

It is to be known that the PV cell current is purely dependent on the solar radiation. Because we applied constant voltage supply which is providing uniform supply to whole system but in practical case parameter will change and system get irregular supply due non uniformity if sun radiation which is cause by cloudy season.

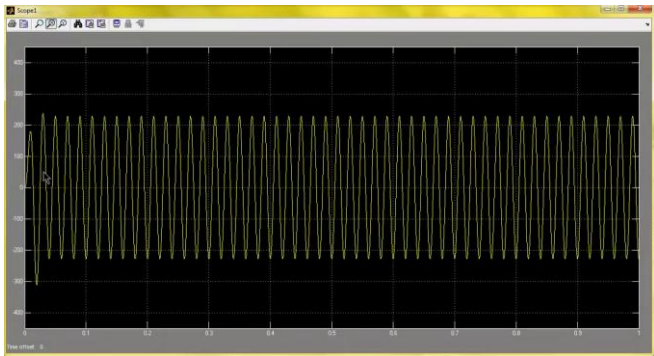


Figure 5.5: output waveforms of PV panel using Matlab/Simulink

It is to be known that the PV cell current is purely dependent on the solar radiation. Because we applied constant voltage supply which is providing uniform supply to whole system but in practical case parameter will change and system get irregular supply due non uniformity if sun radiation which is cause by cloudy season.

Fig. showing us output waveform which we get finally after fully control supply of inverter by reducing harmonics and ripple of inverter output supply. Inverter IGBT switch usually produce harmonic due to large switching activity during operation of system .and this constraint will overcome by implementing IGCT in place of IGBT in inverter circuit .because IGCT have established themselves as the power semiconductor of choice at medium voltage levels within the last few years because of their low conduction and switching losses. The trade-off between these losses can be adjusted by various lifetime control techniques and the growing demand for these devices is driving the need for standard types to cover such applications as Static Circuit Breakers (low on-state) and Medium Voltage Drives (low switching losses). The additional demands of Traction (low operating temperatures) and Current Source Inverters (symmetric blocking) would normally result in conflicting demands on the semiconductor. This paper will outline how a range of power devices can meet these needs with a limited number of wafers and gate units. Some of the key differences\ between IGCTs and IGBTs will be explained and the outlook for device improvements will be discussed.

6. Conclusion

The state-of-the-art high power devices are studied in this paper. A behavioral loss model is developed and implemented in SABER to evaluate these devices. This methodology is used in a pulse application design. The comparison basis is power losses and thermal handling capability of the devices. The result data show that the IGCT and the ETO have better performance than the IGBT device in the intended application.

References

- [1] Gaurav Mishra, Ruchi Mishra. ” Control Strategy For Wind Energy And Hybrid Generating Systems Based On The Concept Of Power Electronics Electrical Engineering Department Harcourt Butler Technological Institute M.Tech.(PE&C) Kanpur-208002(U.P.),India International Journal Of Engineering And Computer Science ISSN:2319-7242 Volume1 Issue 3 Dec 2012 Page No. 114-120
- [2] T. Shimizu, K. Wada, and N. Nakamura, —Flyback-type single phase utility interactive inverter with power pulsation decoupling on the dc input for an Ac photovoltaic module system,|| IEEE Transactions on Power Electronics., 2006, 21(5) :1264–1272
- [3] S.Daison Stallon, K.Vinoth Kumar. ” Simulation of High Step-Up DC–DC Converter for Photovoltaic Module Application using MATLAB/SIMULINK, School of Electrical Sciences, Karunya University, Coimbatore - 641114, Tamil Nadu, India, I.J. Intelligent Systems and Applications, 2013, 07, 72-82 Published Online June 2013 in MECS (http://www.mecs-press.org/) DOI: 10.5815/ijisa.2013.07.10
- [4] E. Carron, S. Klaka, S. Linder, “Integrated Gate-Commutated Thyristors: A New Approach to High Power Electronics”, Press Conference, IEMDC Milwaukee, May 20, 1997
- [5] H. Grüning et al., “High-Power Hard-Driven GTO Module for 4.5kV/3 kA Snubberless Operation”, PCIM 96, Nuremberg, May1996
- [6] S. Eicher, F. Bauer, A. Weber, H.R. Zeller, “Punchthrough Type GTO with Buffer Layer and Homogeneous Low Efficiency
- [7] In Power Semiconductor Devices and Circuits, pages 63-82, Plenum Press, New York, 1992
- [8] H. R. Zeller, Solid State Electronics, 38: 2041-2046, 1995
- [9] H. Grüning, A. Zuckerberger, “Hard Drive of High Power GTOs: Better Switching Capability obtained through Improved Gate-Units”, IAS, October 1996

Author Profile



Vijay Pratap Singh, M.Tech scholar at Mewar University, Department of Electrical Engineering, Chittorgarh, Rajasthan, India

B.S.S.P.M. Sharma is from Mewar University, Department of Electrical and Electronics Engineering, Chittorgarh, Rajasthan, India