

## Product Summary

$V_R$ (V)	$I_o$ (A)	$V_F$ MAX (V) @ +25°C	$I_R$ MAX (mA) @ +25°C
40	3.0	0.49	0.5

## Description and Applications

This Schottky Barrier Rectifier is designed to meet the stringent requirements of Automotive Applications. It is ideally suited to use as:

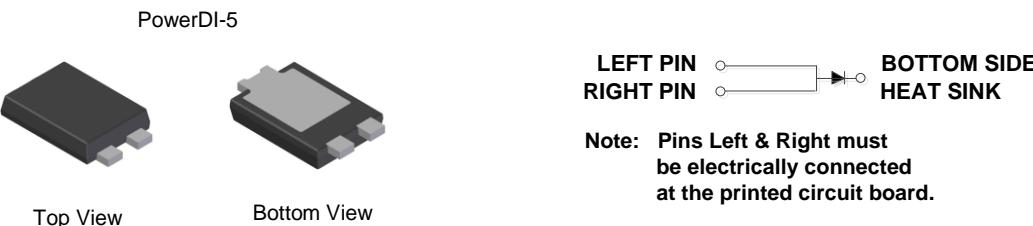
- Polarity Protection Diode
- Re-circulating Diode
- Switching Diode

## Features and Benefits

- 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, Free Wheeling, 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)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

## 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(e3)
- Polarity: See Diagram
- Weight: 0.093 grams (Approximate)



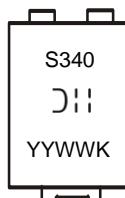
## Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
PDS340Q-13	Automotive	PowerDI-5	5000/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



S340 = Product Type Marking Code  
 DII = Manufacturers' Code Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 18 for 2018)  
 WW = Week Code (01 to 53)  
 K = Factory Designator

## Maximum Ratings (@ $T_A = +25^\circ\text{C}$ , 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	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	40	V
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current (See also Figure 5)	$I_O$	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed on Rated Load	$I_{FSM}$	90	A

## Thermal Characteristics

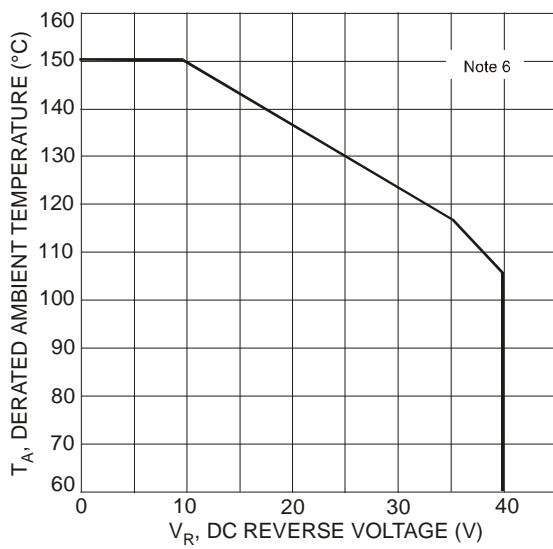
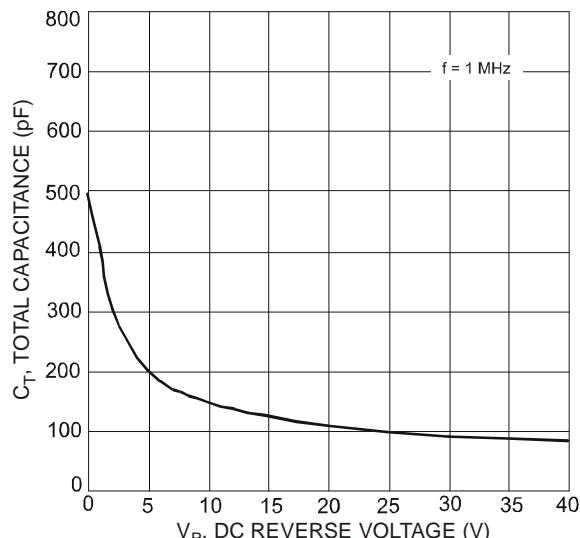
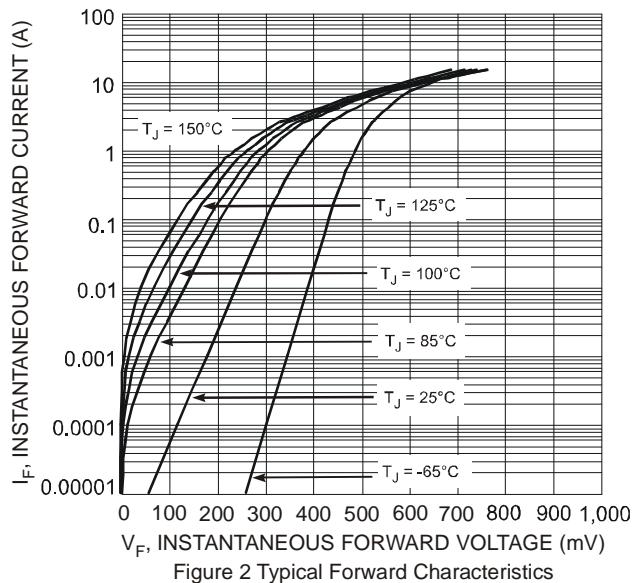
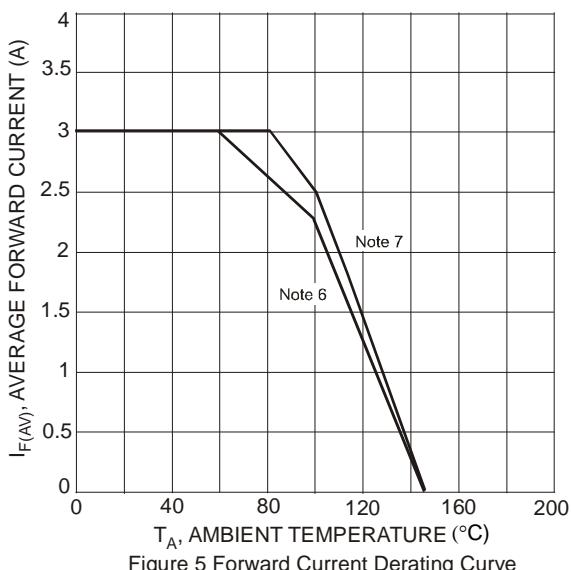
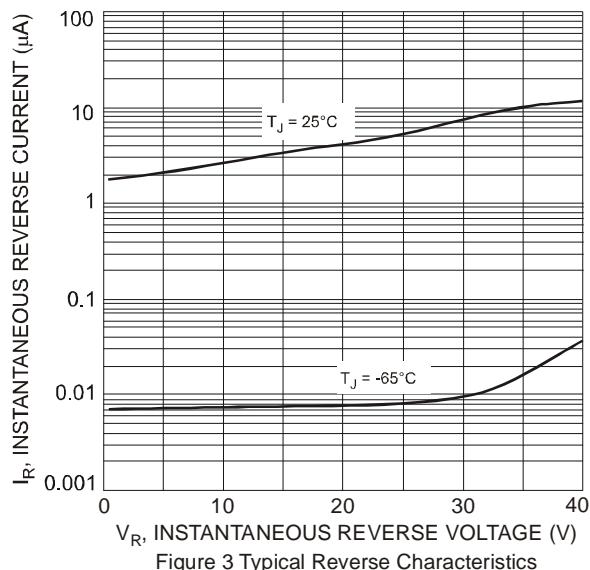
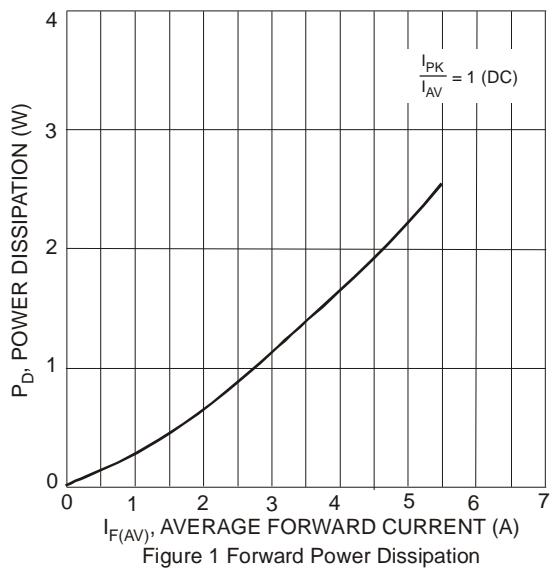
Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	6.0	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 6) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	95	—	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 7) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	60	—	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient Air (Note 8) $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	50	—	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150		$^\circ\text{C}$

## Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 9)	$V_{(BR)R}$	40	—	—	V	$I_R = 0.5\text{mA}$
Forward Voltage	$V_F$	—	0.45	0.49	V	$I_F = 3\text{A}, T_J = +25^\circ\text{C}$
		—	0.38	0.42		$I_F = 3\text{A}, T_J = +125^\circ\text{C}$
		—	0.53	0.61		$I_F = 6\text{A}, T_J = +25^\circ\text{C}$
		—	0.50	0.57		$I_F = 6\text{A}, T_J = +125^\circ\text{C}$
Reverse Current (Note 9)	$I_R$	—	15	500	$\mu\text{A}$	$T_J = +25^\circ\text{C}, V_R = 40\text{V}$
		—	3	20	$\text{mA}$	$T_J = +100^\circ\text{C}, V_R = 40\text{V}$
		—	10	25	$\text{mA}$	$T_J = +125^\circ\text{C}, V_R = 40\text{V}$

Notes:

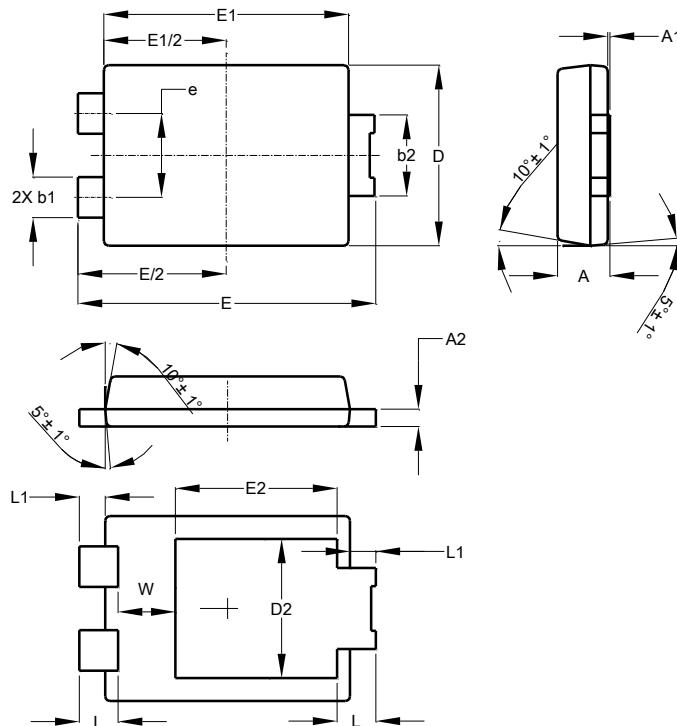
6. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.htm>.
7. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
8. Polyimide PCB, 2 oz. Copper. Cathode pad dimensions 6.5mm x 5.0mm. Anode pad dimensions 1.8mm x 1.1mm.
9. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

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

PowerDI-5



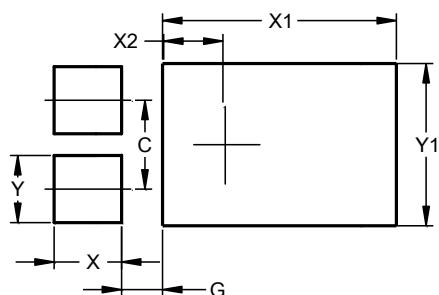
PowerDI-5			
Dim	Min	Max	Typ
<b>A</b>	1.05	1.15	1.10
<b>A1</b>	0.00	0.05	--
<b>A2</b>	0.33	0.43	0.381
<b>b1</b>	0.80	0.99	0.89
<b>b2</b>	1.70	1.88	1.78
<b>D</b>	3.90	4.05	3.966
<b>D2</b>	--	--	3.054
<b>E</b>	6.40	6.60	6.51
<b>e</b>	--	--	1.84
<b>E1</b>	5.30	5.45	5.37
<b>E2</b>	--	--	3.549
<b>L</b>	0.75	0.95	0.85
<b>L1</b>	0.50	0.65	0.57
<b>W</b>	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.

PowerDI-5



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

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