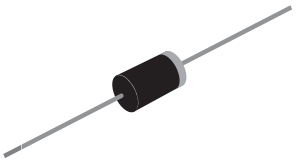
Soft Recovery Fast-Switching Plastic Rectifier



DO-201AD

FEATURES

- Fast switching for high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

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 Q101 qualified.)

MECHANICAL DATA

Case: DO-201AD, molded epoxy body

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 suffix for consumer grade, 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 to 800 V
I_{FSM}	100 A
t_{rr}	500 ns
I_R	10 µA
V_F	1.25 V
T_J max.	125 °C

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 T_A= 100 C	I_R	10 500				µA
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 (1)	$R_{\theta JA}$	22				°C/W

Note:

(1) Thermal resistance from junction to ambient at 0.375" (9.5mm) 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)

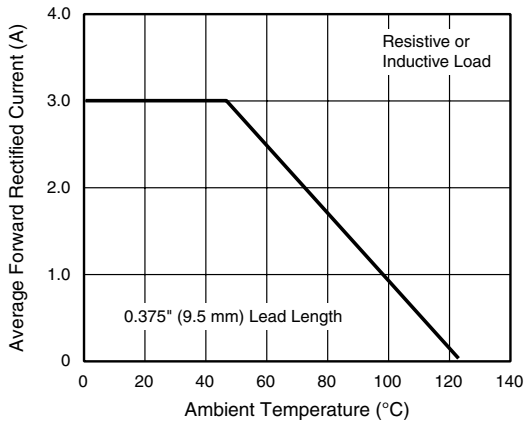


Figure 1. Forward Current Derating Curve

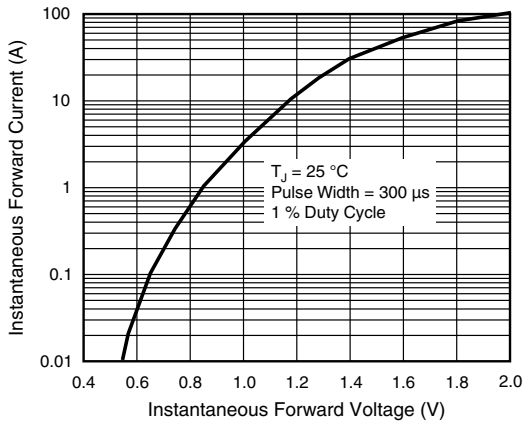


Figure 3. Typical Instantaneous Forward Characteristics

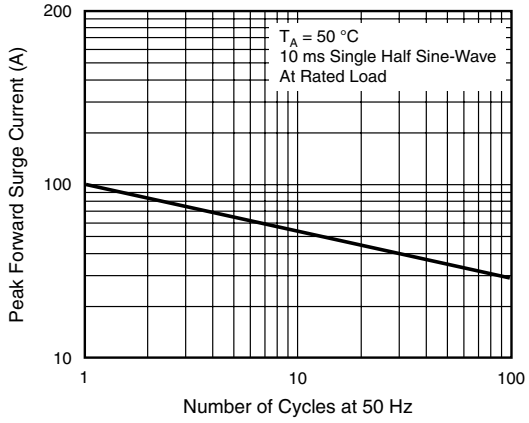


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

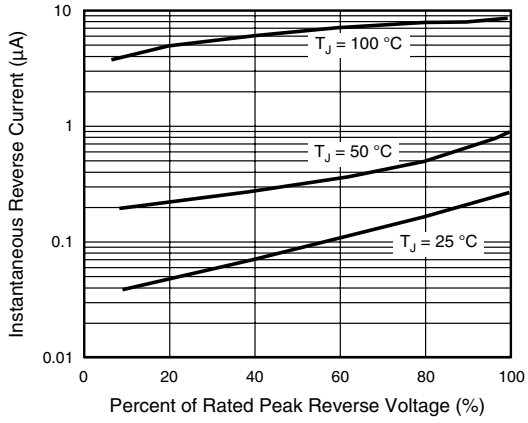


Figure 4. Typical Reverse Characteristics

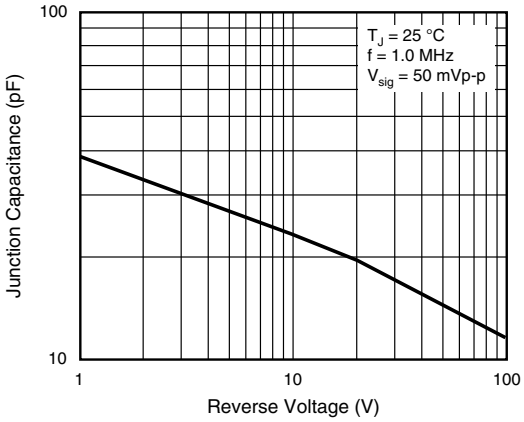
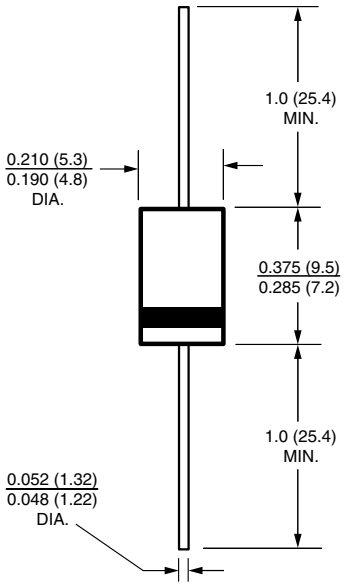


Figure 5. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



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