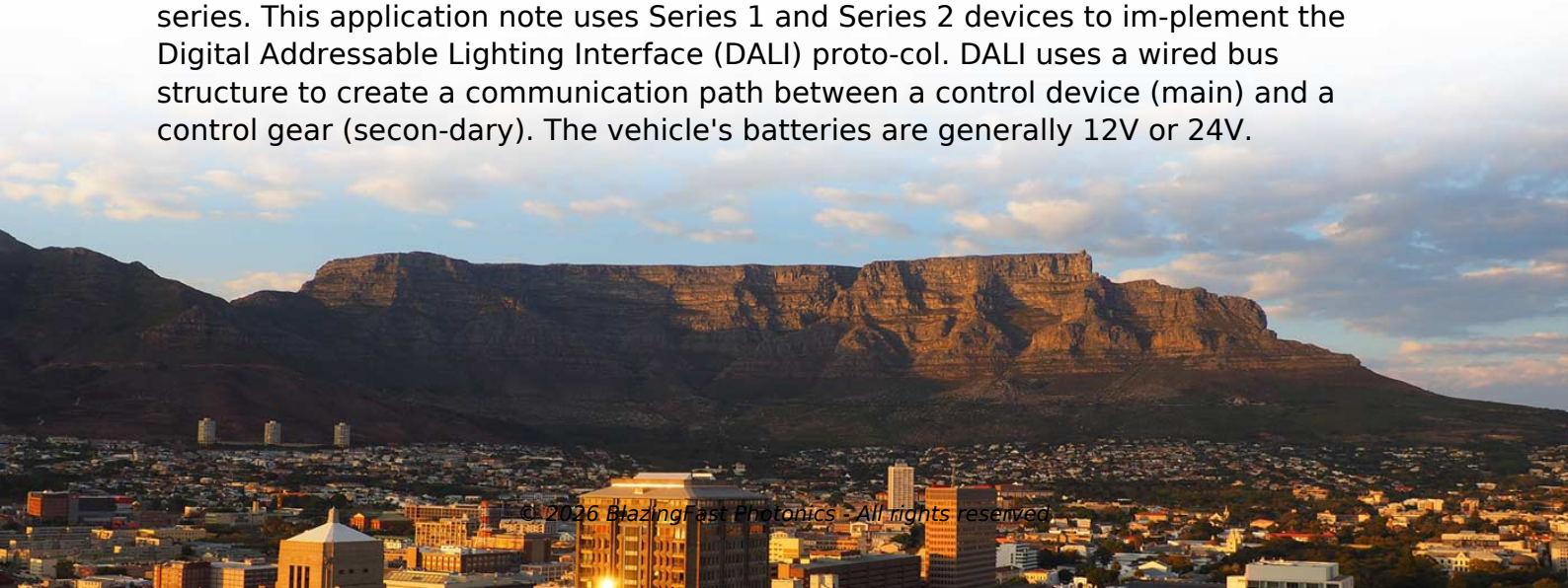
MCU High Voltage Bus Sampling Circuit

Overview

The high-voltage bus current sampling circuit comprises an MCU circuit, a current sensor circuit, a filter circuit, an amplifying circuit and a filter and clamp circuit, wherein the MCU circuit comprises a TMS320F28035 microcontroller U1; the current sensor circuit. The high-voltage bus current sampling circuit comprises an MCU circuit, a current sensor circuit, a filter circuit, an amplifying circuit and a filter and clamp circuit, wherein the MCU circuit comprises a TMS320F28035 microcontroller U1; the current sensor circuit. I'll treat this as: “How do I measure a high bus voltage and a big current safely and accurately, then feed that into an ADC/MCU?

” Let's walk through the building blocks, then do a concrete example. Ground rules (safety first) Know your max voltage & category (e. 400 VDC battery stack, 600 VDC. SW1 is used to detect SHORT circuit on HV DC Bus. Capacitor is charging thru SW1 that is activated by MCU. When the HV DC Bus is not shorted, SCR2 can be latched ON to enable Pre-charge safely. The MSPM0 G-series microcontroller (MCU) portfolio offers a wide variety of 32-bit MCUs with ultra-low-power and integrated analog and digital peripherals for sensing, measurement, and control applications. This application note covers information needed for hardware development with MSPM0 G series. This application note uses Series 1 and Series 2 devices to im-plement the Digital Addressable Lighting Interface (DALI) proto-col. DALI uses a wired bus structure to create a communication path between a control device (main) and a control gear (secon-dary). The vehicle's batteries are generally 12V or 24V.



Article Content

Monitoring Bus Voltage and Power Measurement on

Monitoring Bus Voltage and Power Measurement on AM263x MCU Using INA226/INA228 ABSTRACT This application note describes the usage of current shunt and power monitor INA226/INA228 with

Monitoring Bus Voltage and Power Measurement on

The INA226 reports current, bus voltage and power on common-mode bus voltages that can vary from 0 V to 36 V, independent of the supply voltage. The device operates from a single 2.7-V to 5.5-V

High Speed Single Shunt Current Sensing in Motor Control

In high-power-rating applications, some designers even choose higher cost magnetic current sensors to avoid such an issue. From this point of view, the single-shunt technique only senses one dc bus

Simple circuit to interface MCU digital input with external

I am thinking to use a transistor to somehow isolate the external circuit from the MCU. As of now, I have come up with this simple voltage divider circuit,

Design of high current and high voltage sampling circuit

I''ll treat this as: “How do I measure a high bus voltage and a big current safely and accurately, then feed that into an ADC/MCU?” Let''s walk

Voltage-Level Translation in MCU Projects

We live in an era of electronics where multiple voltage levels are commonplace in any system design. That means voltage level translation is a

ADI Multichannel Source Measurement Unit (SMU) Solution

These SMUs can realize a variety of current /voltage output combinations and accurate measurement, with the disadvantages of a complex structure and high cost. This article introduces an SMU

High Voltage Battery Management Reference Design

NXP HVBMS reference design is a scalable ASIL D architecture for high-voltage applications, composed of three modules: Battery Management Unit (BMU), Cell Monitoring Unit (CMU) and Battery Junction

MSPM0 G-Series MCUs Hardware Development Guide

MSPM0G series MCUs include standard-drive I/O (SDIO), high-drive I/O (HDIO), high-speed I/O (HSIO), and 5V-tolerant open-drain I/O (ODIO). Users can flexibly choose the appropriate I/O type based on

Design Guidelines for High-Performance, Multichannel

Abstract This application note will help the designer of a high-performance, multichannel, simultaneous-sampling data-acquisition system (DAS). It explains

AN939, Designing Energy Meters with the PIC16F873A

In this application note, we will discuss the implementa-tion of a basic watthour meter using PICmicro® Flash microcontrollers. In the process, we will show how one ADC with a single

PIC16/PIC18 ADC² Technical Brief

The delay allows time for the sampling capacitor to fully charge to the input voltage level. External source impedance (RS), internal interconnect impedance (RIC), and sampling switch impedance

[IDE Tool]Energy Measurement in MCUXpresso IDE

2.2 Use in Debug state During the operation of MCU, real-time measurement of board current and voltage is of great significance to the stability

GigaDevice Semiconductor Inc.

The introduction of ADC ADC conversion includes four steps: sampling, holding, quantization and coding. In the sampling phase, the voltage of the external signal shall be sampled to the sampling

High-Bandwidth Phase Current and DC-Link Voltage Sensing

The DC bus input voltage is scaled down and fed to the MCU using the AMC1311 reinforced isolation amplifier, and the op amp OPA320. The output of the OPA320 can directly drive an ADC input or can

Application Note 5401

Power Supply In the case of a conventional IPM circuit, the emitter of one high-side IGBT and the collector of one low-side IGBT are connected to form one leg of a three-phase switching circuit. By

UART | Serial Communication With PIC Microcontrollers

UART is sold/shipped as a standalone integrated circuit (IC) or as an internal module within microcontrollers. In this tutorial, we''re actually concerned with the internal

PSOCTM 4 high voltage (HV) mixed signal (MS) Automotive MCU

General description PSOCTM HVMS-128K belongs to the PSOCTM 4 HV mixed signal (MS) series of products and is a fully integrated programmable embedded system for several automotive HMI,

High-voltage bus current sampling circuit

The ACS712ELCTR linear current sensor chip is adopted in the high-voltage bus current sampling circuit, the sampling precision is high, the size is small, and the problems that the...

A Design for Medium Voltage Inverter DC Bus Sampling

This design is aimed at a 1140V medium voltage converter for mining industry, which can sample the high voltage DC bus voltage of the frequency

AN1220: DALI Communication Using the EFR32

In order to achieve better noise immunity from interference associated with nearby power installation cables, the physical DALI bus does not use TTL voltage levels. In a typical system, the low voltage is

Active Discharge and Pre-charge of EV High Voltage Power Bus

SW1 is used to detect SHORT circuit on HV DC Bus. Capacitor is charging thru SW1 that is activated by MCU. When the HV DC Bus is not shorted, SCR2 can be latched ON to enable Pre-charge safely.

Contact Us

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