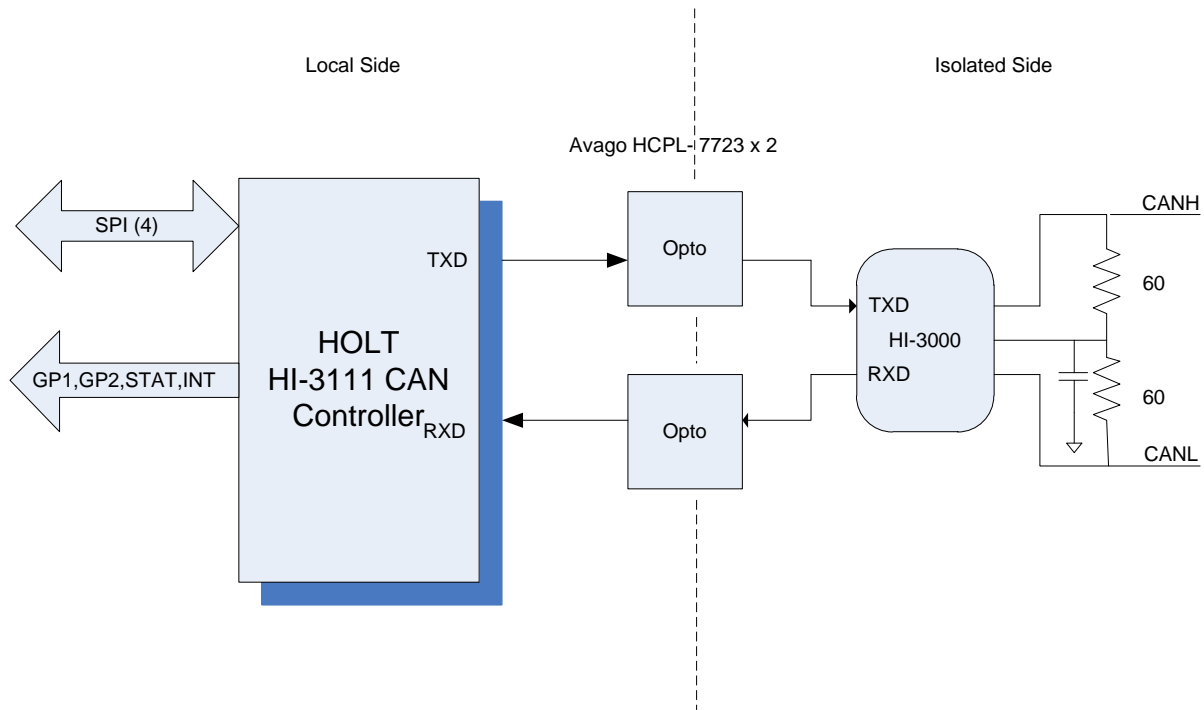


Introduction

This application note shows how to achieve galvanic isolation between the local system and the CAN bus by using the Holt ARINC 825 HI-3111 protocol IC and the Holt HI-3000 transceiver IC together with optocouplers.

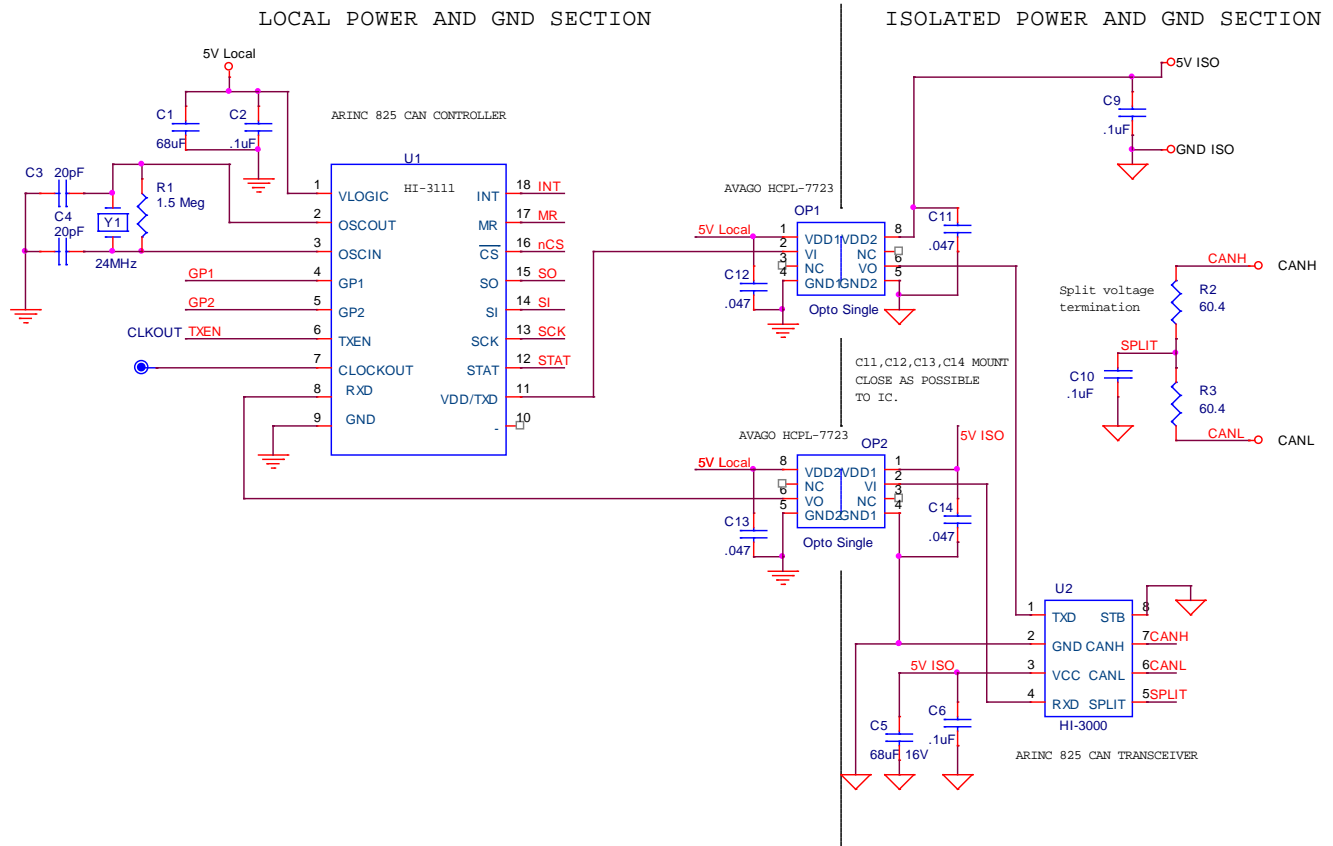
One variation of the Holt family of ARINC 825 CAN Bus parts is the digital only protocol IC. The HI-3111 is an ARINC 825 protocol only solution for customers who wish to use an external transceiver. For systems requiring galvanic isolation optocouplers can be used between the protocol and transceiver ICs. For non galvanic isolated applications the HI-3110 includes both the protocol controller and an integrated transceiver in a single IC.

The block diagram below shows the general implementation.



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The circuit shows the implementation in more detail.



The Avago Technologies HCPL-7723 optocoupler was chosen for its low propagation delay, low pulse width distortion and propagation delay skew. The key timing parameters on the HCPL-7723 data sheet are shown below:

2ns max. pulse width distortion

22ns max. prop. Delay

16ns max. prop. Delay skew

Refer to the HCPL-7723 data sheet for critical PCB layout and decoupling capacitors values.

The propagation delay and skew become very important at higher bus speeds and needs to be carefully considered in order to stay within the delay budget for the desired bit rate.

Summary

This shows how to achieve galvanic isolation using the Holt ARINC 825 protocol IC with an external HI-3000 transceiver IC. An optocoupler from Avago was selected for this application for its fast propagation delay performance.

REVISION HISTORY

P/N	Rev	Date	Description of Change
AN-176	NEW	09/23/11	Initial Release
