

## Features

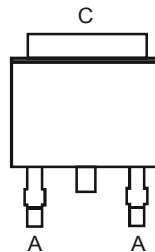
- Ultra-Fast Die Construction
- Soft, Fast Switching Capability
- Low Leakage Current
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

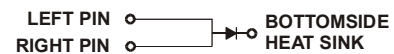
- Case: TO252
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed Over Copper Leadframe Solderable per MIL-STD-202, Method 208 @3
- Polarity: See Diagram



Top View



Top View  
Pin-Out



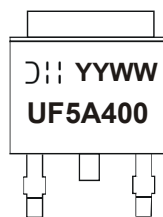
**Note:** Pins Left & Right must be electrically connected at the printed circuit board.

## Ordering Information (Note 4)

Part Number	Case	Packaging
UF5A400D1-13	TO252	2500 pieces/reel

- 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](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.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



UF5A400 = Product Type Marking Code  
 ⌋⌋ = Manufacturers' Code Marking  
 YYWW = Date code marking  
 YY = Last two digits of year (ex: 14 for 2014)  
 WW = Week code (01 to 53)

**Maximum Ratings** (@T<sub>A</sub> = +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 <sub>RRM</sub>	400	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
Average Rectified Output Current	I <sub>O</sub>	5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	100	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Case	R <sub>θJC</sub>	2.0	°C/W
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	34	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage	V <sub>F</sub>	—	0.95	1.4	V	I <sub>F</sub> = 5A, T <sub>J</sub> = +25°C I <sub>F</sub> = 5A, T <sub>J</sub> = +125°C
Reverse Leakage Current (Note 6)	I <sub>R</sub>	—	—	10	μA	V <sub>R</sub> = 400V, T <sub>J</sub> = +25°C
		—	—	0.2	mA	V <sub>R</sub> = 400V, T <sub>J</sub> = +125°C
Reverse Recovery Time	t <sub>rr</sub>	—	28	35	ns	I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1.0A, I <sub>rr</sub> = 0.25A
Junction Capacitance	C <sub>J</sub>	—	40	50	pf	V <sub>R</sub> = 10V <sub>DC</sub> , f = 1MHz

Notes: 5. Device mounted on Polyimide PCB, with 16X recommended pad layout.  
6. Short duration pulse test used to minimize self-heating effect.

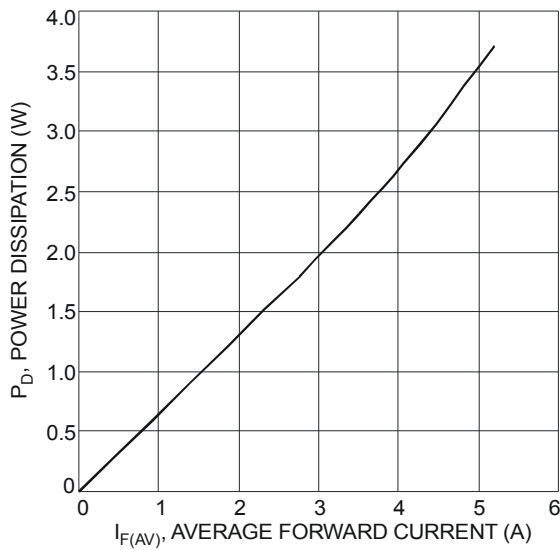


Figure 1 Forward Power Dissipation

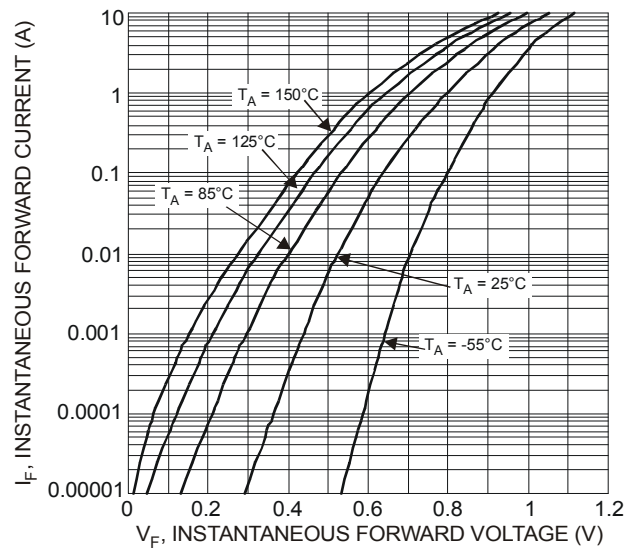


Figure 2 Typical Forward Characteristics

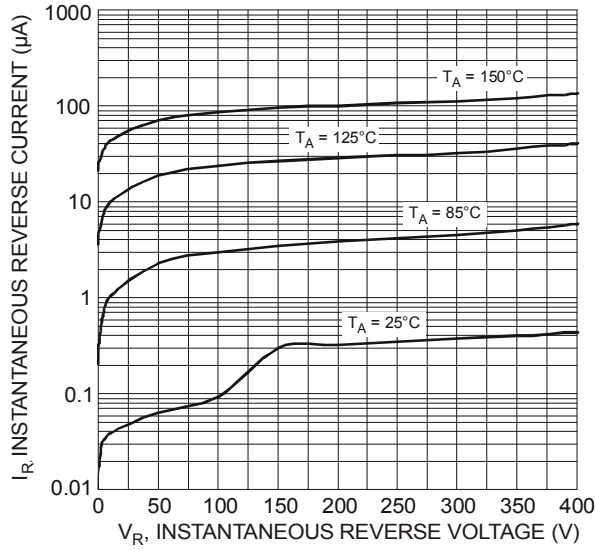


Figure 3 Typical Reverse Characteristics

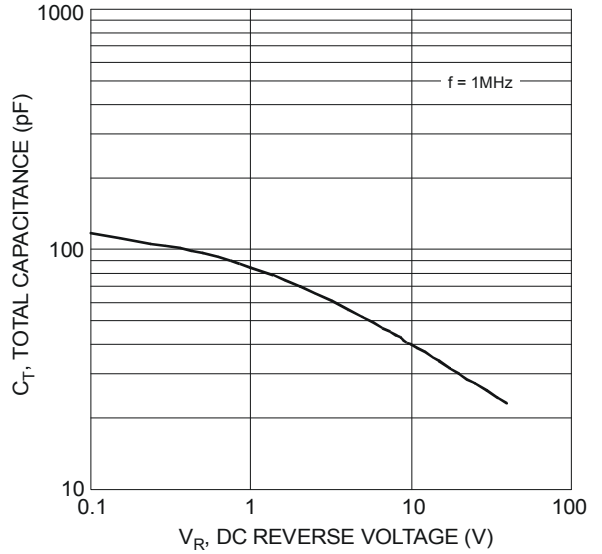


Figure 4 Total Capacitance vs. Reverse Voltage

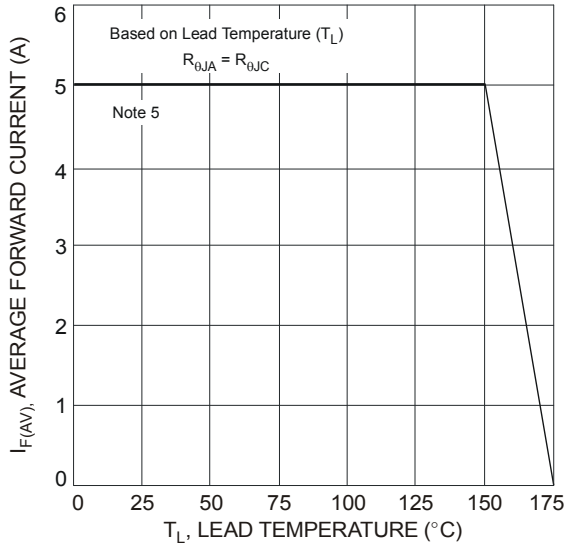


Figure 5 Forward Current Derating Curve

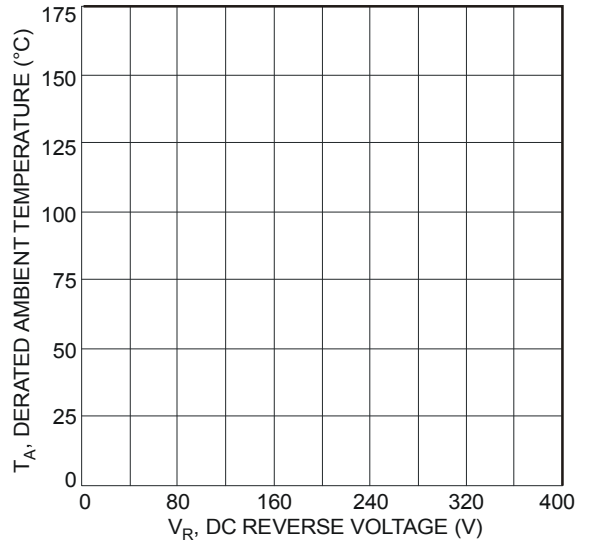


Figure 6 Operating Temperature Derating

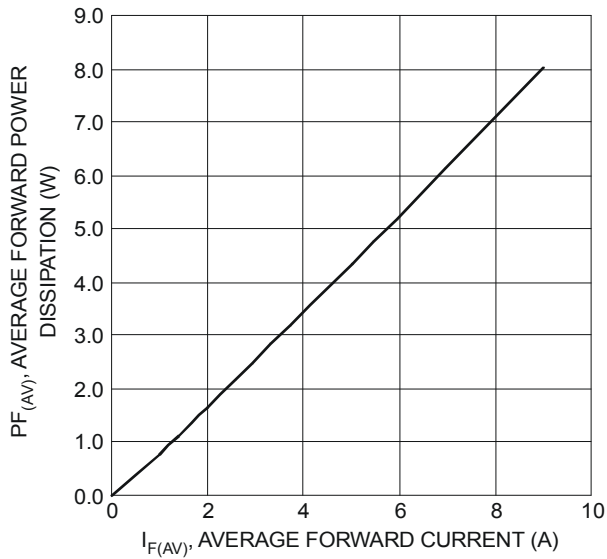
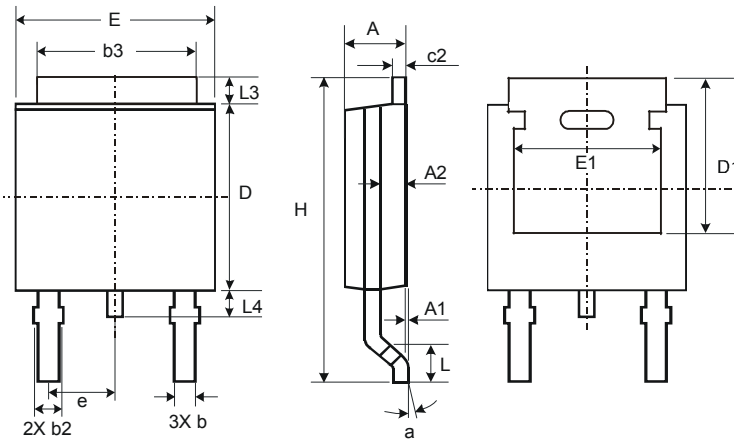


Figure 7 Forward Power Dissipation

**Package Outline Dimensions**

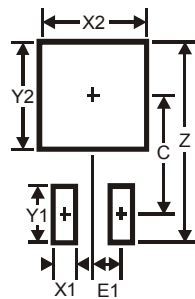
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



TO252			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c2	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	-	-
e	-	-	2.286
E	6.45	6.70	6.58
E1	4.32	-	-
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	-
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
C	6.9
E1	2.3

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