

DA1  
CS42L52

HP/LINE\_OUTB  
HP/LINE\_OUTB  
SPKR\_OUTA  
SPKR\_OUTB  
SPKR/HP  
FLYN  
FLYP  
VP  
-VHPFLT  
VQ  
FILT+  
+VHP  
PWD

1.6 to 5V  
1.8 to 2.5V

AU\_SCLK  
AU\_SDIN  
AU\_MCLK  
AU\_LRCK

MSM2610352621CM

CLK 4  
DATA 1  
SELECT 2  
VDD GND 5  
GND 3

33R R2  
33R R3

PDM\_CLK  
PDM\_IN2

MIC\_VDD

C9  
0.1u

PWR\_FLAG

MIC2  
MSM2610352621CM

CLK 4  
DATA 1  
SELECT 2  
VDD GND 5  
GND 3

33R R5  
33R R6

PDM\_CLK  
PDM\_IN6

MIC\_VDD

C39  
0.1u

PWR\_FLAG

TP10 ○ PDM\_CLK  
TP12 ○ PDM\_IN2  
TP14 ○ PDM\_IN6  
TP17 ○ MIC\_VDD

The schematic diagram illustrates the PCB layout for a 433MHz LoRa module. The central component is the microcontroller DD1 (SX1276), which is connected to an RF transceiver DA2 (PE4259) and an antenna ANT1. The module includes various passive components such as capacitors (C1-C25), inductors (L1-L6), and a choke (L7). Power and ground planes are indicated, along with test points (TP1-TP8).

**Component List:**

- DD1: SX1276
- DA2: PE4259
- ANT1: Antenna
- C1: 10nF
- C2: 47pF
- C3: 1.5pF
- C4: 22pF
- C5: 8.2pF
- C6: 8.2pF
- C7: 3.3pF
- C8: 3.3pF
- C9: 47pF
- C10: 10nH
- C11: 3.3pF
- C12: 3.3pF
- C13: 1000pF
- C14: 1000pF
- C15: 10nH
- C16: 47pF
- C17: 3.3pF
- C18: 10nH
- C19: 10nH
- C20: 10nH
- C21: 10nH
- C22: 10nH
- C23: 1000pF
- C24: 1000pF
- C25: 1000pF
- L1: 33nH
- L2: 2.2nH
- L3: 5.6nH
- L4: 4.7nH
- L5: 10nH
- L6: 10nH
- L7: Choke

**Pin Connections:**

- DD1 (SX1276) pins: NRESET, DIO0, DIO1/DCLK, DIO2/DATA, DIO3, DIO4, DIO5, SCK, MISO, MOSI, NSS, RFLHF, RFO\_LF, RFLHF, RFO\_HF, RXTX/RF\_MOD, XTA, XTB.
- DA2 (PE4259) pins: RF1, RF2, CTRL, VDD, GND.
- ANT1 pins: RF, GND.

**Power and Ground Connections:**

- VCC: Connected to the positive supply rail.
- GND: Connected to the ground plane.
- VBAT\_ANA, VBAT\_DIG, VBAT\_RF: Connected to the VBAT supply.
- VR\_ANA, VR\_DIG: Connected to the VR supply.

**Test Points (TP1-TP8):**

- TP1: SX\_RST
- TP2: SX\_DIO0
- TP3: SX\_DIO1
- TP4: SX\_DIO2
- TP5: SX\_DIO3
- TP6: SX\_SCK
- TP7: SX\_MISO
- TP8: SX\_MOSI
- TP9: SX\_NSS

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Diagram illustrating a 4-hole PCB layout where all holes are plated. The layout shows four holes, each labeled "HOLE1 HOLE\_METALLED", "HOLE2 HOLE\_METALLED", "HOLE3 HOLE\_METALLED", and "HOLE4 HOLE\_METALLED". Each hole is connected to a common ground plane (GND) via a plated through-hole (PTH) connection.