

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Electrical Engineering and Computer Science

6.622 Power Electronics

Issued: March 20, 2023

Problem Set 6

Due: April 3, 2023

Reading: KPVS Chapter 8 Sections 8.1-8.5, 8.8-8.9

Problem 6.1 KPVS Problem 8.22

Problem 6.2 KPVS Problem 8.8

Problem 6.3 KPVS Problem 8.17

Problem 6.4

A “microinverter” or “module integrated converter” is an inverter designed to connect a single photovoltaic panel to the ac grid. Suppose a microinverter is designed to draw a constant power of P of up to 250 W from a solar panel and deliver the average power P into either a 50 or 60 Hz ac grid with unity power factor. What is the lowest internal energy storage that it would be physically possible for the microinverter to have in order to accomplish this task across the specified operating conditions? You may assume that the microinverter is 100% efficient.

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