



# BYT200PIV-400

## ULTRAFAST POWER RECTIFIER DIODE

### MAIN PRODUCT CHARACTERISTICS

|             |         |
|-------------|---------|
| $I_{F(AV)}$ | 2*100 A |
| $V_{RRM}$   | 400 V   |
| $V_F$ (max) | 1.4 V   |

### PRELIMINARY DATASHEET

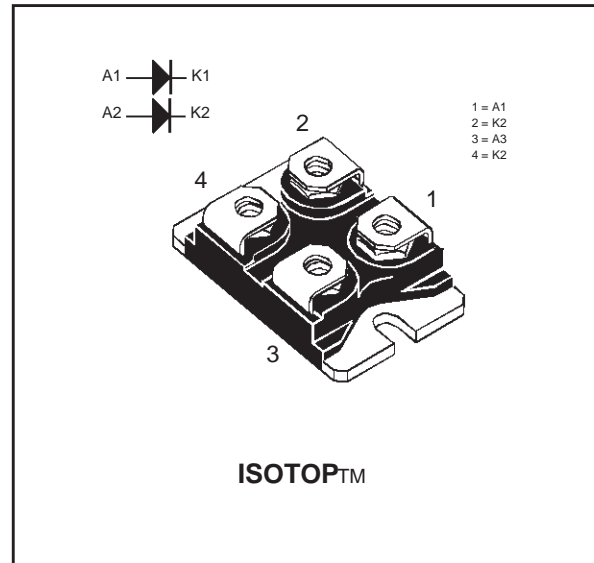
### FEATURES AND BENEFITS

- LOW CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH AVALANCHE CAPABILITY
- ISOLATED PACKAGE :  
2500 V<sub>DC</sub>  
CAPACITANCE 42pF

### DESCRIPTION

High current power rectifier diode suited for Switched Mode Power Supply and high frequency DC to DC converters.

Packaged in ISOTOP, this device is intended for use in a medium voltage high current applications such as **welding equipment and Telecom supplies.**



### ABSOLUTE MAXIMUM RATING

| Symbol       | Parameter                            | Value                                      | Unit             |
|--------------|--------------------------------------|--|------------------|
| $V_{RRM}$    | Repetitive peak reverse voltage      | 400  | V                |
| $I_{F(RMS)}$ | RMS forward current                  | 150  | A                |
| $I_{F(AV)}$  | Average forward current              | $T_c = 80^\circ\text{C}$<br>$\delta = 0.5$ | A                |
| $I_{FSM}$    | Surge non repetitive forward current | $t_p = 10$ ms<br>Sinusoidal                | A                |
| $I_{FRM}$    | Repetitive peak forward current      | $t_p \leq 10$ $\mu\text{s}$                | A                |
| $T_{stg}$    | Storage temperature range            | - 40 to + 150                              | $^\circ\text{C}$ |
| $T_j$        | Maximum junction temperature         | 150  | $^\circ\text{C}$ |

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### THERMAL RESISTANCES

| Symbol               | Parameter        |          | Value | Unit |
|----------------------|------------------|----------|-------|------|
| R <sub>th(j-c)</sub> | Junction to case | Per leg  | 0.55  | °C/W |
|                      |                  | Total    | 0.33  |      |
| R <sub>th(c)</sub>   |                  | Coupling | 0.1   |      |

### STATIC ELECTRICAL CHARACTERISTICS (per diode)

| Symbol            | Parameter               | Tests Conditions       |                                   | Min. | Typ. | Max. | Unit |
|-------------------|-------------------------|------------------------|-----------------------------------|------|------|------|------|
| I <sub>R</sub> *  | Reverse leakage current | T <sub>j</sub> = 25°C  | V <sub>R</sub> = V <sub>RRM</sub> |      |      | 120  | μA   |
|                   |                         | T <sub>j</sub> = 100°C |                                   |      | 4    | 12   | mA   |
| V <sub>F</sub> ** | Forward voltage drop    | T <sub>j</sub> = 25°C  | I <sub>F</sub> = 100 A            |      |      | 1.6  | V    |
|                   |                         | T <sub>j</sub> = 125°C | I <sub>F</sub> = 100 A            |      | 0.95 | 1.4  |      |

Pulse test : \* tp = 5 ms, duty cycle < 2 %  
\*\* tp = 380 μs, duty cycle < 2%

### RECOVERY CHARACTERISTICS

| Symbol          | Parameter                | Test Conditions  | Min. | Typ. | Max. | Unit |
|-----------------|--------------------------|--|------|------|------|------|
| t <sub>rr</sub> | Reverse recovery time    | I <sub>F</sub> =0.5A I <sub>R</sub> =1A I <sub>rr</sub> =0.25A<br>I <sub>F</sub> =1A dI/dt=-50A/μs V <sub>R</sub> =30V |      | 55   | 100  | ns   |
| I <sub>RM</sub> | Reverse recovery current | dI <sub>F</sub> /dt=-200A/μs T <sub>j</sub> =125°C<br>V <sub>R</sub> =400V I <sub>F</sub> =100A                        |      |      | 40   | A    |
| S factor        | Softness factor          | dI <sub>F</sub> /dt=-200A/μs T <sub>j</sub> =125°C<br>V <sub>R</sub> =400V I <sub>F</sub> =100A                        |      | 0.25 |      |      |
| t <sub>fr</sub> | Forward recovery time    | I <sub>F</sub> =100A dI <sub>F</sub> /dt=500A/μs<br>Measured at 1.1 x V <sub>F</sub> max.                              |      |      | 500  | ns   |
| V <sub>FP</sub> | Peak forward voltage     | T <sub>j</sub> =25°C   |      |      | 12   | V    |

To evaluate the conduction losses use the following equation :

$$P = 0.8 \times I_{F(AV)} + 0.00228 \times I_{F(RMS)}^2$$

**PACKAGE MECHANICAL DATA**  
 ISOTOP

| REF. | DIMENSIONS  |       |       |        |       |       |
|------|-------------|-------|-------|--------|-------|-------|
|      | Millimeters |       |       | Inches |       |       |
|      | Min.        | Typ.  | Max.  | Min.   | Typ.  | Max.  |
| A    | 11.80       |       | 12.20 | 0.465  |       | 0.480 |
| A1   | 8.90        |       | 9.10  | 0.350  |       | 0.358 |
| B    | 7.8         |       | 8.20  | 0.307  |       | 0.323 |
| C    | 0.75        |       | 0.85  | 0.030  |       | 0.033 |
| C2   | 1.95        |       | 2.05  | 0.077  |       | 0.081 |
| D    | 37.80       |       | 38.20 | 1.488  |       | 1.504 |
| D1   | 31.50       |       | 31.70 | 1.240  |       | 1.248 |
| E    | 25.15       |       | 25.50 | 0.990  |       | 1.004 |
| E1   | 23.85       |       | 24.15 | 0.939  |       | 0.951 |
| E2   |             | 24.80 |       |        | 0.976 |       |
| G    | 14.90       |       | 15.10 | 0.587  |       | 0.594 |
| G1   | 12.60       |       | 12.80 | 0.496  |       | 0.504 |
| G2   | 3.50        |       | 4.30  | 0.138  |       | 0.169 |
| F    | 4.10        |       | 4.30  | 0.161  |       | 0.169 |
| F1   | 4.60        |       | 5.00  | 0.181  |       | 0.197 |
| P    | 4.00        |       | 4.30  | 0.157  |       | 0.69  |
| P1   | 4.00        |       | 4.40  | 0.157  |       | 0.173 |
| S    | 30.10       |       | 30.30 | 1.185  |       | 1.193 |

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