TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

# BY296 - BY299

2.0 AMPS. Fast Recovery Rectifiers

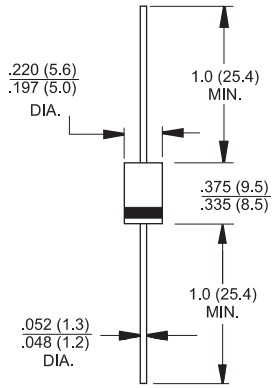
**DO-201AD**

## Features

- ✧ High efficiency, Low VF
- ✧ High current capability
- ✧ High reliability
- ✧ High surge current capability
- ✧ Low power loss.

## Mechanical Data

- ✧ Cases: Molded plastic
- ✧ Epoxy: UL 94V-0 rate flame retardant
- ✧ Lead: Pure tin plated, Lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ✧ Polarity: Color band denotes cathode end
- ✧ High temperature soldering guaranteed: 260°C/10 seconds/.375",(9.5mm) lead lengths at 5 lbs.,(2.3kg) tension
- ✧ Weight: 1.2 grams




**Dimensions in inches and (millimeters)**

## Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%

| Type Number | Symbol | BY296 | BY297 | BY298 | BY299 | Units |
|---|---|---|---|---|---|---|
| Maximum Recurrent 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 .375"(9.5mm) Lead Length @$T_A$ = 55 °C | $I_{(AV)}$ | 2.0 | | | | A |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method ) | $I_{FSM}$ | 70 | | | | A |
| Maximum Instantaneous Forward Voltage @ 2.0A | $V_F$ | 1.2 | | | | V |
| Maximum DC Reverse Current @ $T_A$=25 °C<br>at Rated DC Blocking Voltage @ $T_A$=125 °C | $I_R$ | 5.0<br>150 | | | | uA<br>uA |
| Maximum Reverse Recovery Time ( Note 1 ) | Trr | 250 | | | | nS |
| Typical Junction Capacitance ( Note 2 ) | Cj | 40 | | | | pF |
| Typical Thermal Resistance | $R_{\theta JA}$ | 55 | | | | °C/W |
| Operating Temperature Range | $T_J$ | -65 to +150 | | | | °C |
| Storage Temperature Range | $T_{STG}$ | -65 to +150 | | | | °C |

Notes: 1. Reverse Recovery Test Conditions: $I_F$=0.5A, $I_R$=1.0A, $I_{RR}$=0.25A
2. Measured at 1 MHz and Applied Reverse Voltage of 4.0 Volts D.C.
3. Mount on Cu-Pad Size 16mm x 16mm on P.C.B.

# RATINGS AND CHARACTERISTIC CURVES (BY296 THRU BY299)

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

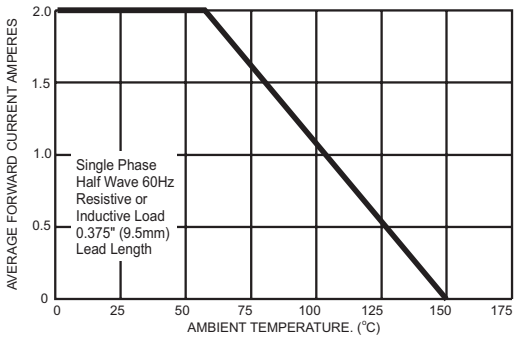



FIG.2- TYPICAL REVERSE CHARACTERISTICS PER LEG

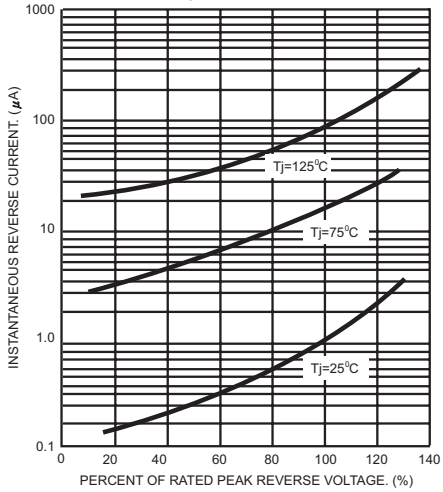



FIG.3- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

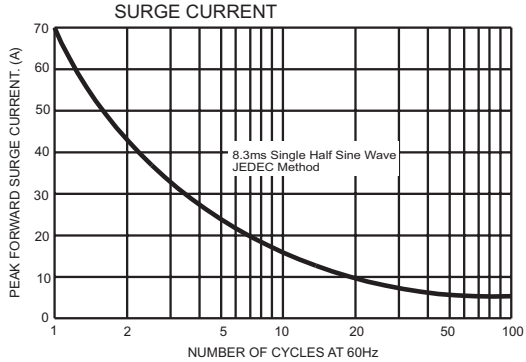



FIG.4- TYPICAL JUNCTION CAPACITANCE

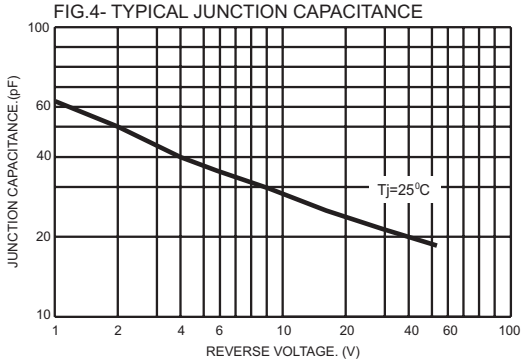



FIG.5- TYPICAL FORWARD CHARACTERISTICS

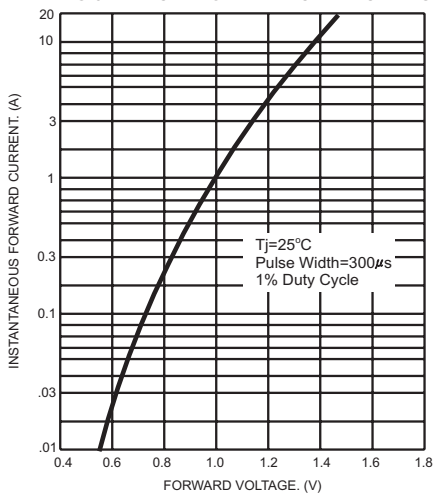



FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM