

## Soft Recovery Fast-Switching Plastic Rectifier



DO-201AD

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	5.0 A
$V_{RRM}$	100 V to 800 V
$I_{FSM}$	200 A
$t_{rr}$	200 ns
$I_R$	10 $\mu$ A
$V_F$	1.35 V
$T_J$ max.	125 °C

### 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 medium frequency rectification of switching mode power supplies, inverters, converters, TV sanning, Ultrasonic-system, speed controlled DC motors, low RF interference and freewheeling diode circuit.

(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

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

PARAMETER	SYMBOL	BY500-100	BY500-200	BY500-400	BY500-600	BY500-800	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	200	400	600	800	V
Maximum RMS voltage	$V_{RMS}$	70	140	280	420	560	V
Maximum DC blocking voltage	$V_{DC}$	100	200	400	600	800	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_L = 45$ °C	$I_{F(AV)}$	5.0					A
Peak forward surge current 10ms single half sine-wave superimposed on rated load at $T_A = 25$ °C	$I_{FSM}$	200					A
Maximum repetitive peak forward surge	$I_{FRM}$	10					A
Operating junction temperature range	$T_J$	- 50 to + 125					°C
Storage temperature range	$T_{STG}$	- 50 to + 150					°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS		SYMBOL	BY500-100	BY500-200	BY500-400	BY500-600	BY500-800	UNIT
Maximum instantaneous forward voltage	5.0 A		V <sub>F</sub>	1.35					V
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C		I <sub>R</sub>	10					μA
	T <sub>A</sub> = 100 °C			1.0					
Maximum reverse recovery time <sup>(1)</sup>			t <sub>rr</sub>	200					ns
Maximum reverse recovery current	I <sub>F</sub> = 1.0 A, V <sub>R</sub> = 30 V, di/dt = 50 A/μs, I <sub>rr</sub> = 10 % I <sub>RM</sub>		I <sub>RM(REC)</sub>	2.0					A
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	28					pF

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	BY500-100	BY500-200	BY500-400	BY500-600	BY500-800	UNIT	
Typical thermal resistance <sup>(1)</sup>	R <sub>θJA</sub>	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
BY500-400-E3/54	1.1	54	1400	13" diameter paper tape and reel
BY500-400-E3/73	1.1	73	1000	Ammo pack packaging

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

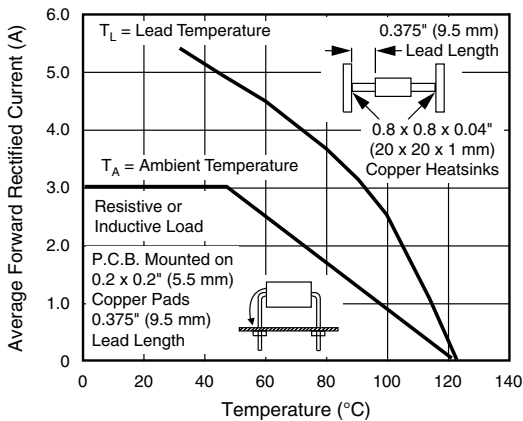


Figure 1. Forward Current Derating Curves

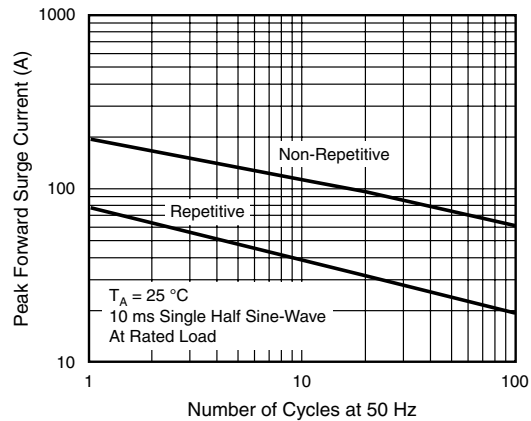


Figure 2. Maximum Peak Forward Surge Current

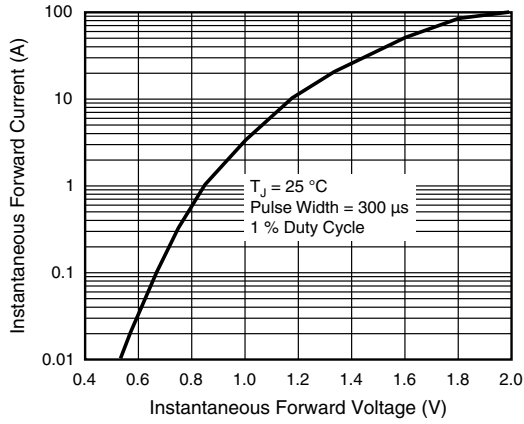


Figure 3. Typical Instantaneous Forward Characteristics

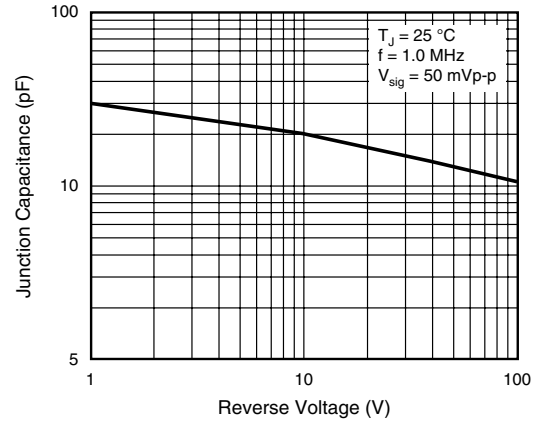


Figure 5. Typical Junction Capacitance

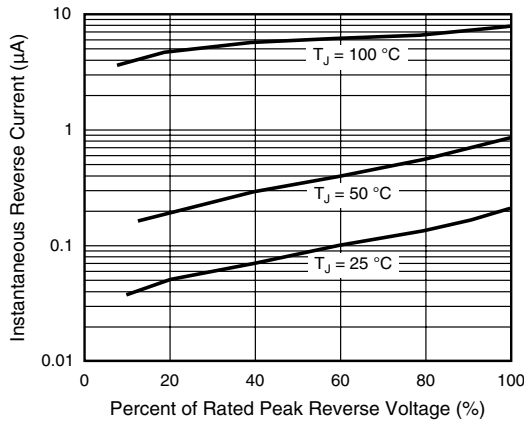
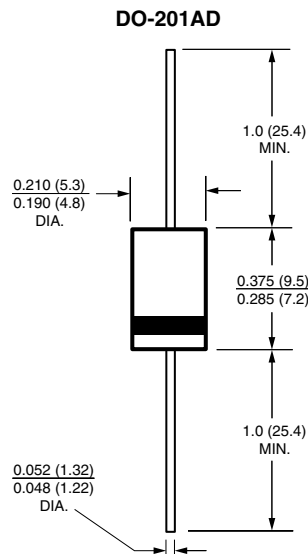


Figure 4. Typical Reverse Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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