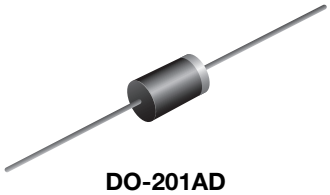
Soft Recovery Fast Switching Plastic Rectifier



DO-201AD

FEATURES

- Fast switching for high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb e3 **RoHS** COMPLIANT

TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer and telecommunication.

Note

- These devices are not AEC-Q101 qualified.

MECHANICAL DATA

Case: DO-201AD, molded epoxy body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
V_{RRM}	100 V, 200 V, 400 V, 800 V
I_{FSM}	100 A
t_{rr}	500 ns
I_R	10 µA
V_F	1.25 V
T_J max.	125 °C
Package	DO-201AD
Diode variation	Single die

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	BY396P	BY397P	BY398P	BY399P	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100	200	400	800	V
Maximum RMS voltage	V_{RMS}	70	140	280	560	V
Maximum DC blocking voltage	V_{DC}	100	200	400	800	V
Maximum average forward rectified current 0.375" (9.5 mm) lead lengths at T_A = 50 °C	$I_{F(AV)}$	3.0				A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load at T_A= 50 °C	I_{FSM}	100				A
Maximum repetitive peak forward surge at f < 15 kHz	I_{FRM}	10				A
Operating junction temperature range	T_J	- 50 to + 125				°C
Storage temperature range	T_{STG}	- 50 to + 150				°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	BY396P	BY397P	BY398P	BY399P	UNIT
Maximum instantaneous forward voltage	3.0 A		V_F	1.25				V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	10				µA
		T_A = 100 °C		500				
Maximum reverse recovery time	I_F = 10 mA, I_R = 10 mA, I_{rr} = 1.0 mA		t_{rr}	500				ns
Maximum forward recovery time	100 mA, dI/dt = 50 A/µs		t_{fr}	1.0				µs
Typical junction capacitance	4.0 V, 1 MHz		C_J	28				pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	BY396P	BY397P	BY398P	BY399P	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	22				°C/W

Note

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length with both leads to heat sink

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BY398P-E3/54	1.1	54	1400	13" diameter paper tape and reel
BY398P-E3/73	1.1	73	1000	Ammo pack packaging

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

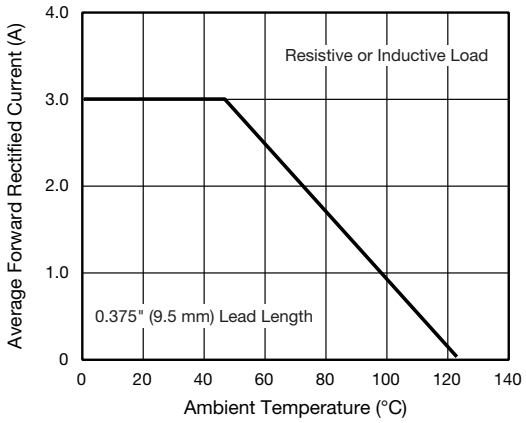


Fig. 1 - Forward Current Derating Curve

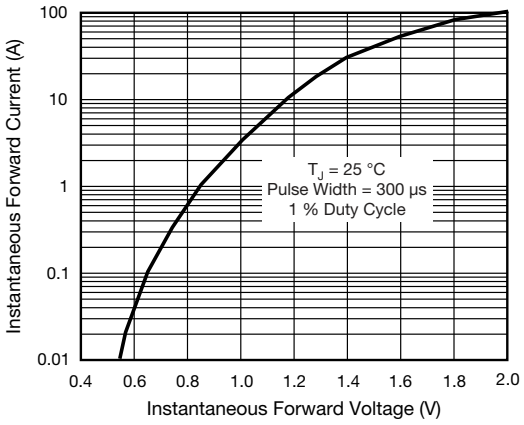


Fig. 3 - Typical Instantaneous Forward Characteristics

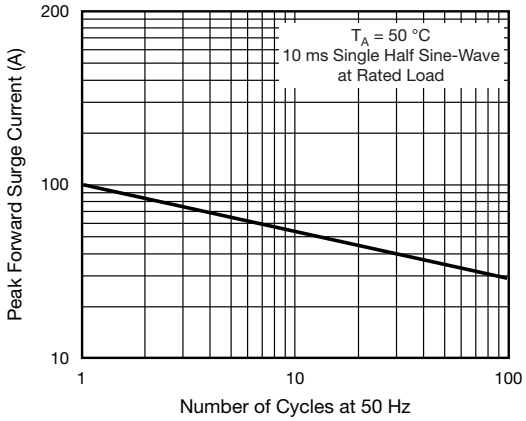


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

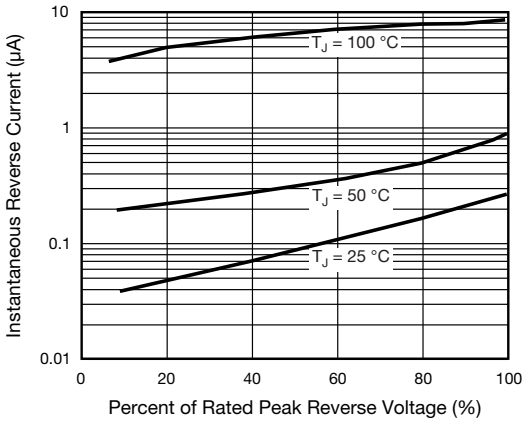


Fig. 4 - Typical Reverse Characteristics

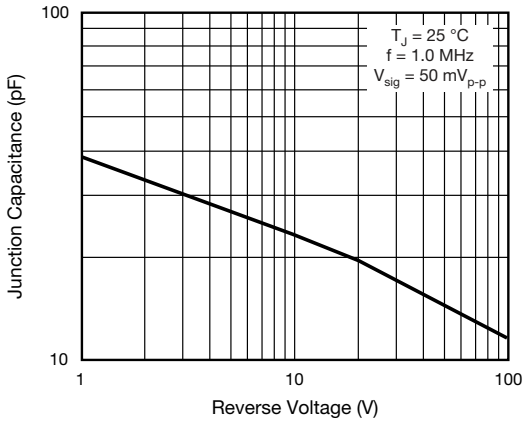
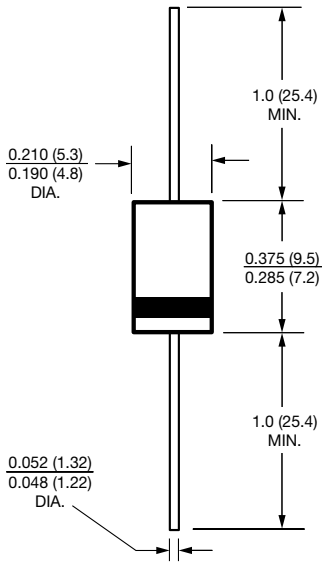


Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.