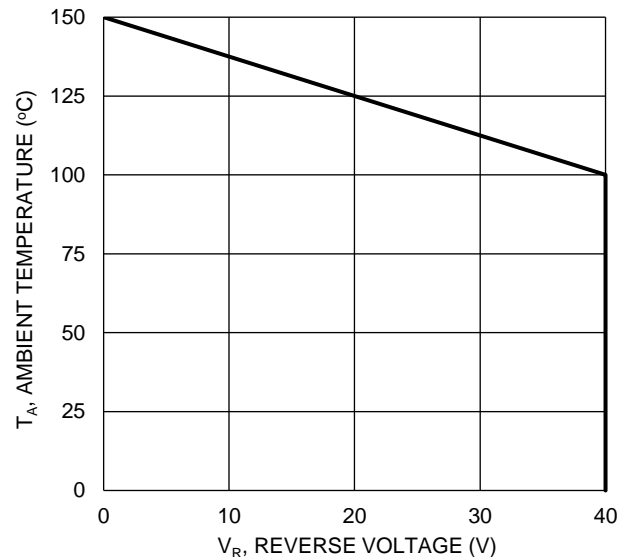
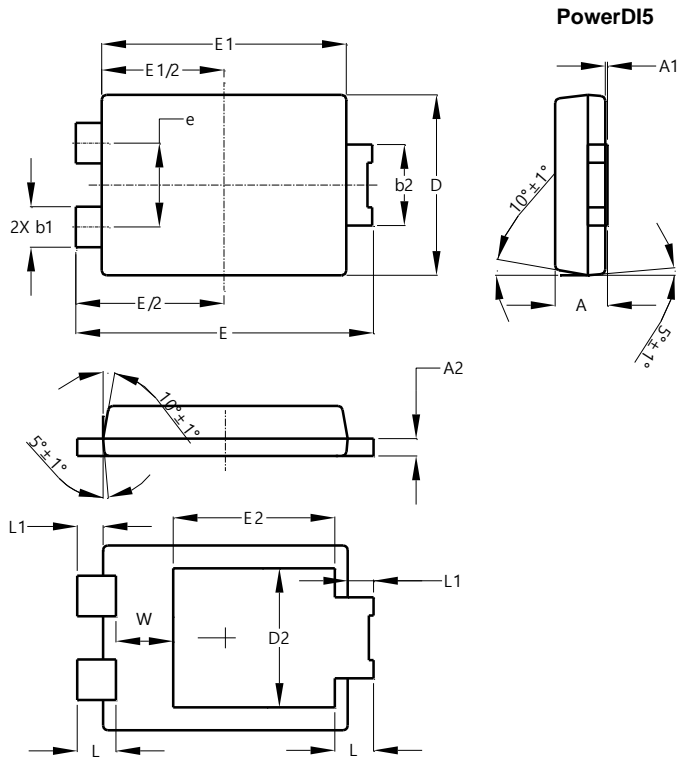


Figure 6. Operating Temperature Derating (Per Leg)

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

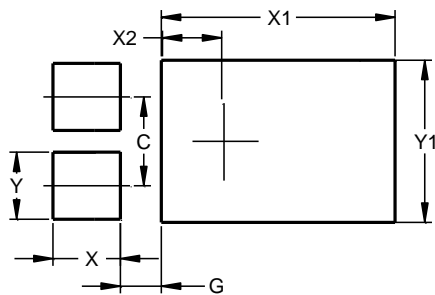


PowerDI5			
Dim	Min	Max	Typ
A	1.05	1.15	1.10
A1	0.00	0.05	--
A2	0.33	0.43	0.381
b1	0.80	0.99	0.89
b2	1.70	1.88	1.78
D	3.90	4.05	3.966
D2	--	--	3.054
E	6.40	6.60	6.51
e	--	--	1.84
E1	5.30	5.45	5.37
E2	--	--	3.549
L	0.75	0.95	0.85
L1	0.50	0.65	0.57
W	1.10	1.41	1.255
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

PowerDI5



Dimensions	Value (in mm)
C	1.840
G	0.852
X	1.400
X1	4.860
X2	1.310
Y	1.390
Y1	3.360

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