Fan Module

CY3210-ExpressDK and CY3210-FanMod

Overview:

The Fan Module connects to the CY3210-ExpressDK main board to allow easy PSoC development with fan control and temperature measurement.

Fan Control Features:

- Control an on-board 3-wire, speed controllable, 5V external FET driven fan
- Control an off-board attached 2, 3, or 4-wire fan

Temperature Measurement Features:

- On-board LM20
- On-board Thermister
- Two different topologies for on-board Diode Sensing

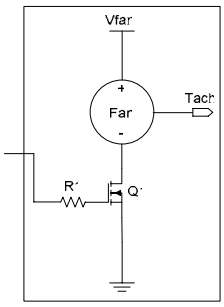
Back of module includes Module Port routing info and explanation of switch settings



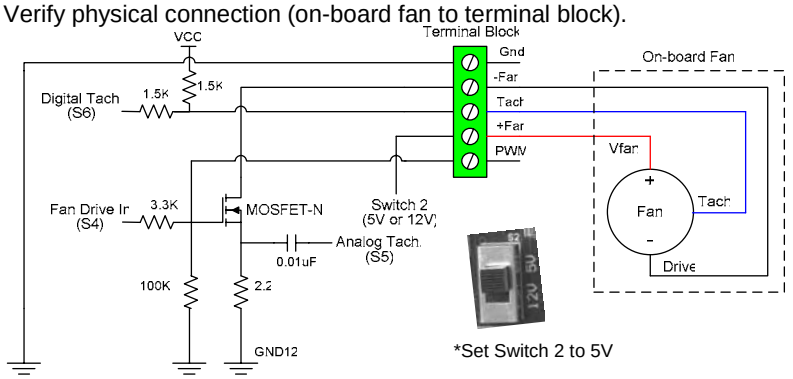
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Using the on-board 3-wire, speed controllable, 5V external FET driven fan

1) Select appropriate PSoC Express output device:
Fan >> Brushless DC >> Speed Control >> External Drive FET >> 5V 2-/3-Wire.



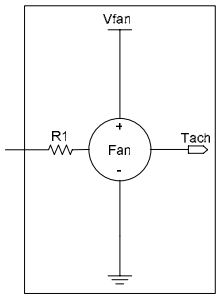
2) Verify physical connection (on-board fan to terminal block).



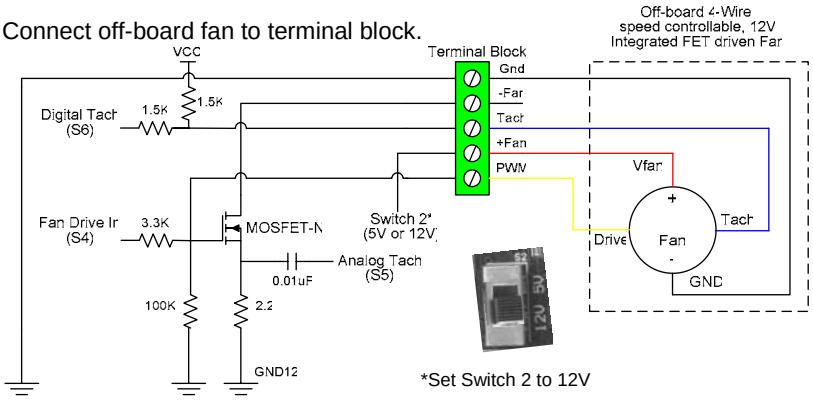
*Set Switch 2 to 5V

Attaching an off-board 4-wire, speed controllable, 12V integrated FET driven fan

1) Select appropriate PSoC Express output device::
Fan >> Brushless DC >> Speed Control >> Integrated Drive >> 12V 4-Wire.



2) Connect off-board fan to terminal block.



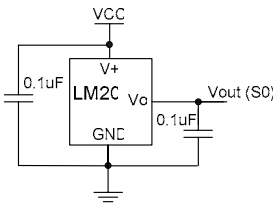
*Set Switch 2 to 12V

Using the LM20

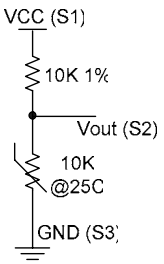


1) Select appropriate PSoC Express input device:
Temperature >> Integrated Circuits >> LM20 -55 to +130C.

2) Set Switch 1 to LM20. (LM20 Vout available on S0).



Using the Thermistor



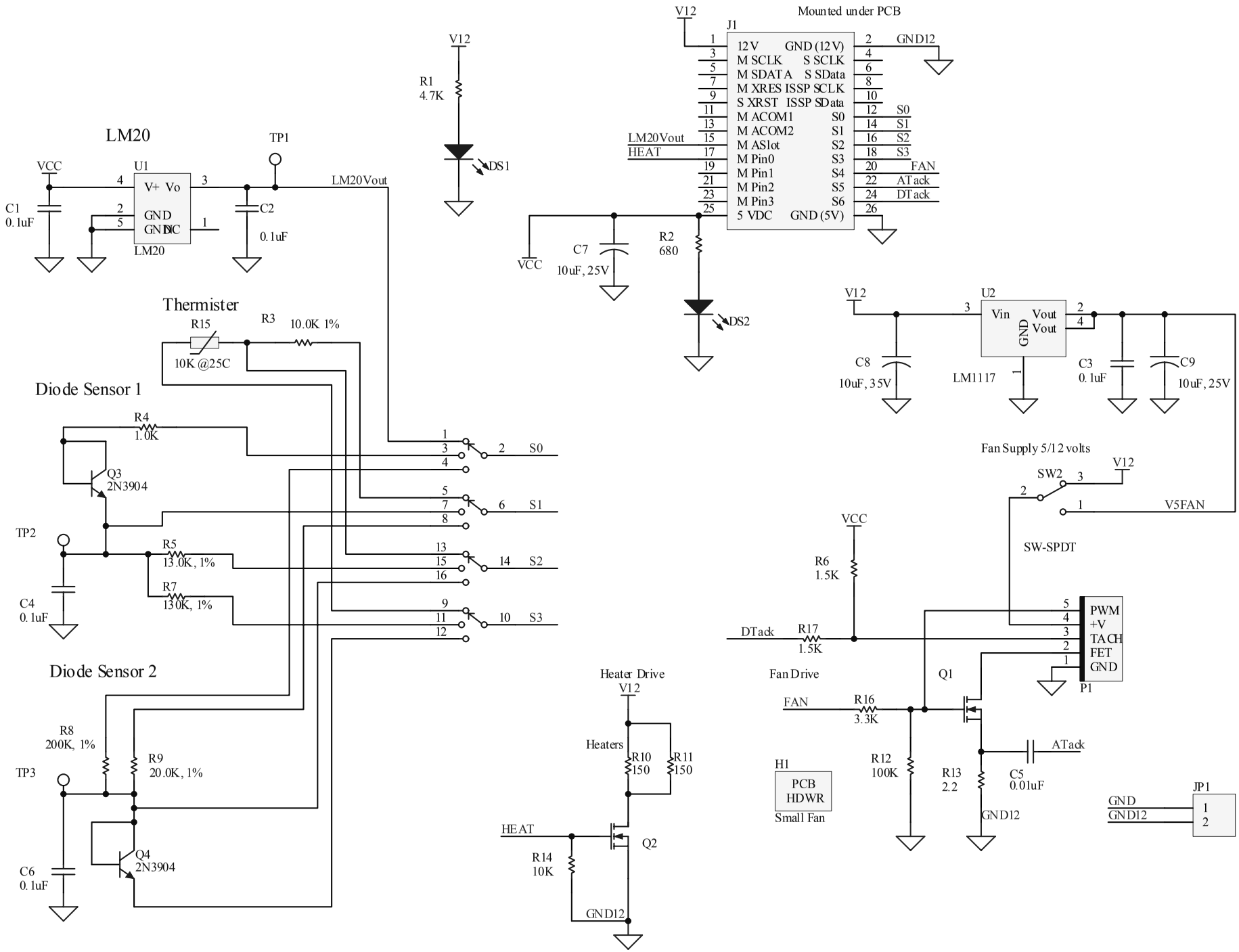
1) Select appropriate PSoC Express input device:
Temperature >> Thermistor Temp Sensor.

2) Set Switch 1 to LM20
- Vcc available on S1
- VTherm available on S2
- GND available on S3



Diode Sensor Topologies

The Diode Sensor will be supported in future releases of PSoC Express.


LM20
VCC
U1
V+ Vo
GND
GND NC
LM20
TP1
LM20Vout
C1
0.1uF
C2
0.1uF
R1
4.7K
V12
DS1
Mounted under PCB
J1
12V
GND (12V)
GND12
M SCLK
S SCLK
M SDATA
S SData
M XRES ISSP SCLK
S XRST
ISSP SData
M ACOM1
S0
M ACOM2
S1
M ASlot
S2
M Pin0
S3
M Pin1
S4
M Pin2
S5
M Pin3
S6
5 VDC
GND (5V)
FAN
ATack
DTack
LM20Vout
HEAT
C7
10uF, 25V
R2
680
DS2
Thermister
R15
10K @25C
R3
10.0K 1%
Diode Sensor 1
R4
1.0K
Q3
2N3904
TP2
R5
13.0K, 1%
R7
130K, 1%
C4
0.1uF
S0
S1
S2
S3
Diode Sensor 2
R8
200K, 1%
R9
20.0K, 1%
TP3
Q4
2N3904
C6
0.1uF
Heater Drive
V12
Heaters
R10
150
R11
150
HEAT
Q2
R14
10K
GND12
U2
Vin
GND
Vout
Vout
LM1117
C8
10uF, 35V
C3
0.1uF
C9
10uF, 25V
Fan Supply 5/12 volts
SW2
V5FAN
SW-SPDT
VCC
R6
1.5K
DTack
R17
1.5K
PWM
+V
TACH
FET
GND
P1
Fan Drive
Q1
FAN
R16
3.3K
R12
100K
R13
2.2
C5
0.01uF
ATack
H1
PCB
HDWR
Small Fan
JP1
GND
GND12

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