RECTIFIER STACKS

DESCRIPTION

The rectifier stacks are based on the Zetex-Press-fit diodes BYP57/58-series (plastic covered 35A diodes), BYY57/58 (hermetic 35A diodes) or BYY57A/58A (hermetic 50A diodes). These diodes are connected to aluminum cooling plates. The low forward voltage difference of the used Press-fit diodes (50 mV at $I_F = 35A$ respectively $I_F = 50A$) allows the parallel connecting of this diodes in the rectifier stacks up to 2400A.

FEATURES

- Possible input voltage (AC) from 12V to 1000V
- Possible output voltage (DC) from 12V to 1300V
- Typical output current (DC) from 30A to 2400A

APPLICATIONS

- Welding Machines
- Battery Charger
- DC Power Supplies for emergency lighting or electrolysis and electro plating
ORDERING INFORMATION

Example: 160A rectifier stack with six pulsebridge connection for natural air cooling, input voltage (AC) 30V, output voltage (DC) 38V, 6 cooling plates 100x250mm², total number of diodes 18 (3 diodes per cooling plate), connectors at the top

Complete ordering information: DB30/38-160S-2-18/6H
Short ordering information: DB30160S218/6H

<table>
<thead>
<tr>
<th>Si-diode stack type designation</th>
<th>DB</th>
<th>30/</th>
<th>38-</th>
<th>160</th>
<th>S-</th>
<th>2-</th>
<th>18/</th>
<th>6</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>single-way connection</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double-way centre tape connection</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two pulse bridge connection</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three pulse star connection</td>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Six pulse bridge connection</td>
<td>DB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Six pulse star connection</td>
<td>DS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double three pulse star connection</td>
<td>DSS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical input voltage (V)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical direct voltage (V)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical direct current (A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooling type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural air cooling</td>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forced air cooling</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(delivery without fan)</td>
</tr>
<tr>
<td>Plate size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100x125 mm²</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100x250 mm²</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100x375 mm²</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100x500 mm²</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of diodes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of plates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of connector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>come out at the top</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>come out lateral</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DEVICE MARKING

The rectifier stacks are marked by short type description. Part marking by customer type description is also possible.

For example DB30/38-160-S2-18/6H: DB30/38-160
CONNECTIONS

**E**
(M1)
One-pulse single-way connection

**M**
(M2)
Two-pulse double-way centre tap connection

**B**
(B2)
Two-pulse bridge connection

**S**
(M3)
Three-pulse star connection

**DB**
(B6)
Six-pulse bridge connection

**DS**
(M6)
Six-pulse star connection

**DSS**
(M3.2)
Double three-pulse star connection
CONNECTOR TYPES (a selection of the main used types)

<table>
<thead>
<tr>
<th>No. 1</th>
<th>No. 2</th>
<th>No. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>connector without nut</td>
<td>connector with welded nut M6 or M8</td>
<td>twisted connector with welded nut M6 or M8</td>
</tr>
<tr>
<td>1.1</td>
<td>1.2</td>
<td>1.3</td>
</tr>
</tbody>
</table>

RECTIFIER STACK SIZES

Natural air cooling: \( T_a \leq 45^\circ C \)
Forced air cooling: \( T_a \leq 35^\circ C; v = 6m/s \)

<table>
<thead>
<tr>
<th>Plate size (mm²)</th>
<th>bolts (pcs.)</th>
<th>Number of diodes (pcs.) per plate</th>
<th>Max. number of cooling plates per stack (pcs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 x 125</td>
<td>1</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>100 x 250</td>
<td>2</td>
<td>2</td>
<td>48</td>
</tr>
<tr>
<td>100 x 375</td>
<td>3</td>
<td>3</td>
<td>48</td>
</tr>
<tr>
<td>100 x 500</td>
<td>4</td>
<td>4</td>
<td>48</td>
</tr>
</tbody>
</table>

PROTECTION CIRCUITS

- Varistor (available standard values of \( V_{effmax} \): 30V, 60V, 130V, 250V, 420V)
- Thermostatic switch (available switches: break contact 90°C or 115°C)
- Capacitor- and/or resistor network

For customer specific solutions please ask our local offices.
CONNECTOR TYPE H

Plate size 1

Plate size 2

Plate size 3

Plate size 4

Plate size 1 Plate size 2

Plate size 3

Plate size 4

125 20° 125 40°

125

375

140

500
CONNECTOR TYPE C

Plate size 1

Plate size 2

Plate size 3

Plate size 4

CUSTOMER SPECIFIC SOLUTIONS

Please ask our local offices for customer specific solutions or contact:

Diodes Zetex GmbH
Balanstr. 59
D 81541 München
Phone: +49 89 454949 28 or +49 3679 727768
Fax: +49 89 454949 49 or +49 3679 727769
E-Mail: Joerg_Eichhorn@eu.diodes.com