**Capacitor Selection**

Capacitor selection process was carried out according to Equation 5. In the first step, aluminum electrolytic capacitors were evaluated with a 68 µH capacitance and 0.220 Ω ESR values. As can be seen from Figure …, this capacitance value was not sufficient for the ESR value where the selected capacitor has. Therefore, the ESR values of different capacitor types were compared with the decision to use a different capacitor. During these comparisons, it was observed that the ESR values of ceramic capacitors were less than 0.015 Ω. In this case, it was decided to connect 3 ceramic capacitors in the same size in parallel in order to provide reduction in both ESR and capacitance values. As a result of all these evaluations, it was deemed appropriate to use 3 capacitors of 4.7 µF. Considering the new capacitor selection, there was an improvement of %600 in capacitance, %4400 in ESR, and 0.1 $ improvement in price. In addition, small size of the ceramic capacitors, and the selection of SMD type have reduced the space spent on output capacitor of Buck Converter drastically.

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| --- | --- | --- |
|  |  | (4) |

