Opto-Isolated Power and Isolated CAN

CAN Activity
LED

CAN Tranceiver
Isolated RS-232 and RS-485

RS-232 Transceiver

RS-485 Transceiver

RS-485 LEDs

485 Term

Title: TS-7580 Isolated RS-232 and RS-485
Rev: A
Date: May 6, 2012
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USB Power Switch

Temp Sensor

Push Switch

USB ports

Force Boot to SD card
PLD

JTAG

FPGA Scan Interface

Current Loop Enables

High Side Switch Enables

Low Side Switch Enables

LEDs

66 Outputs to write
8 Inputs to read

8 bits of Input =
6 PLD Version
2 NV ReBoot Flag

ReBoot Flag
0 = Power Cycle
1 = Soft Reset
2 = WatchDog
3 = ?

Reg. = 66 + ReBoot Flag = 68 bits total

2 Isolated Inputs

50 KHz Bandwidth
32V tolerant

ISO_IN # 1

ISO_IN # 2

title: TS-7580 PLD and Isolated Dg. Inputs
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ISO_IN_P1
ISO_IN_N1
ISO_IN_P2
ISO_IN_N2

2 VCC
3 GND
1RESET#

U28

STM 1001S-2.9V

R184

6.04K

C148

.1 uF

C147

.1 uF

C139

.1 uF

C140

.1 uF

C141

.1 uF

C142

.1 uF

U31

EPM _240

C148

.1 uF

C147

.1 uF

C139

.1 uF

C140

.1 uF

C141

.1 uF

C142

.1 uF

VCC

GND

U31

EPM _240

C148

.1 uF

C147

.1 uF

C139

.1 uF

C140

.1 uF

C141

.1 uF

C142

.1 uF

VCC

GND
8 Channels of 12-bit A/D

Precision 3.3V Reg.

12-bit ADC

Op Amp gain = 1 or 6
Gain = 6 for 0-5V range

ADC notes
Input Impedance = >110 Kohm
TVS adds 1000-3000 pF

typ. MUX ON resistance = 120 ohm
typ. Delta between chan = 10 ohm
Gain = 3.3

300 Hz low pass filter

Input bias current = 250 nA max
20 typ.

LMB34 has 23V supply range
Needs 2V head room on top rail
Sink/Source 20 mA

0-10V Out

Gain = 3.3

300 Hz low pass filter

Input bias current = 250 nA max
20 typ.

0-10V Out

Gain = 3.3

300 Hz low pass filter

Input bias current = 250 nA max
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0-10V Out

Gain = 3.3

300 Hz low pass filter

Input bias current = 250 nA max
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0-10V Out
Low Side Switches

Low-Side Switch
Sinks 500 mA

Max. Input = 30V

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Low Side Switches

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Max. Input = 30V
Low Side Switches

Low-Side Switch
Sinks 500 mA

Max. Input = 30V

FET_AO3422

R253
1.50K

TVS36
TVS-30V_SM A

D
S
G
Q63

Low-Side Switch
Sinks 500 mA

Max. Input = 30V

FET_AO3422

R252
1.50K

TVS57
TVS-30V_SM A

D
S
G
Q66

Low-Side Switch
Sinks 500 mA

Max. Input = 30V

FET_AO3422

R251
1.50K

TVS59
TVS-30V_SM A

D
S
G
Q67

Low-Side Switch
Sinks 500 mA

Max. Input = 30V

FET_AO3422

R250
1.50K

TVS60
TVS-30V_SM A

D
S
G
Q68

Low-Side Switch
Sinks 500 mA

Max. Input = 30V

FET_AO3422

R254
1.50K

TVS69
TVS-30V_SM A

D
S
G
Q87

Low-Side Switch
Sinks 500 mA

Max. Input = 30V

FET_AO3422

R285
1.50K

TVS70
TVS-30V_SM A

D
S
G
Q86
Low Side Switches

Low-Side Switch
Sinks 500 mA

Max. Input = 30V

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Low-Side Switch
Sinks 500 mA

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Red Green Amber
LEDs

3.3V → 5V
Level shifters

U22 has Schmitt-trigger Inputs

Isolated Input
LEDs

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