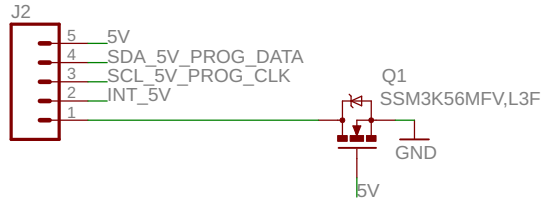# MICS6814 3-in-1 Gas Sensor Breakout (CO, NO2, NH3) (PIM569)
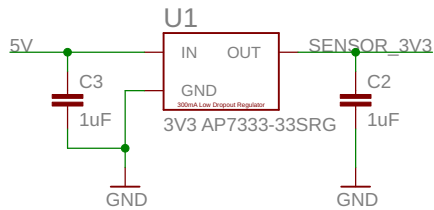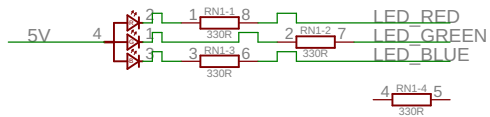
Breakout connector and reverse protection

J2

5 — 5V
4 — SDA_5V_PROG_DATA
3 — SCL_5V_PROG_CLK
2 — INT_5V
1

Q1
SSM3K56MFV,L3F
GND
5V

LDO for heater and sensor power

U1

5V
IN   OUT — SENSOR_3V3
GND
300mA Low Dropout Regulator
3V3 AP7333-33SRG

C3
1uF
GND

C2
1uF
GND

RGB LED

5V
4

1 RN1-1 8 330R — LED_RED
2 RN1-2 7 330R — LED_GREEN
3 RN1-3 6 330R — LED_BLUE
4 RN1-4 5 330R

MCU

5V

Cap Shared with LDO

GND

MCU1

MS51XB9AE   Vin: 2.4V-5.5V, (ADC 2.7-5.5V)

5 VDD   12
                                                13 GND
                      5_P0.0/PWM3/IC3/MOSI/T1
                      6_P0.1/PWM4/IC4/MISO
LED_BLUE   7 2_P1.0/PWM2/IC2/SPCLK   SCL_P0.2/ICPCK/RXD_1/[SCL] 14 SCL_5V_PROG_CLK
LED_GREEN 8 7_P1.1/PWM1/IC1/AIN7/CLO   8_P0.3/[PWM5]/IC5/AIN6 15
LED_RED   9 3_P1.2/PWM0/IC0   9_P0.4/AIN5/STADC/[PWM3]/IC3 16
INT_5V   11 INT_P1.3/SCL/[STADC]   12_P0.5/[PWM2]/IC6/T0/AIN4 20 OX_SENSE
           10 4_P1.4/SDA/FB/[PWM1]   11_P0.6/TXD/AIN3 19 NH3_SENSE
HEATERS_EN 6 1_P1.5/PWM5/IC7/SS̄   13_P0.7/AIN2/RXD 1 RED_SENSE
SDA_5V_PROG_DATA 4 SDA_P1.6/[SDA]/TXD_1/ICPDA
SENSOR_3V3 2 14_P1.7/ĪNT1/AIN0   P2.0_INPUT/RST 18 PROG_RST   PROG_RST

3*2 GND   10_P3.0/ĪNT0/OSCIN/AIN1 17

GND

MICS-6814 Analog NO2 & CO & NH3 Sensor

SENSOR_3V3 — HEATERS
SSM3J56MFV,L3F
Q5
HEATERS_EN
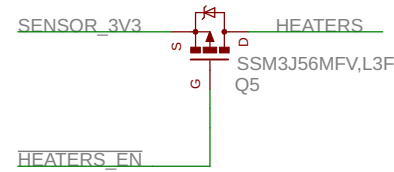
OX (NO2):
R3 resistor target current: 26mA
R3 resistor selection: (3.3V-1.7V)/.026A = 61.5 ohm
R3 resistor power = .026A*.026A*61.5ohm = 41mW
RED (CO):
R8 resistor target current: 32mA
R8 resistor selection: (3.3V-2.4V)/.032A = 28.1 ohm
R8 resistor power = .032A*.032A*28.1ohm = 29mW
NH3:
R15 resistor target current: 30mA
R15 resistor selection: (3.3V-2.2V)/.03A = 36.7 ohm
R15 resistor power = .03A*.03A*36.7ohm = 33mW

R15 56k — NH3_SENSE

U8

HEATERS R14 36R5 0805 RMCF0805FT36R5
SENSOR_3V3 R9 56k — RED_SENSE
HEATERS R8 28R 0805 RMCF0805FT28R0
R10 56k — OX_SENSE
HEATERS R2 62R 0805 RMCF0805FT62R0

C16
1uF
GND

RS2_NH3   RS1_NH3 D
RH2_NH3   RH1_NH3 C
RS_RED   H
RH_RED   GND_RED B
RS_OX   A
RH_OX   GND_OX   J
MICS-6814
GND

PIMORONI

PRODUCT
MICS6814

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