# Rectifier Diode

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Rectifier Diode | Reverse Voltage | Forward Current(mean) | Forward Current(peak) | Cost | Estimated Loss W  (SteadyState-Worst Case) | Tjunction (C)  (Steady State-Worst Case) |
| S1G(Single) | 400 V | 1 A | 10 A | 6\*0.22$=1.32$ | 0.17-0.45 | 40-63 |
| 3GBJ3516-BP(Three Phase) | 1600 V | 35 A | 400 A | 1.84 $ | 0.14-0.4 | It used with heatsink in datasheet |
| DLA5P800UC-TRL | 800 V | 5 A | 70A | 0.45\*2=0.9$ | 0.18-0.45 | It used with heatsink in datasheet |
| Simulation | 250 V | 0.2 A | 1 A |  |  |  |

<https://www.digikey.com/en/products/detail/on-semiconductor/S1G/965464>

<https://www.digikey.com/en/products/detail/micro-commercial-co/3GBJ3516-BP/7681643>

In the market research on diodes, array diodes were investigated. When the single diode cost and array diode cost were compared, it was understood that the surge current values of the array diodes were not sufficient in the cost range of six single diode. Also, It was decided that the THT diodes were not suitable for the project because their range was too large, because thermal calculation cannot be made without using heatsink in datasheets.

# Rectifier Capacitor

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Rectifier Capacitor | Capacitance (ɥF) | Voltage Rating (V) | Cost ($) | Diameter (mm) | Rated Ripple Current (mA) |
| MAL219856569E3-ND | 56 | 400 | 3.91 | 22 | 720 |
| 450VXS390MEFC30X50 | 390 | 450 | 2.07 | 30 | 2110 |
| 400HXG470MEFC30X50-ND | 470 | 400 | 2.67 | 30 | 3040 |
| 400USG470MEFC25X50 | 470 | 400 | 2.69 | 25 | 2390 |

<https://www.digikey.com/en/products/detail/vishay-beyschlag-draloric-bc-components/MAL219856569E3/5629746>

<https://www.digikey.com/en/products/detail/rubycon/400USG470MEFC25X50/6184448>