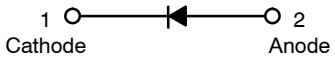
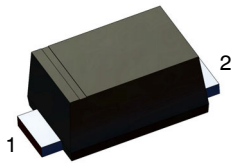
Surface Mount Fast Recovery Rectifiers

0.8 A, 50 V - 1000 V

RS1AFA, NRVHPRS1AFA Series





SOD−123FA
CASE 425AB

(Color Band Denotes Cathode)

Features

- Glass Passivated Chip Junction
- Fast Switching for High Efficiency
- High Surge Capacity
- Low Forward Voltage: 1.3 V Maximum
- UL Flammability 94V−0 Classification
- MSL 1 per J−STD−020
- RoHS Compliant / Green Molding Compound
- Industrial Device Qualified per AEC−Q101 Standards
- NRVHP Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable

*See authorized use policy

ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 4 of this data sheet.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 4.

Table 1. ABSOLUTE MAXIMUM RATINGS Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value							Unit
		RS1 AFA	RS1 BFA	RS1 DFA	RS1 GFA	RS1 JFA	RS1 KFA	RS1 MFA	
V_{RRM}	Repetitive Peak Reverse Voltage	50	100	200	400	600	800	1000	V
V_{RMS}	RMS Reverse Voltage	35	70	140	280	420	560	700	V
V_R	DC Blocking Voltage	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Forward Rectified Current	0.8							A
I_{FSM}	Peak Forward Surge Current: 8.3 ms Single Half Sine−Wave Superimposed on Rated Load	30							A
T_J	Operating Junction Temperature Range	−55 to +150							°C
T_{STG}	Storage Temperature Range	−55 to +150							°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Table 2. THERMAL CHARACTERISTICS (Note 1)

Symbol	Parameter	Value	Unit
Ψ_{JL}	Typical Thermal Characteristics, Junction−to−Lead	32	°C/W
$R_{\theta JA}$	Typical Thermal Resistance, Junction−to−Ambient	105	°C/W

1. Device mounted on 5 mm x 5 mm Cu pad PCB.

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Table 3. ELECTRICAL CHARACTERISTICS Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	Instantaneous Forward Voltage (Note 2)	I_F = 0.8 A				1.3	V
I_R	Reverse Current at Rated V_R	T_J = 25°C				5	μA
		T_J = 125°C				50	
C_J	Junction Capacitance	V_R = 4 V, f = 1 MHz			10		pF
T_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	RS1AFA, RS1BFA, RS1DFA			150	ns
			RS1GFA, RS1JFA			250	
			RS1KFA, RS1MFA			500	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse test with PW = 300 μs, 1% duty cycle

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TYPICAL PERFORMANCE CHARACTERISTICS

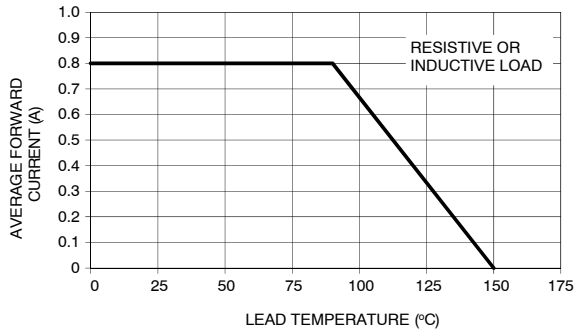


Figure 1. Forward Current Derating Curve

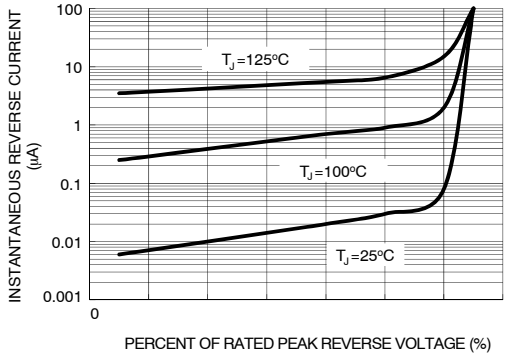


Figure 2. Typical Reverse Characteristics

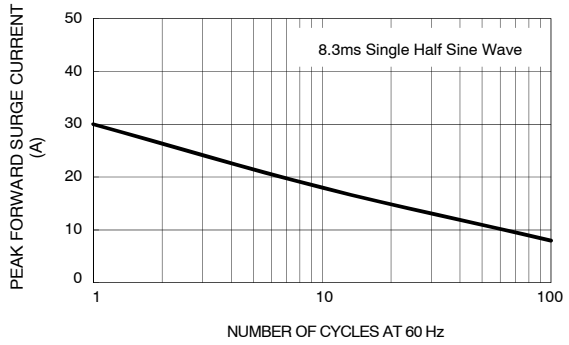


Figure 3. Maximum Non−Repetitive Forward Surge Current

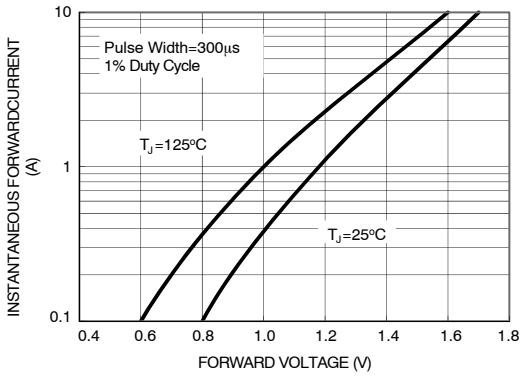


Figure 4. Typical Instantaneous Forward Characteristics

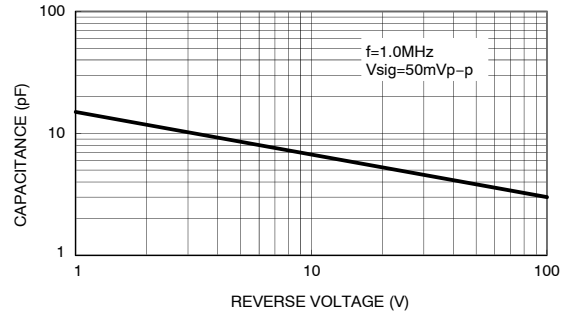


Figure 5. Typical Junction Capacitance

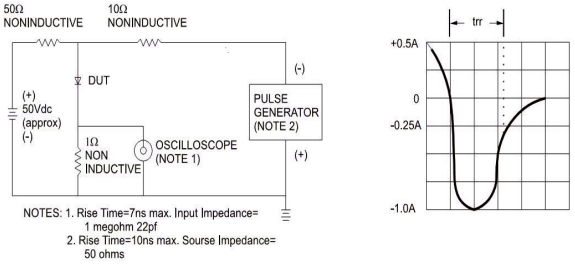


Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram

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ORDERING INFORMATION

Device	Top Mark	Package	Shipping†
RS1AFA	RAL	SOD−123FA	Tape and Reel
RS1BFA	RBL	SOD−123FA	Tape and Reel
RS1DFA	RDL	SOD−123FA	Tape and Reel
RS1GFA	RGL	SOD−123FA	Tape and Reel
RS1JFA	RJL	SOD−123FA	Tape and Reel
RS1KFA	RKL	SOD−123FA	Tape and Reel
RS1MFA	RML	SOD−123FA	Tape and Reel
NRVHPRS1AFA	RAL	SOD−123FA	Tape and Reel
NRVHPRS1JFA	RJL	SOD−123FA	Tape and Reel
NRVHPRS1KFA	RKL	SOD−123FA	Tape and Reel
NRVHPRS1MFA	RML	SOD−123FA	Tape and Reel

DISCONTINUED (Note 3)

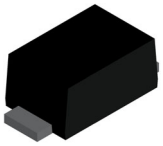
NRVHPRS1BFA	RBL	SOD−123FA	Tape and Reel
NRVHPRS1DFA	RDL	SOD−123FA	Tape and Reel
NRVHPRS1GFA	RGL	SOD−123FA	Tape and Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

3. **DISCONTINUED:** These devices are not recommended for new design. Please contact your **onsemi** representative for information. The most current information on these devices may be available on www.onsemi.com.

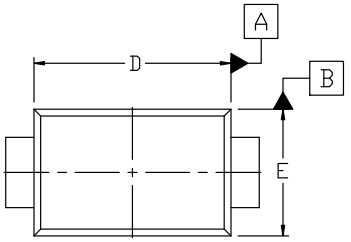
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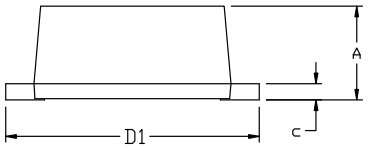


SOD−123FA
CASE 425AB
ISSUE A

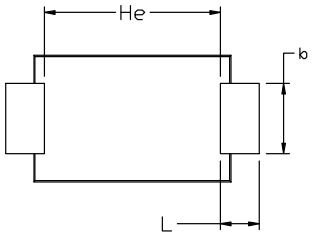
DATE 11 AUG 2022



TOP VIEW



FRONT VIEW

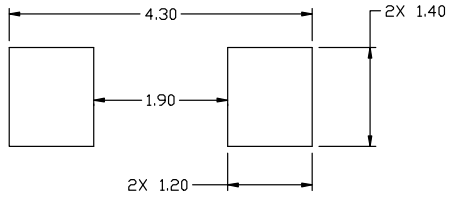


BOTTOM VIEW

NOTES:

1. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND THE BAR PROTRUSIONS.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	1.23	1.33	1.43
b	0.80	1.00	1.20
c	0.16	0.23	0.30
D	2.70	2.80	2.90
D1	3.40	3.60	3.80
E	1.70	1.80	1.90
He	2.45	---	2.60
L	0.35	0.60	0.85



RECOMMENDED
MOUNTING FOOTPRINT*

* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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