O 108. IMPLEMENTATION OF 480W LLC RESONANT CONVERTER

Yunus Emre Bulut[1], Mertcan Aşçı[2], Burak Akı[1]

[1]*Yıldız Technical University, İstanbul, Turkey*
[2]*Istanbul Technical University, İstanbul, Turkey*

E-mail: yunusemrebulut.28@gmail.com, Mertcan_asci@hotmail.com, bakin@yildiz.edu.tr

ABSTRACT: This study presents the design of an LLC resonant converter as using the leakage inductance of the transformer instead of the inductance in the resonance tank. With serial resonant characteristics, the power MOSFETs are conducted at zero voltage switching and secondary diodes are commutating under soft switching, so the switching power losses on the semiconductor components are decreased. Using the proposed power stage and feedback control loop design considerations, the LLC resonant converter can achieve high power conversion efficiency and stability enhancement. This study provides the working principle of the resonant LLC converter topology by designing the simulation model.

Keywords: LLC Resonant Converter, Resonant Tank, Soft Switching, Switching Losses, Zero Voltage Switching