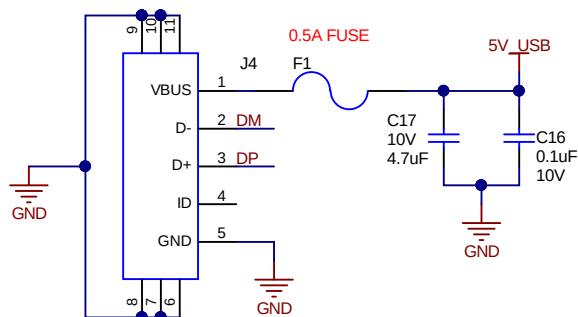


USB <=> UART

The diagram illustrates a USB-to-UART bridge circuit. A USB-to-UART bridge IC is connected to a USB port (pins 1, 2, 3, 4, 5) and a UART interface (pins 6, 7, 8, 9, 10, 11). The IC's VBUS pin (1) is connected to the USB D+ pin (2) and the UART TX pin (9). The IC's D- pin (3) is connected to the USB D- pin (3) and the UART RX pin (10). The IC's ID pin (4) is connected to the UART TX pin (9). The IC's GND pin (5) is connected to the UART RX pin (10). The IC's TX pin (6) is connected to the UART TX pin (9). The IC's RX pin (7) is connected to the UART RX pin (10). The IC's GND pin (8) is connected to the UART RX pin (10). The IC's TX pin (9) is connected to the UART TX pin (9). The IC's RX pin (10) is connected to the UART RX pin (10). The IC's GND pin (11) is connected to the UART RX pin (10).

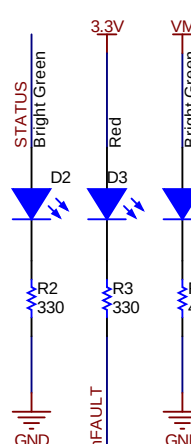
The circuit includes a 0.5A FUSE (F1) in series with the USB D+ line. A 5V_USB supply is connected to the USB D+ line. A 10V capacitor (C17, 4.7uF) is connected to the USB D+ line. A 0.1uF capacitor (C16, 10V) is connected to the USB D- line. The circuit is powered by a GND connection.



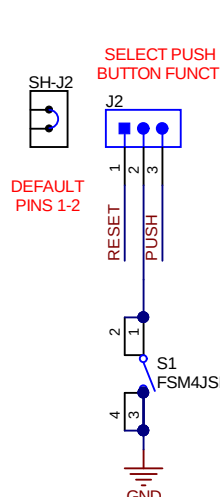
LEDS

The diagram shows three LED circuits:

- STATUS (Bright Green):** Connected to 3.3V through resistor R2 (330). The other terminal is connected to GND.
- Red:** Connected to 3.3V through resistor R3 (330). The other terminal is connected to nFAULT.
- Bright Green (D1):** Connected to VM through resistor R1 (4.99k). The other terminal is connected to GND.



The diagram shows a circuit for a button push function. It includes an SH-J2 connector, a J2 connector, and an FSM4J5MA sensor module. The SH-J2 connector is connected to the J2 connector. The J2 connector has pins 1, 2, and 3. Pin 1 is labeled "RESET" and pin 2 is labeled "PUSH". The FSM4J5MA sensor module has pins 1, 2, 3, and 4. Pin 1 is connected to pin 2 of the J2 connector. Pin 2 is connected to pin 3 of the J2 connector. Pin 3 is connected to pin 4 of the FSM4J5MA sensor module. Pin 4 is connected to a GND symbol. The text "SELECT PUSH BUTTON FUNCT" and "DEFAULT PINS 1-2" are also present.

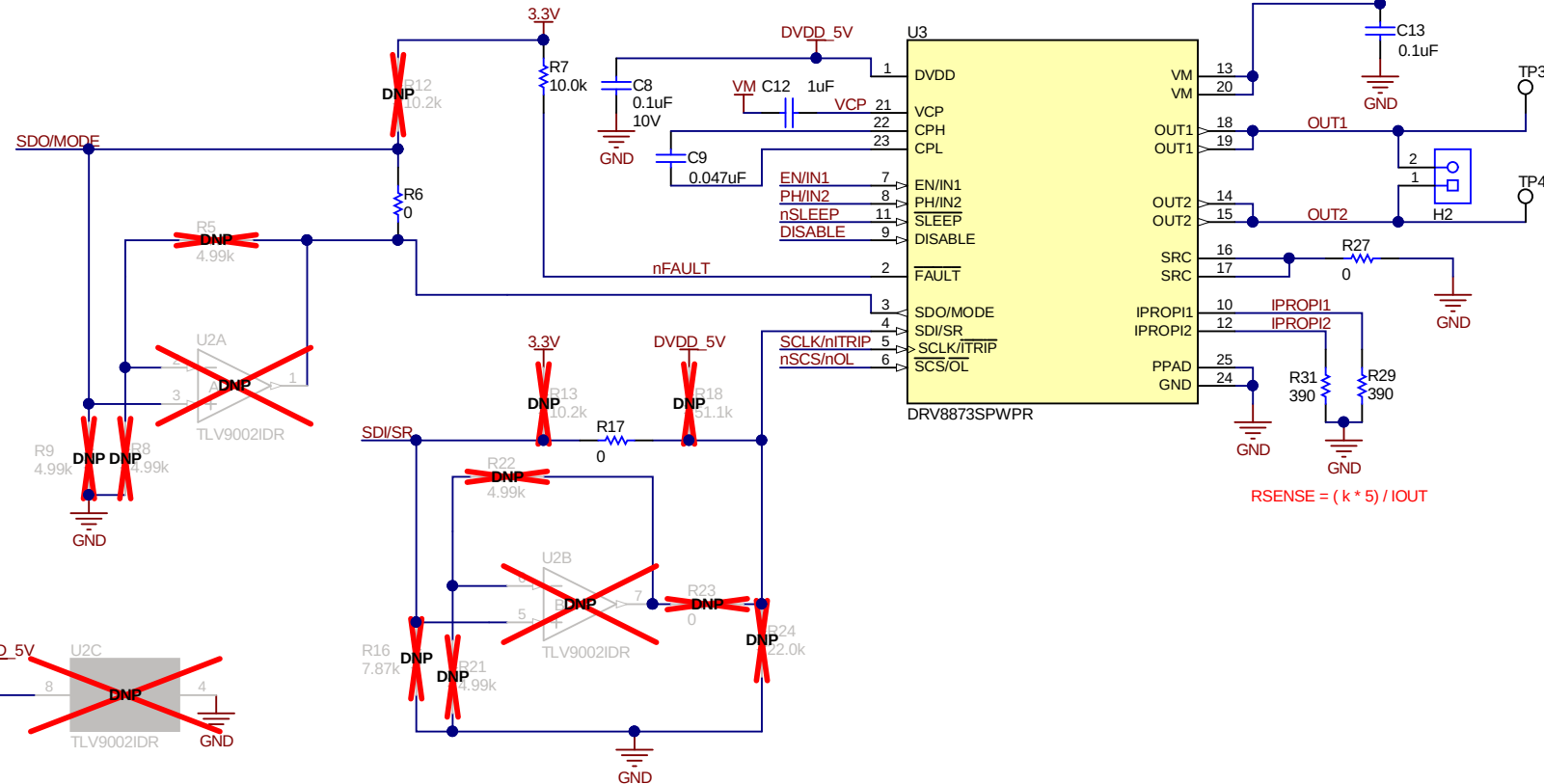


DRV8873-Q1

The schematic diagram illustrates the DRV8873-Q1 motor driver IC (U3) and its connections. The IC is a DRV8873SPWPR, which is a 2-channel motor driver. The diagram shows the following components and connections:

- Power Supply:**
 - DVDD (5V):** Connected to the 5V supply (U2C) through a 10.0k resistor (R7). A 0.1uF capacitor (C8) is connected between DVDD and GND. A 0.047uF capacitor (C9) is connected between DVDD and GND.
 - VM (3.3V):** Connected to the 3.3V supply (U2B) through a 10.0k resistor (R7). A 1uF capacitor (C12) is connected between VM and GND. A 0.1uF capacitor (C13) is connected between VM and GND.
- Control Pins:**
 - SDO/MODE:** Connected to the microcontroller (U2A) via a 4.99k resistor (R5).
 - SDI/SR:** Connected to the microcontroller (U2A) via a 4.99k resistor (R9).
 - SCLK/nITRIP:** Connected to the microcontroller (U2A) via a 4.99k resistor (R13).
 - nSCS/nOL:** Connected to the microcontroller (U2A) via a 4.99k resistor (R22).
- Motor Pins:**
 - OUT1:** Connected to the motor (H2) through a sense resistor (R29, 390 ohms).
 - OUT2:** Connected to the motor (H2) through a sense resistor (R31, 390 ohms).
- Other Components:**
 - TP3:** A test point connected to the VM supply.
 - TP4:** A test point connected to the motor (H2).
 - R27:** A 0 ohm resistor connected between the SRC pins and GND.
 - R30:** A 0 ohm resistor connected between the IPROP1 and IPROP2 pins and GND.
 - R23:** A 0 ohm resistor connected between the SCLK/nITRIP and nSCS/nOL pins and GND.
 - R24:** A 22.0k resistor connected between the SCLK/nITRIP and nSCS/nOL pins and GND.

The diagram also includes a formula for the sense resistor value:

$$R_{SENSE} = (k * 5) / I_{OUT}$$


The schematic diagram illustrates the connection between an MSP430G2553IPW20 microcontroller (U4) and a GBC14SABN-M30 module (J1) via a SPY-BI-WIRE interface.

MSP430 Microcontroller (U4)

- Power:** VCC (pin 1) is connected to a 3.3V MCU supply through a 47k resistor (R15). DVSS (pin 20) is connected to GND.
- Reset:** RESET (pin 16) and TEST (pin 17) are connected to a 3.3V MCU supply through a 47k resistor (R20).
- Configuration:** IPROP11 MCU (pin 2), TX (pin 3), RX (pin 4), IPROP12 MCU (pin 5), SCLK MCU (pin 6), SDO MCU (pin 14), SDI MCU (pin 15), RST/NMI/SBWDIO (pin 16), and TEST/SBWTK (pin 17) are configured as shown.

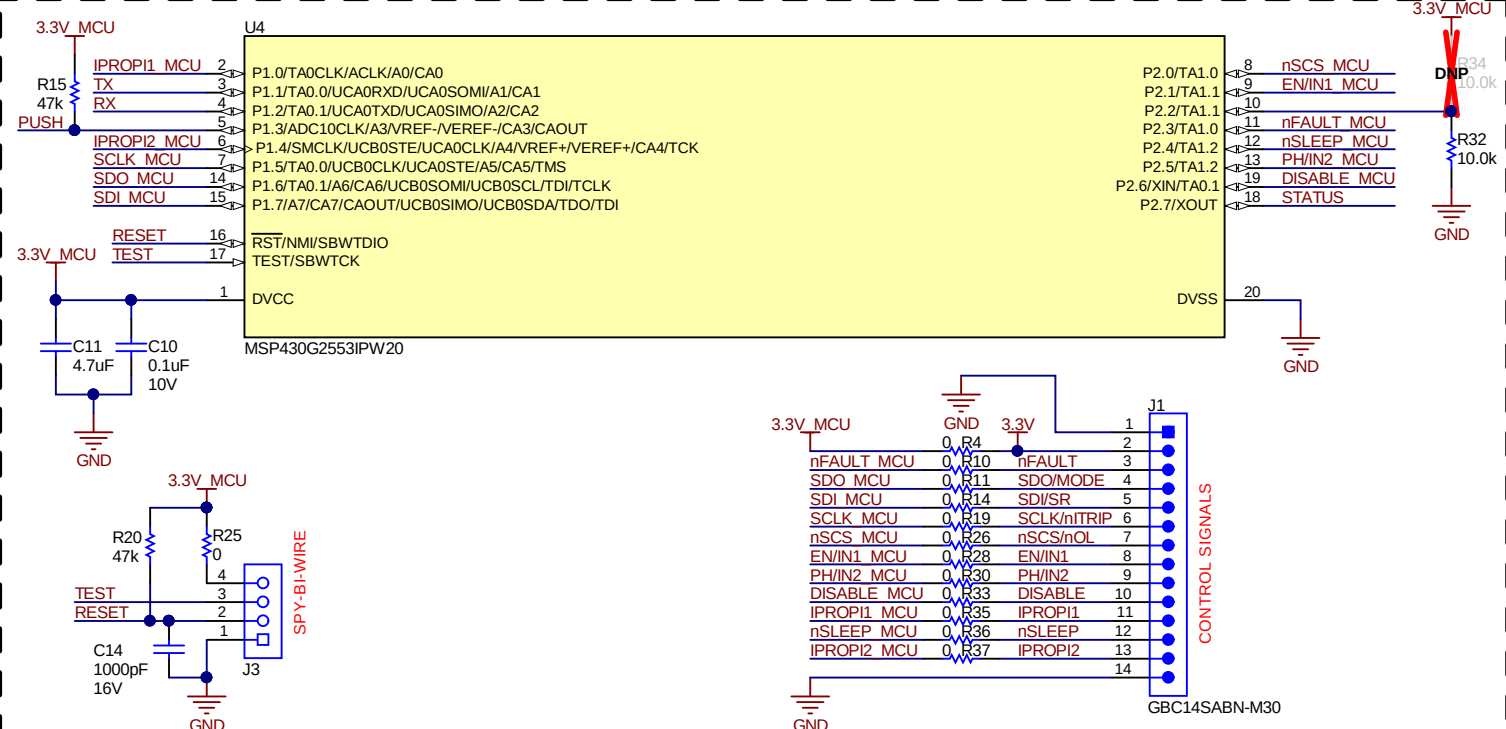
SPY-BI-WIRE Interface (J1)

The SPY-BI-WIRE interface (J1) connects the MSP430 to the GBC14SABN-M30 module. The connections are as follows:

Signal	MSP430 Pin	GBC14SABN-M30 Pin
nFAULT MCU	8	1
EN/IN1 MCU	9	2
nFAULT MCU	10	3
nSLEEP MCU	11	4
PH/IN2 MCU	12	5
DISABLE MCU	13	6
STATUS	18	7

Additional Components

- Capacitors:** C10 (0.1uF, 10V), C11 (4.7uF), C14 (1000pF, 16V).
- Resistors:** R25 (47k), R32 (10.0k).
- Connectors:** J1 (GBC14SABN-M30).



MAIN SUPPLY

4.4 - 45V

H1

TP1

TP2

GND

GND

VM

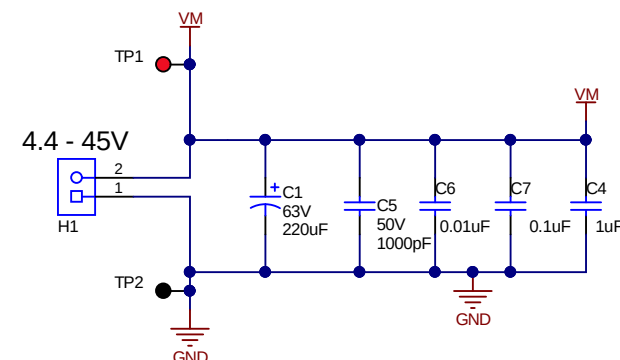
C1 63V 220uF

C5 50V 1000pF

C6 0.01uF

C7 0.1uF

C4 1uF



Orderable: MD006-001	Designed for: Public Release	Mod. Date: 9/10/2018	 TEXAS INSTRUMENTS http://www.ti.com © Texas Instruments 2018
TID #: N/A	Project Title: DRV8873xEVM		
Number: MD021	Rev: A	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 1 of 2	
Drawn By:	File: MD021A_EVM.SchDoc	Size: B	
Engineer: Rick Duncan	Contact: http://www.ti.com/support		

Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.



PCB Number: MD021
PCB Rev: A

PCB
LOGO
Texas Instruments



PCB
LOGO
FCC disclaimer

PCB
LOGO
WEEE logo



LBL1
PCB Label
THT-14-423-10
Size: 0.65" x 0.20 "

ZZ1
Label Assembly Note
This Assembly Note is for PCB labels only

Variant/Label Table	
Variant	Label Text
001	DRV8873SEVM
002	DRV8873HEVM

ZZ2
Assembly Note
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3
Assembly Note
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ4
Assembly Note
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: MD006-001	Designed for: Public Release	Mod. Date: 8/31/2018
TID #: N/A	Project Title: DRV8873xEVM	
Number: MD021	Rev: A	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 2 of 2
Drawn By:	File: MD021A_Hardware.SchDoc	Size: B
Engineer: Rick Duncan	Contact: http://www.ti.com/support	