

Product Summary (@ $T_A = +25^\circ\text{C}$)

V_{RRM} (V)	I_o (A)	V_F Max (V)	I_R Max (μA)
600	1	1.3	5

Description and Applications

The RS1JDF is a rectifier packaged in the low profile D-FLAT package. Providing fast recovery time for high efficiency, this device is ideal for use in general rectification applications such as:

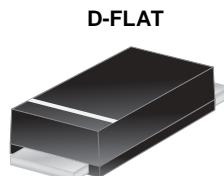
- Switching Mode Power Supplies
- DC-DC Converters

Features and Benefits

- Glass Passivated Die Construction
- Fast Recovery Time for High Efficiency
- Surge Overload Rating to 30A Peak
- High Current Capability
- Low Profile Design, Package Height Less than 1.1mm
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: D-FLAT
- 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 (63)
- Polarity: Cathode Band
- Weight: 0.035 grams (Approximate)



Top View

Ordering Information (Note 4)

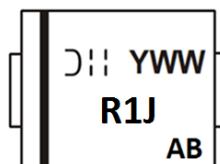
Part Number	Compliance	Case	Packaging
RS1JDF-13	AEC-Q101	D-FLAT	10,000/Tape & Reel

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 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

D-FLAT



R1J = Product Type Marking Code
 DII = Manufacturers' Code Marking
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 4 for 2014)
 WW = Week Code (01 to 53)
 AB = Foundry and Assembly Code

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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}		
Working Peak Reverse Voltage	V_{RWM}	600	V
DC Blocking Voltage (Note 5)	V_R		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	420	V
Average Rectified Output Current @ $T_A = +100^\circ\text{C}$	I_O	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	30	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 9)	$R_{\theta JT}$	26	°C/W
Typical Thermal Resistance, Junction to Air (Note 9)	$R_{\theta JA}$	93	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	$V_{(BR)R}$	600	—	—	V	$I_R = 10\mu\text{A}$
Forward Voltage	V_F	—	1.1 0.94	1.3 —	V	$I_F = 1\text{A}, T_J = +25^\circ\text{C}$ $I_F = 1\text{A}, T_J = +125^\circ\text{C}$
Reverse Leakage Current (Note 5)	I_R	—	0.25 0.005	5 —	μA mA	$V_R = 600\text{V}, T_J = +25^\circ\text{C}$ $V_R = 600\text{V}, T_J = +125^\circ\text{C}$
Reverse Recovery Time (Note 6)	t_{rr}	—	—	250	ns	$I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{RR} = 0.25\text{A}$
Total Capacitance (Note 7)	C_T	—	6	—	pf	$V_R = 4\text{V}_{\text{DC}}, f = 1\text{MHz}$

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

 6. Measured with $I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{RR} = 0.25\text{A}$. See Figure 7.

7. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

8. Device mounted on FR-4 substrate, 1" x 1", 2oz, single-sided, PC boards with 0.1" x 0.15" copper pads.

9. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pads.

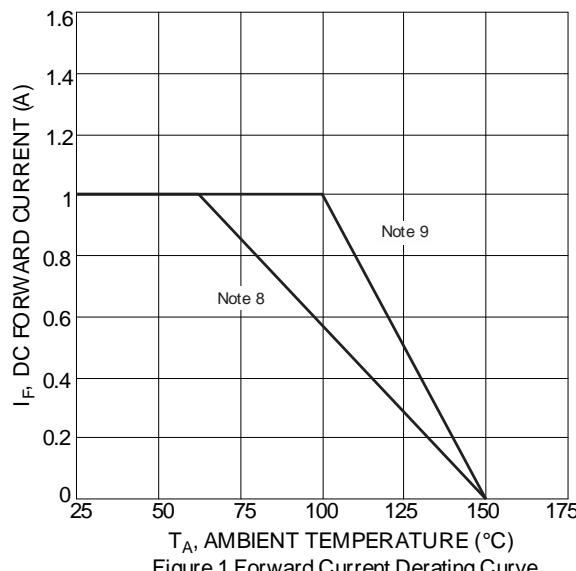


Figure 1 Forward Current Derating Curve

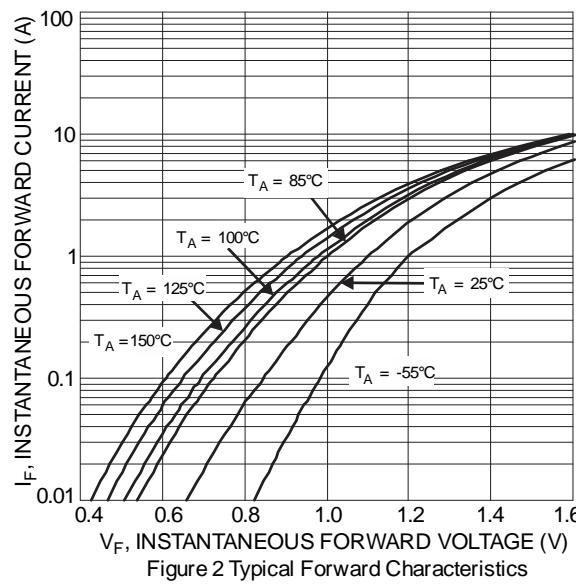


Figure 2 Typical Forward Characteristics

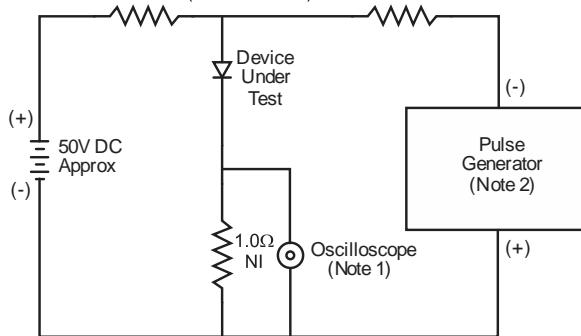
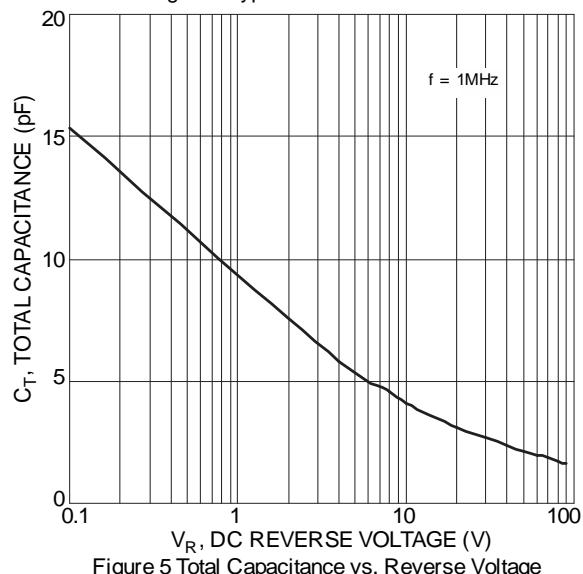
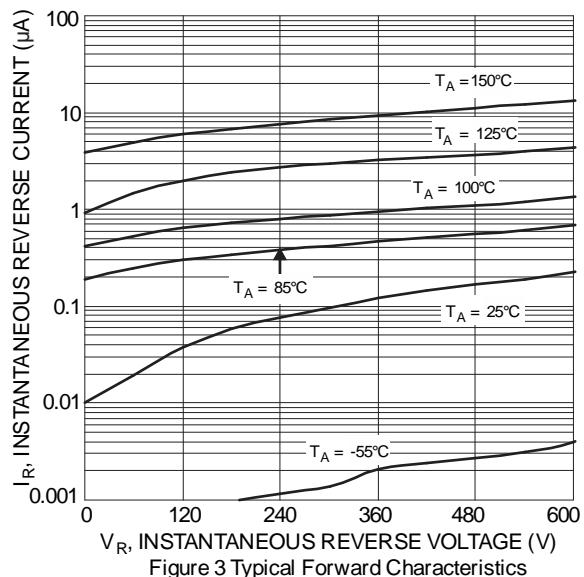
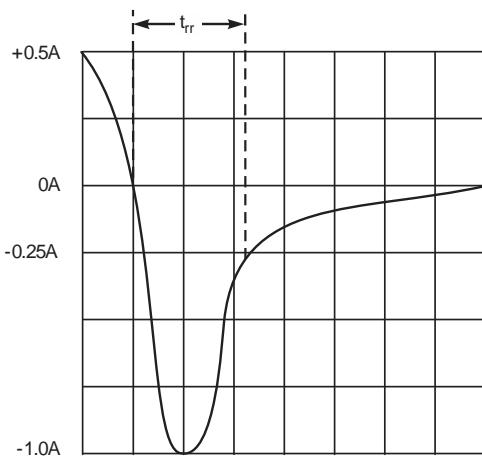
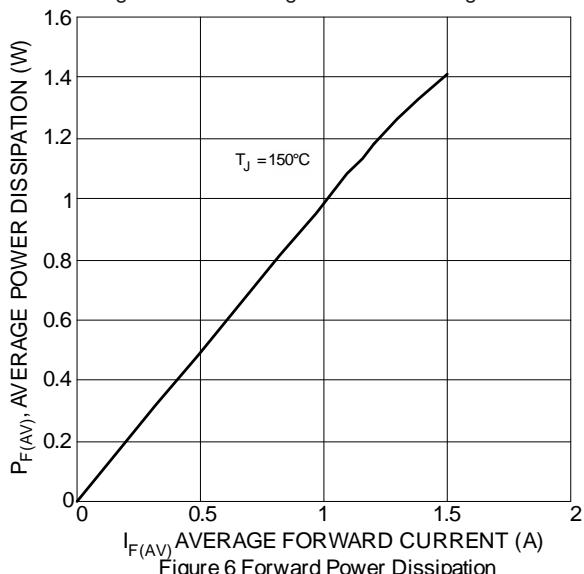
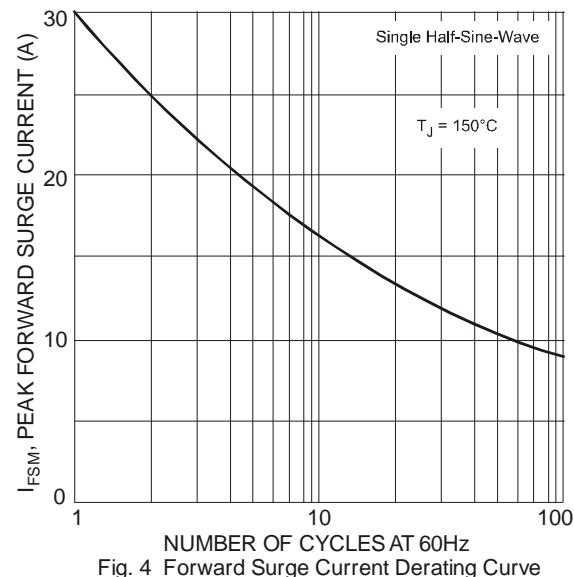


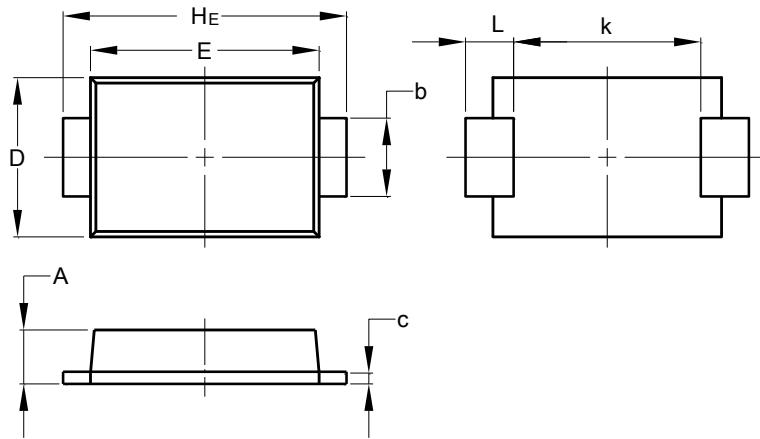
Figure 7 Reverse Recovery Time Characteristic and Test Circuit



Package Outline Dimensions

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

D-FLAT



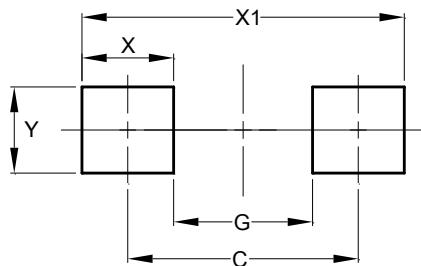
D-FLAT		
Dim	Min	Max
A	0.90	1.10
b	1.25	1.65
c	0.10	0.40
D	2.25	2.95
E	3.95	4.60
k	2.80	-
H _E	5.00	5.60
L	0.50	1.30

All Dimensions in mm

Suggested Pad Layout

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

D-FLAT



Dimensions	Value (in mm)
C	4.65
G	2.80
X	1.85
X1	6.50
Y	1.70

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