

DIGITALLY CONTROLLED ZERO CURRENT SWITCHING

ABSTRACT

Generally, this disclosure describes an apparatus. The apparatus includes switch controller circuitry and zero crossing logic circuitry. The switch controller circuitry is to control a
5 conduction state of a high side switch and a low side switch in a DC to DC converter. The zero crossing logic circuitry includes phase comparator circuitry, a first clocking circuitry and a second clocking circuitry. Each clocking circuitry includes one or more delay elements. The zero crossing logic circuitry is to monitor a switch node voltage, V_{sw} , and to determine whether V_{sw} is greater than a reference, V_{ref} . The switch controller circuitry is to turn off a low side switch if
10 V_{sw} is greater than V_{ref} while the low side switch is turned on, V_{sw} greater than V_{ref} corresponding to a negative inductor current.

Fig. 2