

Introduction

The HIP6016 and HIP6018 are both advanced PWM and dual linear controller ICs, aimed at providing the power control and protection for three output voltages in high-performance embedded microprocessor applications [1, 2]. Since the 1.5V GTL bus and the 2.5V system clock are widely used voltages in Intel-based microprocessor systems, in order to facilitate a reduced system cost as well as to simplify the practical implementation, the HIP6016 integrates the resistor dividers required by the HIP6018 to set the output voltage of the two linear regulators. Additionally, the HIP6016 is equipped with an extended DAC reference range (1.3V_{DC} to 3.5V_{DC}, as opposed to HIP6018's 1.8V_{DC} to 3.5V_{DC}).

Background Details

Integrating the resistor dividers on the HIP6016, as seen in Figure 1, fixes both linear outputs. Specifically, VSEN3 is regulated to 1.5V ±2.5% and VOUT2 is regulated to 2.5V ±2.5%. The impedance seen into the HIP6016 VSEN pins is around 50kΩ for VSEN3 and around 60kΩ for VSEN2. The absolute values of the internal resistors vary significantly

with temperature and process, so connecting external series resistors on the VSEN lines in order to increase the output voltages is not recommended. If output voltages other than 1.5V and 2.5V are required, we recommend the use of the HIP6018.

HIP6016 Evaluation

Given the pin-to-pin compatibility to HIP6018, the HIP6016 can be evaluated in a HIP6018EVAL1 evaluation board [3] after performing a couple of minor modifications.

Since the linear regulators' feedback pins on HIP6018 became voltage sensing pins on HIP6016, R11 and R13 (see Figure 2 on next page) need to be shorted out in order to provide a direct connection to the respective output voltages for both VSEN2 and VSEN3. We recommend first removing the resistors, then placing 0Ω, 0.1W, 0805 resistors in both locations. In the absence of 0Ω resistors, small pieces of bare wire or solder drops can be used to short-out both locations. Second modification is the obvious one, namely replacing the HIP6018 with a HIP6016. Removal of R12 and R14 is totally optional.

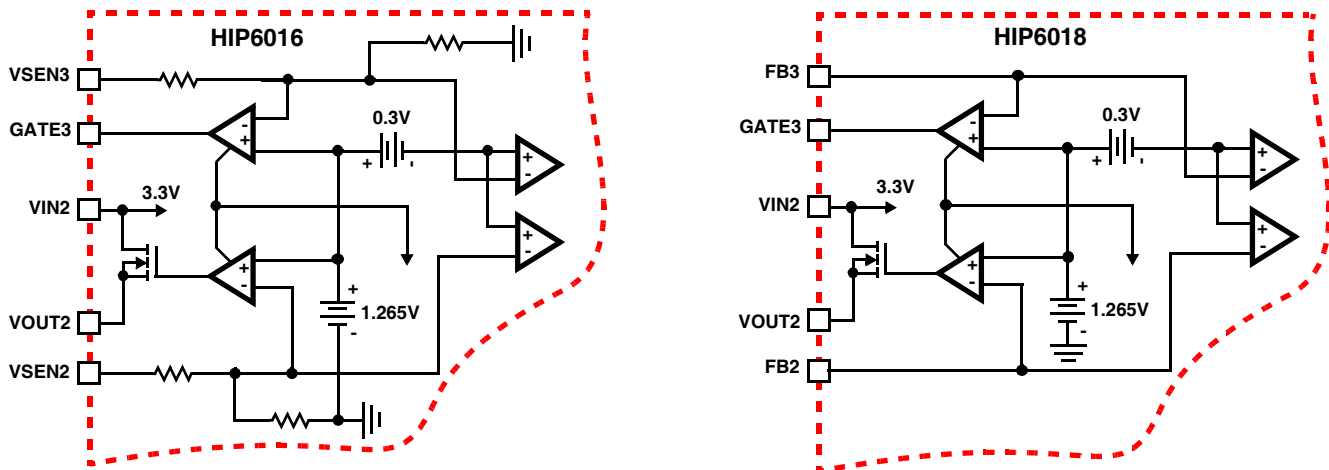


FIGURE 1. SELECT HIP6016 AND HIP6018 BLOCK DIAGRAM DETAILS

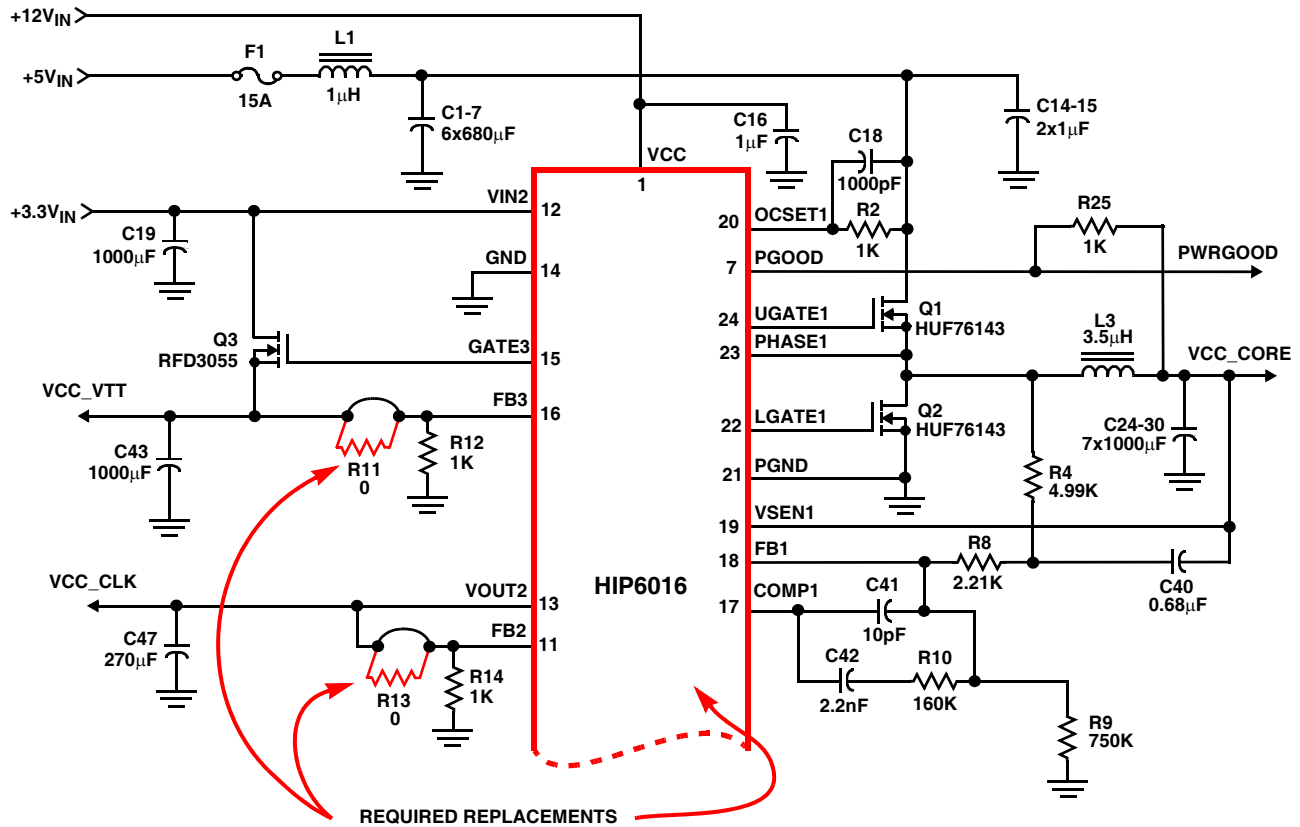


FIGURE 2. HIP6016 EVALUATION SCHEMATIC DETAIL (MODIFIED HIP6018EVAL1)

References

For Intersil documents available on the internet, see web site <http://www.intersil.com>.

- [1] *HIP6016 Data Sheet*, Intersil Corporation, FN4566.
- [2] *HIP6018 Data Sheet*, Intersil Corporation, FN4497.
- [3] *AN9805 Application Note*, Intersil Corporation, "Desktop Microprocessor Computer Power Systems Using the HIP6018 Controller (HIP6018EVAL1)".

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