

Antenna Coil (L1)CP-345UH-ID201

345 μ H, Ø24mm.

Critical: Matches the 4.7nF capacitor to resonate exactly at 125kHz.

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Resonant Cap (C1)FG14C0G2A472JNT062

4.7nF (4700pF), 100V, C0G/NP0.

Critical: Must be **100V+** because resonance creates high voltage spikes. **C0G** dielectric prevents tuning drift when warm.

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MOSFET (Q1)IRLZ44NPBF1

N-Ch, 55V, Logic Level.

Critical: The "L" in IRLZ means it opens fully at 5V logic. Standard "IRF" MOSFETs won't switch fast enough or fully.

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Comparator (U1)LM393N (or LM393P)1

Dual Differential, DIP-8.

Intent: Standard "Open Collector" comparator to digitize the analog signal ripples.

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Detector Diode (D1)1N4148TR2

100V, 4ns Speed, Axial.

Intent: Fast switching diode to demodulate the 125kHz carrier. Standard 1N400x rectifiers are too slow.

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Potentiometer (VR1)3362P-1-103LF1

10k Ω , Cermet, "P" Style.

Intent: Adjusts receiver sensitivity. "P" style has the triangle pin layout that fits your PCB.

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Decoupling Cap (C2)K104K15X7RF53L22

100nF (0.1 μ F), 50V.

Intent: Filters noise from the power supply lines.

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Resistor KitCFR-25JB-52-KIT1

1/4 Watt Carbon Film.

Intent: Contains 1k Ω , 10k Ω , 100k Ω needed for gates/pull-ups.

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HeadersS1011EC-40-ND1

40-Pin Breakaway, 2.54mm.

Intent: Snappable strip to connect your Nucleo, Antenna, and Power.

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IC Socket4808-3000-CP1

DIP-8 Socket.

Intent: Protects the LM393. Solder this to the board, then plug the chip in.

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