Circuit Design & Simulation Results

The SEPIC design parameters are as follows:-

L1(H)	L2(H)	C1(F)	C2(F)	Rload(ohm)
5.00E-05	6.00E-05	5.00E-04	5.00E-04	1.50E+01

Table 1: Design Parameters

Output with a MOSFET working as the switch:-

The simulink circuit for the simulation:

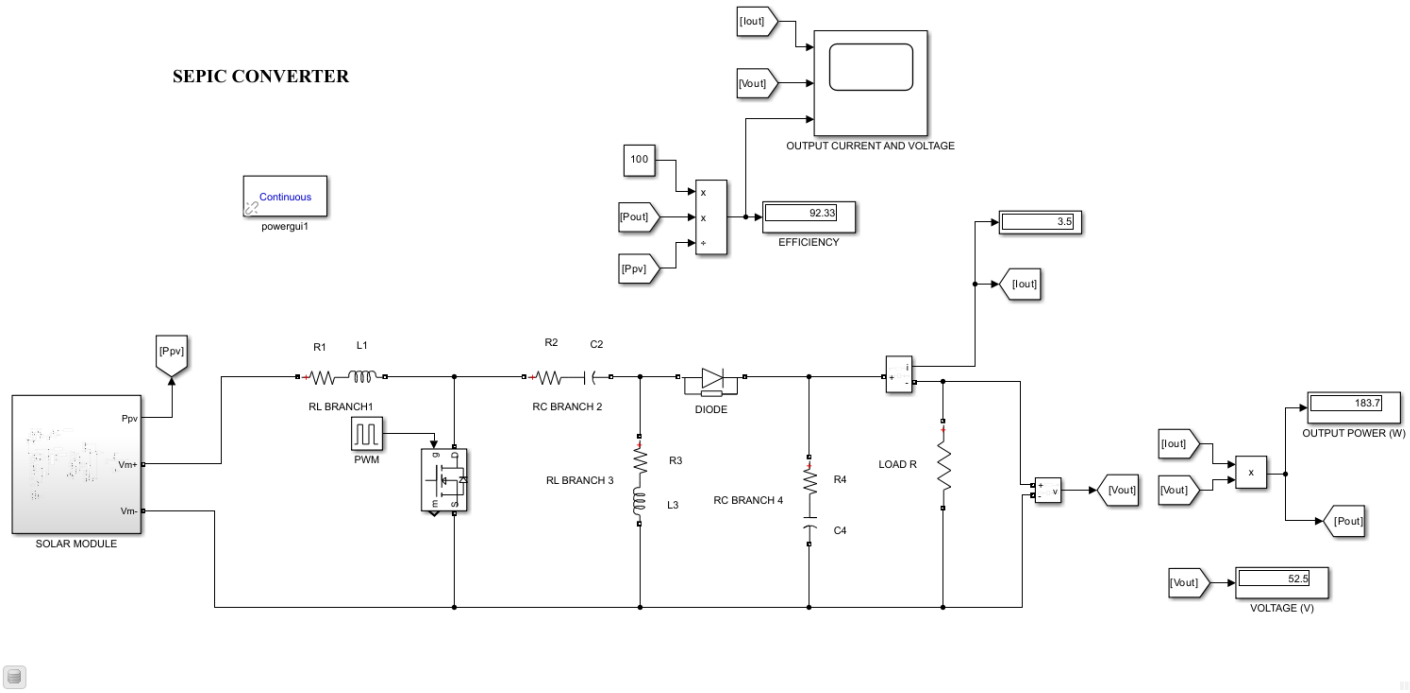

Fig 1: Simulink SEPIC Converter Circuit (with MOSFET)

Graphs:-

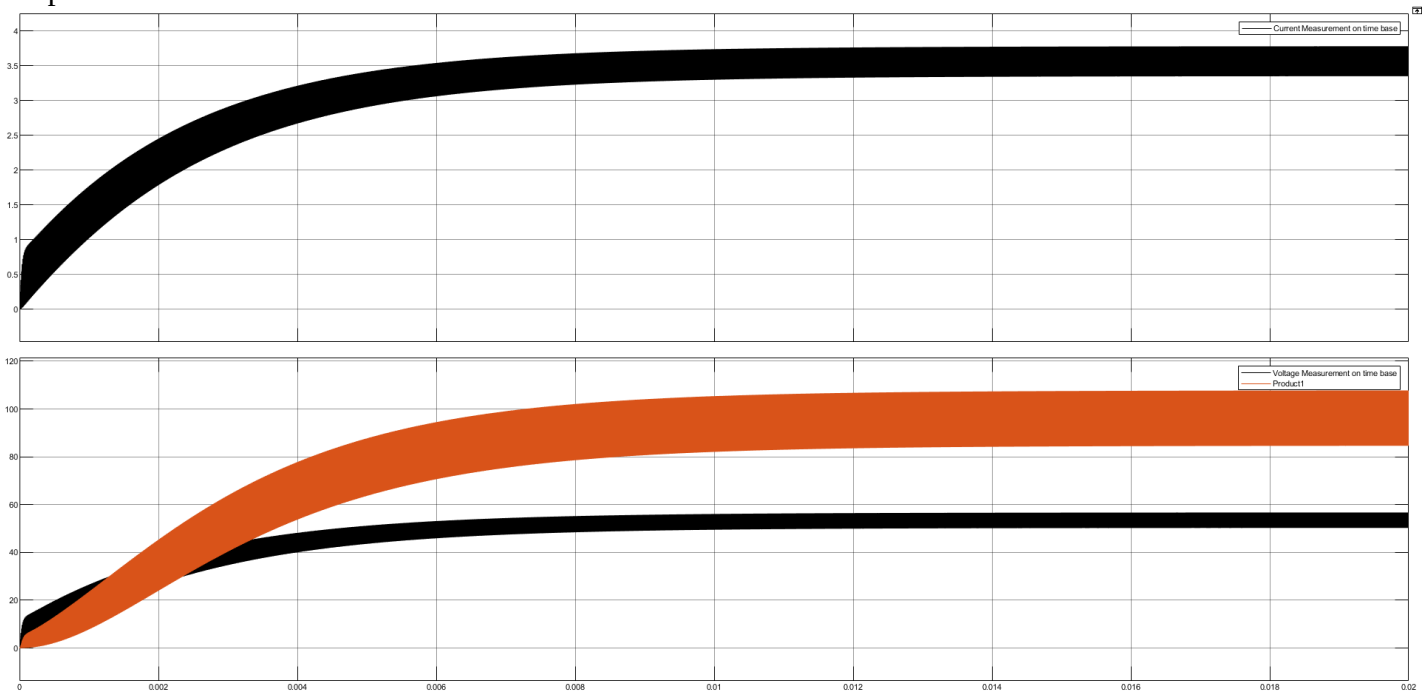

Fig 2: Output Current, Voltage and Power Waveform (for MOSFET)

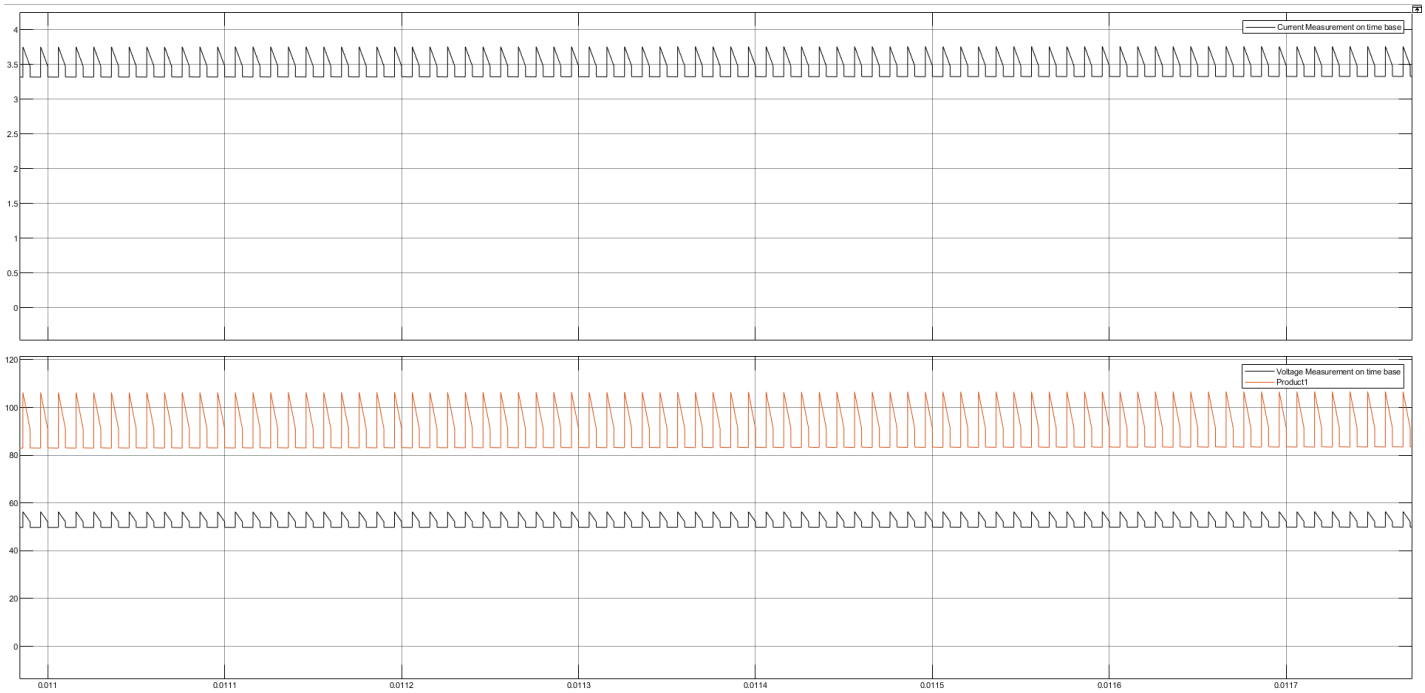

Fig 3: Output Current, Voltage and Power Ripples (for MOSFET)

Output with a IGBT working as the switch:-

The simulink circuit for the simulation:

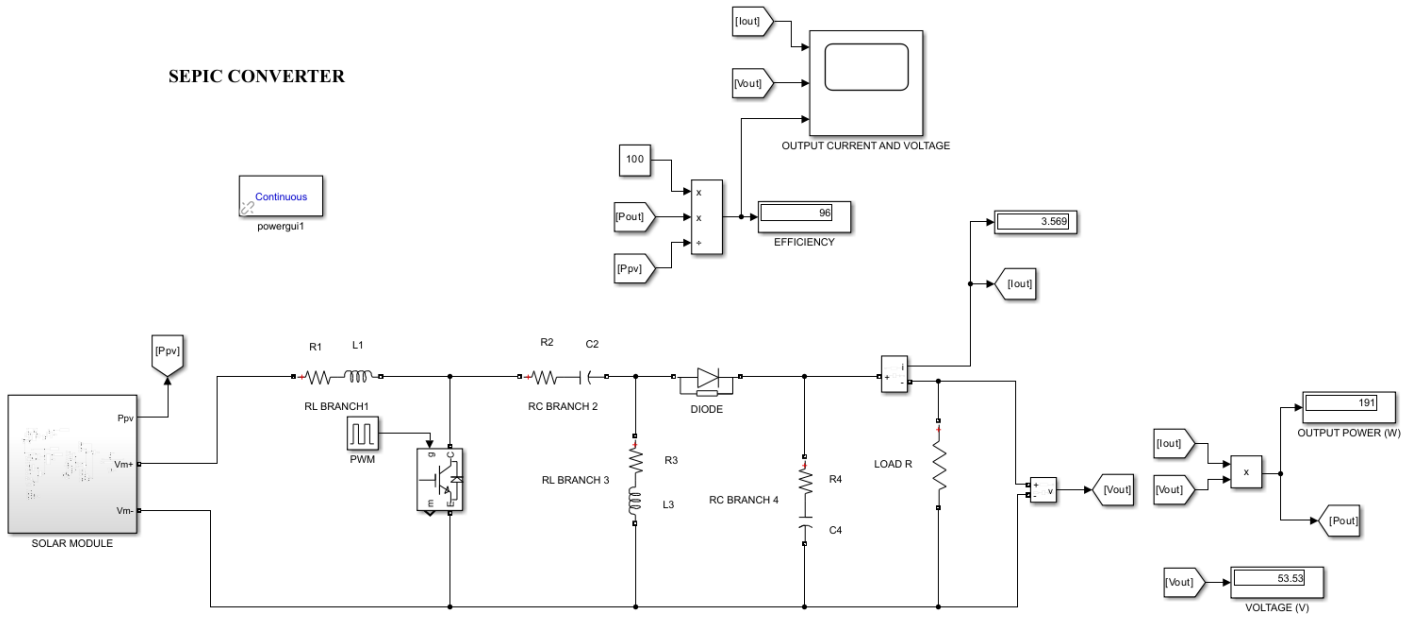

Fig 4: Simulink SEPIC Converter Circuit (with IGBT)

Graphs:-

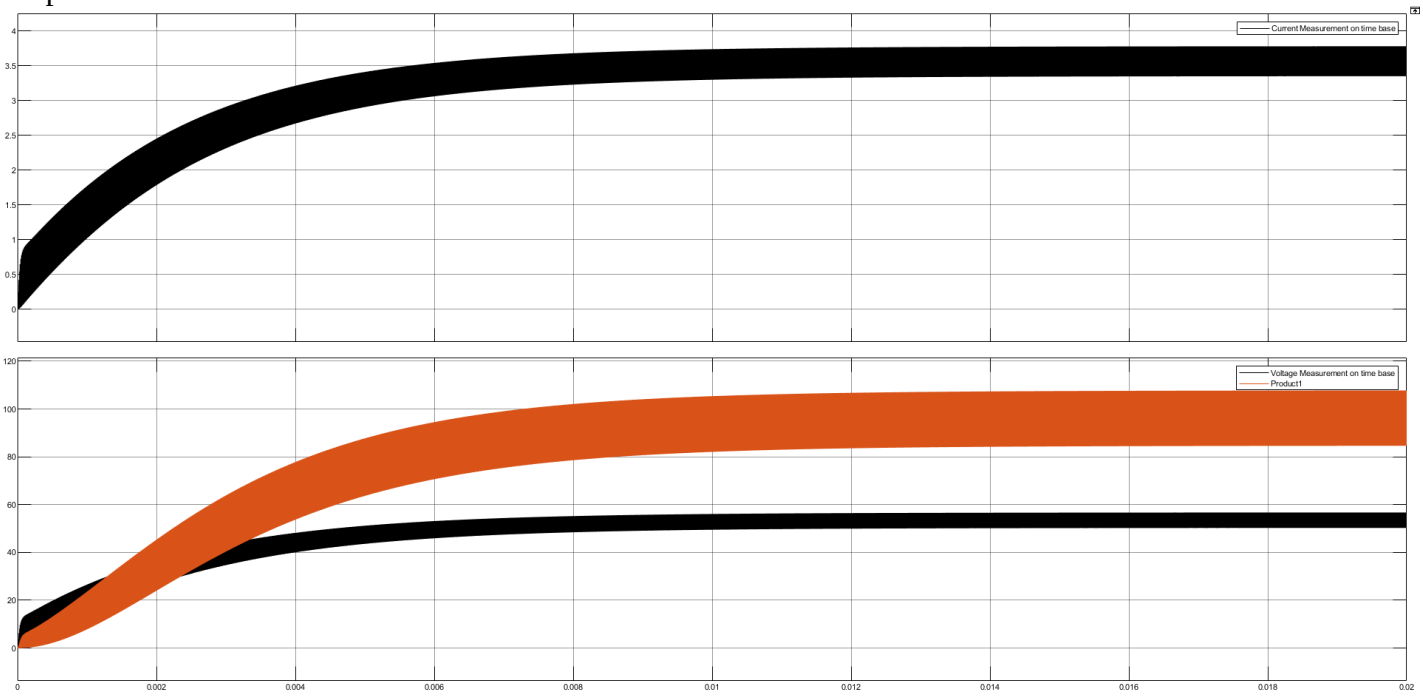

Fig 5: Output Current, Voltage and Power Waveform (for IGBT)

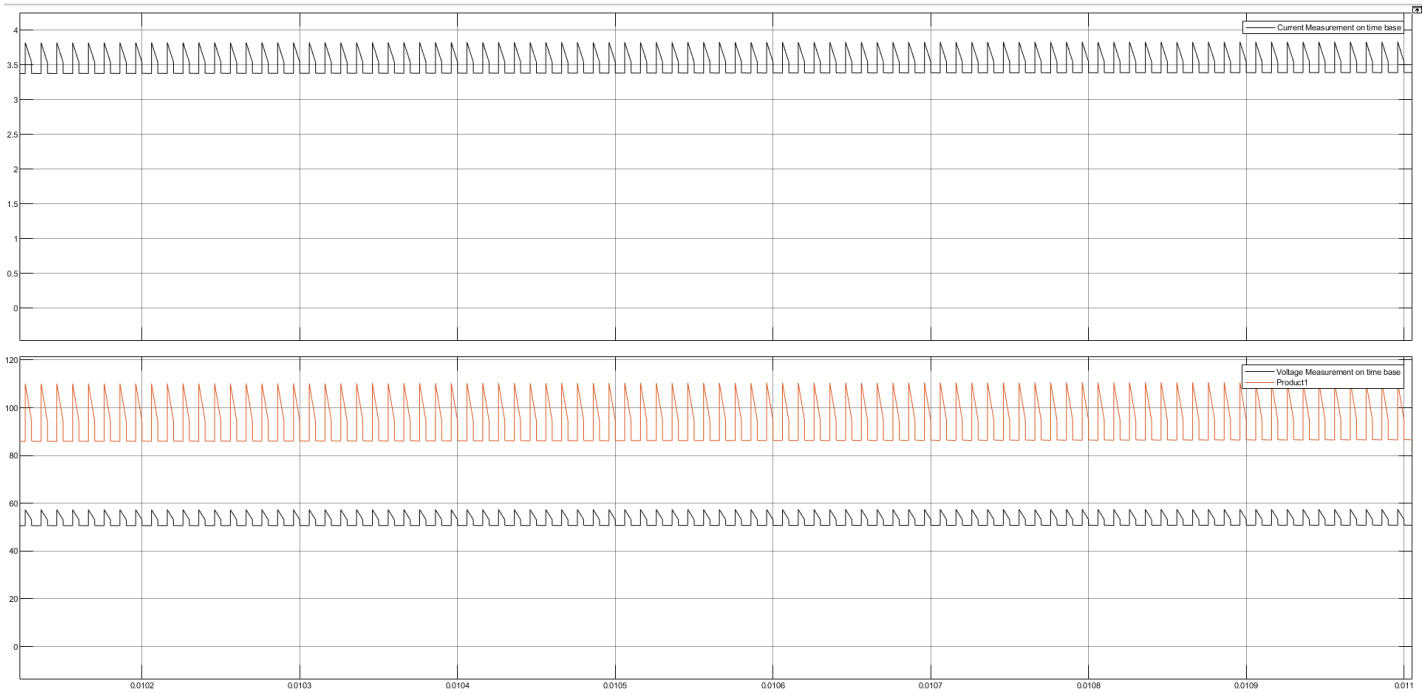

Fig 6: Output Current, Voltage and Power Ripples (for IGBT)