Single-Inductor Dual-Output DC-DC Converter Design with Exclusive Control

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Introduction

In many applications, multiple output voltages are required

Research Objective

- Single Inductor Dual Output Converter
  - Development of simple, low cost control method.
- Proposal of exclusive control
  - Either ch1 or ch2 control in one period
  - Only a few additional components
  - No current sensor

Proposed Control of SIDO with Two Buck Converters

Converter 1 control

Converter 2 control

Simulation

SIDO Buck Converter

\[ I_1 = 2A, I_2 = 0.2A \]

SIDO Buck Converter

\[ I_1 = 1A, I_2 = 2.2A \]

Transient Responses

V1 and V2

Reference

