Product Summary

V_{RRM} (V)	I_O (A)	$V_{F\ (MAX)}$ (V) @ +25°C	$I_{R\ (MAX)}$ (mA) @ +25°C
40	1	0.5	0.5

Description

The APD140 is a low voltage dual Schottky rectifier suited for switch mode power supplies and other power converters. This device is intended for use in medium voltage operation, and particularly, in high frequency circuits where low switching losses and low noise are required.

The APD140 is available in standard DO-214AC and DO-41 packages.

Applications

- Low Voltage High Frequency Inverters
- DC-DC Converters
- Free Wheeling
- Polarity Protection

Features

- Low Forward Voltage: 0.5V @ +25°C
- High Surge Current Capacity
- +125°C Operating Junction Temperature
- 1A Total
- Guard-Ring for Stress Protection
- DO-41
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Available in "Green" Packages: DO-214AC, DO-41
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
  - **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: DO-214AC, DO-41
- 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
- Weight
  - DO-41 – 0.33Grams (Approximately)
  - DO-214AC – 0.062Grams (Approximately)

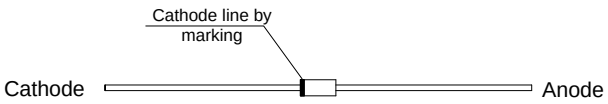
DO-41

DO-214AC

Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See http://www.diodes.com/quality/lead_free.html 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.

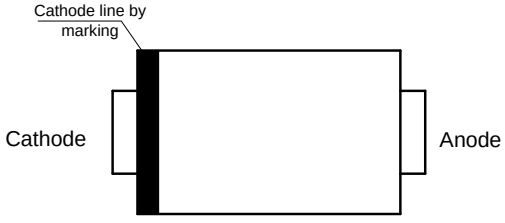
Pin Assignments

(Top View)



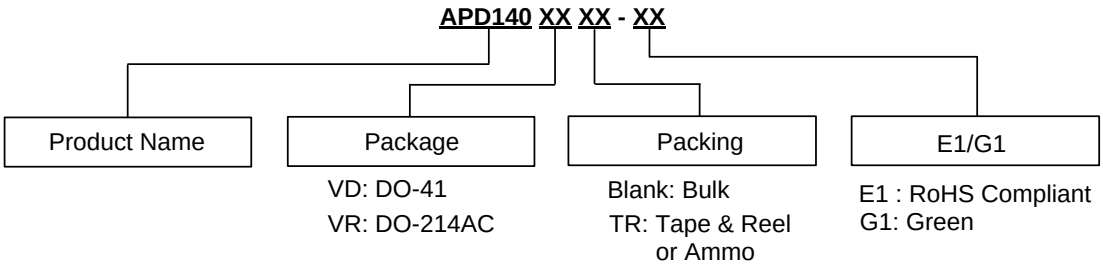
DO-41

(Top View)



DO-214AC

Ordering Information (Note 4)



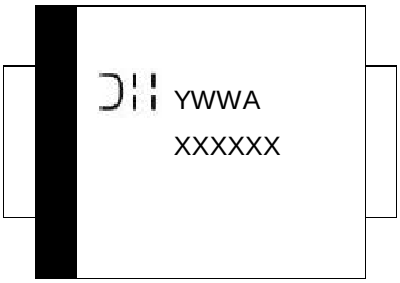
Note 4: Diodes Inc's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with "G1" suffix are available in green packages.

Package	Temperature Range	Part Number	Marking ID	Packing
DO-41	-65 to +125°C	APD140VD-E1	D140VD	1000/Bulk
DO-41	-65 to +125°C	APD140VD-G1	140VDG	1000/Bulk
DO-41	-65 to +125°C	APD140VDTR-E1	D140VD	2500/Ammo
DO-41	-65 to +125°C	APD140VDTR-G1	140VDG	2500/Ammo
DO-214AC	-65 to +125°C	APD140VRTR-G1	140VRG	7500/Tape & Reel

Marking Information

(1) DO-214AC

(Top View)



First Line: Logo and Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
Second Line: Marking ID
(See Ordering Information)

Marking Information (Cont.)

(2) DO-41

(Top View)

First Line: Logo and Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
Second Line: Marking ID
(See Ordering Information)

Maximum Ratings (T_A = +25°C, unless otherwise noted.) (Note 5)

Characteristic	Symbol	Rating	Unit
Maximum Repetitive Reverse Voltage	V_{RRM}	40	V
Maximum DC Blocking Voltage	V_{DC}		
Maximum RMS Voltage	V_{RMS}	28	V
Average Rectified Forward Current 0.375 " (9.5mm) Lead Length (See Figure 1)	$I_{F(AV)}$	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-wave on Rated Load	I_{FSM}	35	A
Voltage Rate of Change (Rated V_R)	dv/dt	10000	V/µS
Operating Junction Temperature Range (Note 6)	T_J	-65 to +125	°C
Storage Temperature Range	T_{ST}	-65 to +150	°C

Notes: 5. Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

6. The heat generated must be less than the thermal conductivity from Junction to Ambient: $dP_D/dT_J < 1/\theta_{JA}$.

Thermal Characteristics (T_A = +25°C, unless otherwise noted.)

Characteristic	Symbol	Rating		Unit
Typical Thermal Resistance (Note 7)	$R\theta_{JA}$	DO-41	65	°C/W
		DO-214AC	100	

Note 7: Device mounted on heat sink, with minimum recommended pad layout per http://www.diodes.com

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

Characteristic	Symbol	Rating	Unit	Test Condition
Forward Voltage @ I_F = 1.0A	V_F	0.5	V	–
Reverse Current @ Rated V_R (Note 8)	I_R	0.5	mA	T_A = +25°C
		10		T_A = +100°C

Note 8: Short duration pulse test used to minimize self-heating effect, Pulse Test: 300µs pulse width, 1.0% duty cycle.

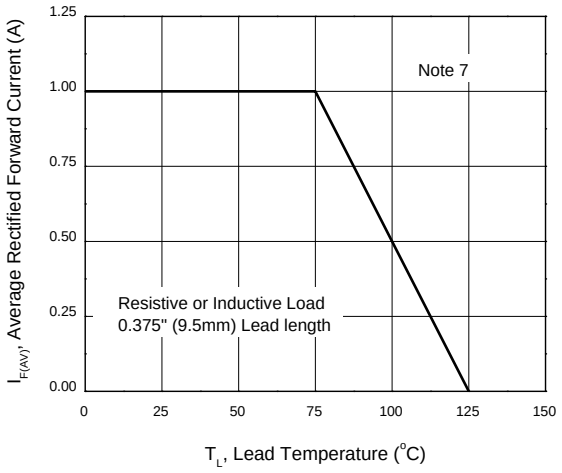


Figure 1. Forward Current Derating Curve

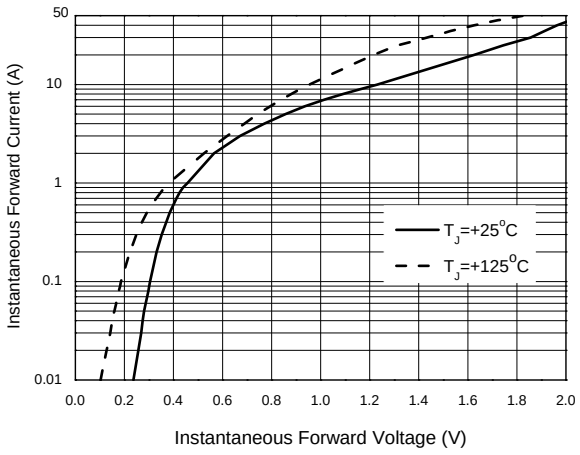


Figure 2. Typical Instantaneous Forward Characteristics

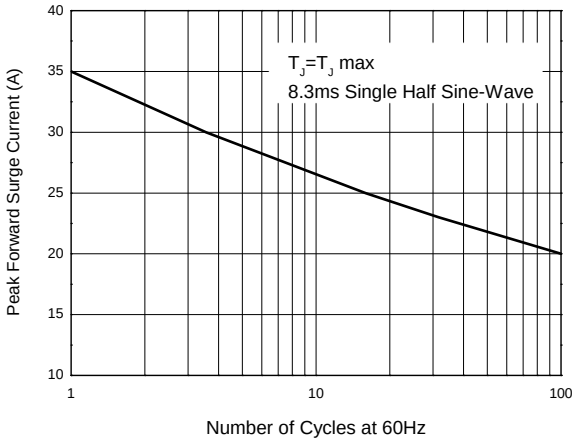


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

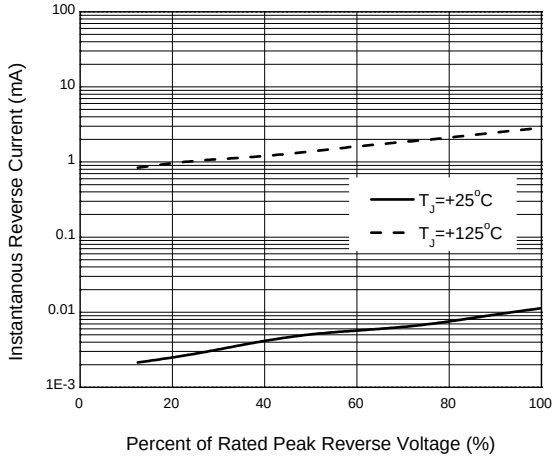


Figure 4. Typical Reverse Characteristics

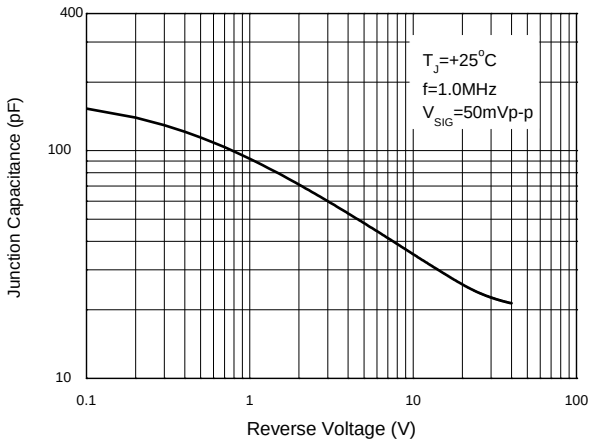
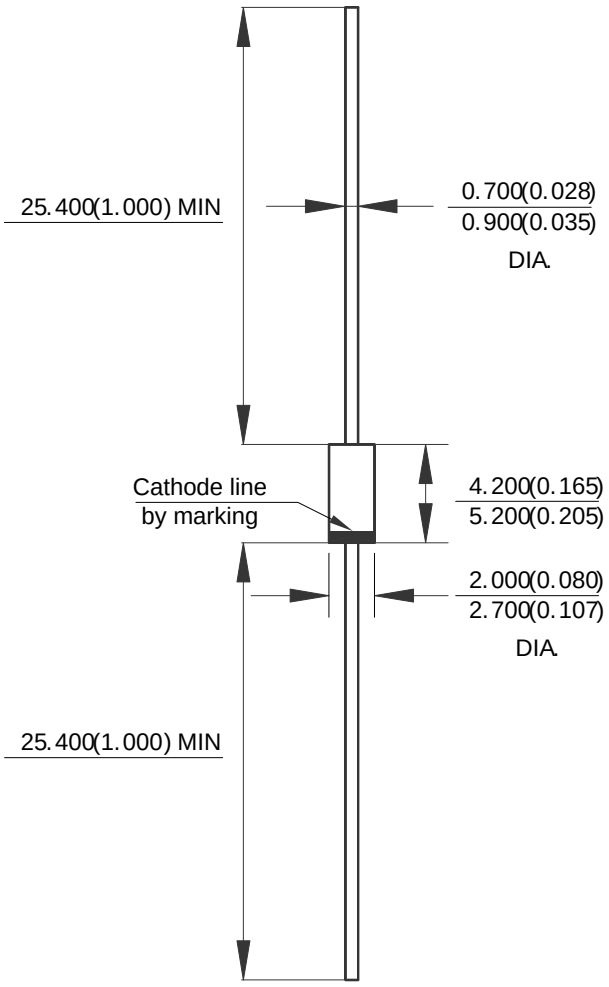


Figure 5. Typical Junction Capacitance

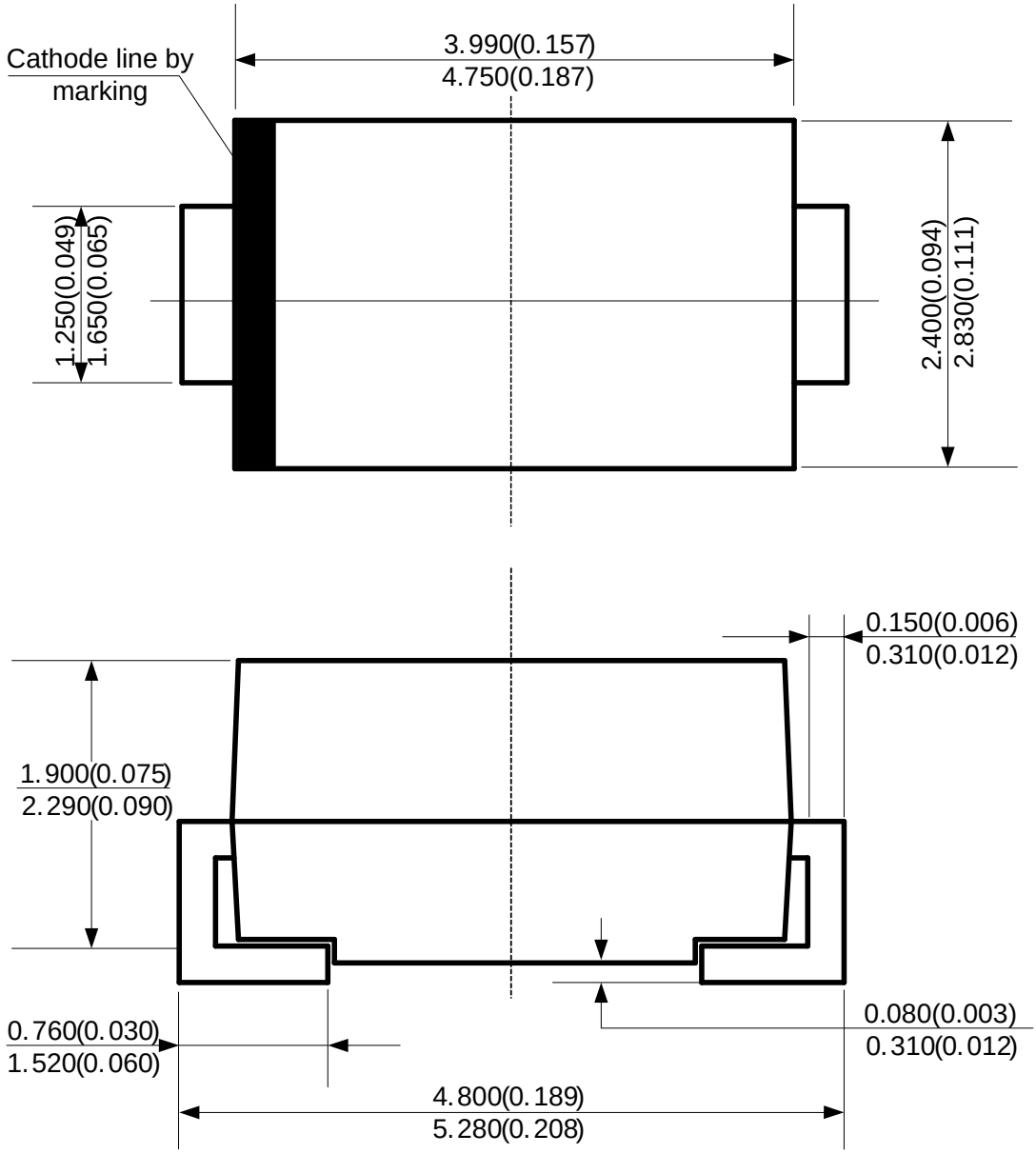
Package Outline Dimensions (All dimensions in mm(inch).)

(1) Package Type: DO-41



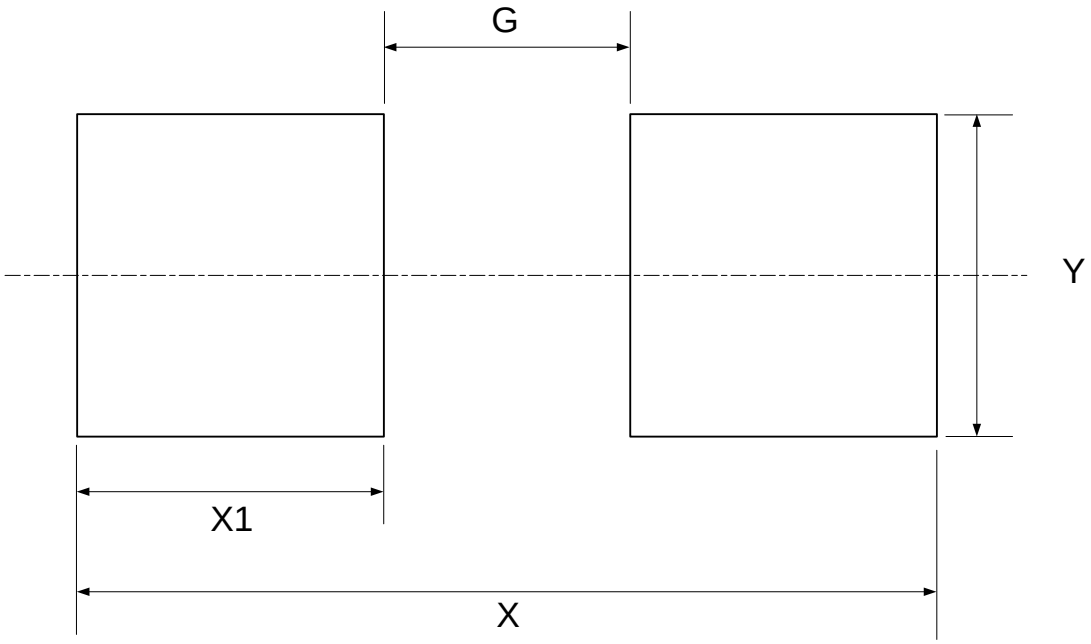
Package Outline Dimensions (Cont. All dimensions in mm(inch).)

(2) Package Type: DO-214AC



Suggested Pad Layout

(1) Package Type: DO-214AC



Dimensions	Y (mm)/(inch)	X1 (mm)/(inch)	G (mm)/(inch)	X (mm)/(inch)
Value	2.100/0.083	2.000/0.079	1.600/0.063	5.600/0.220

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