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Supplementary Material

A 2.0-GHz compact ESR spectrometer for monitoring automobile lubrication oil degradation

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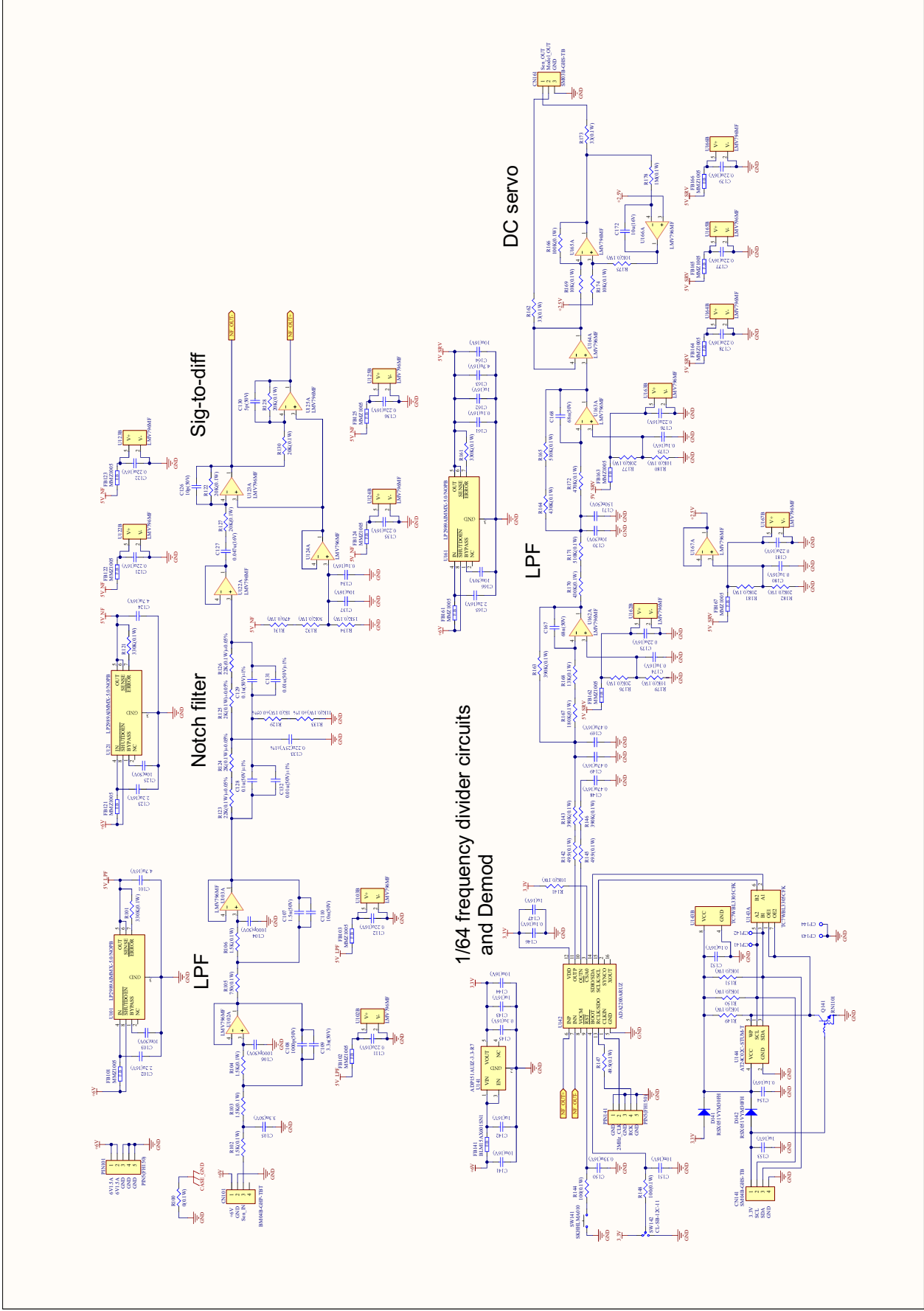
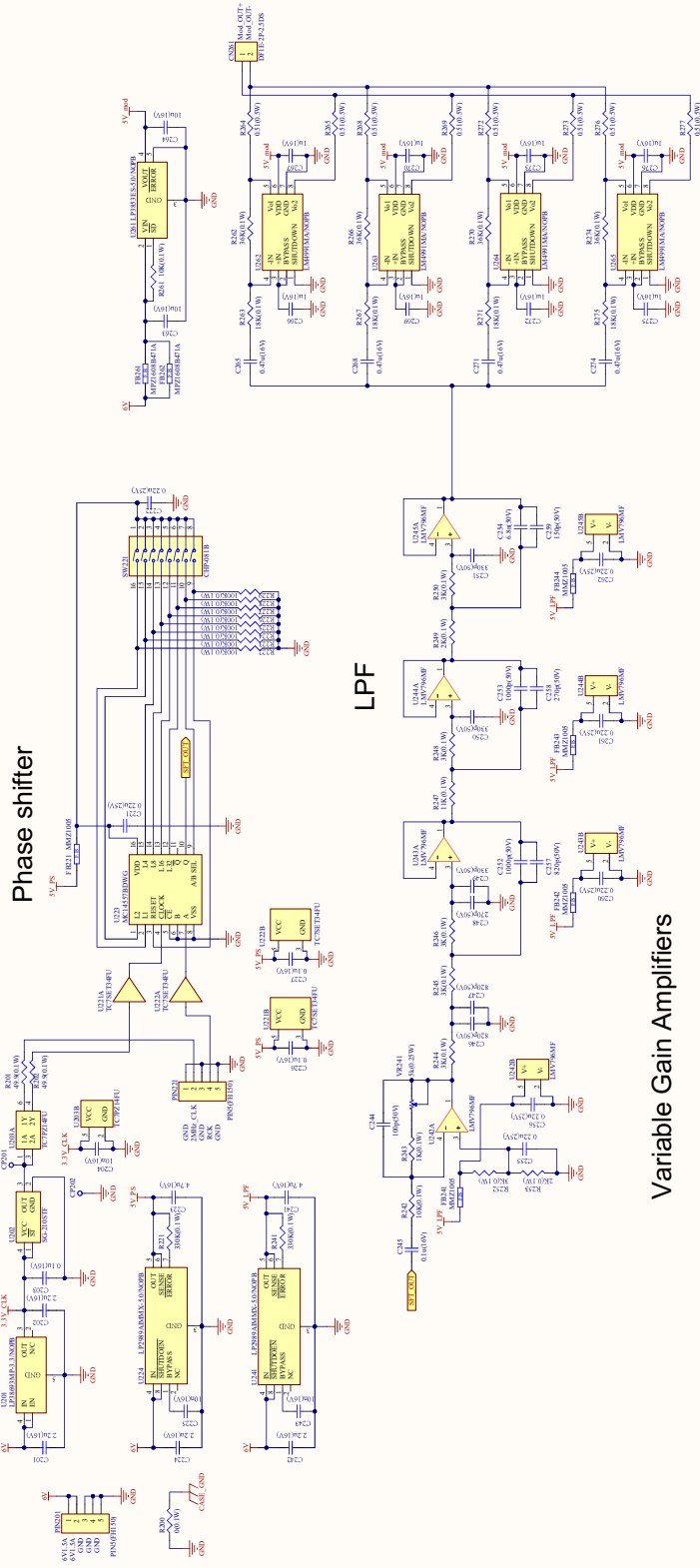


Figure S1 Detailed diagram of analog signal processing circuits (part 1) : LPF; notch filter; sig-to-diff; demod; 1/64 frequency divider; and DC servo circuits.



Driver circuit for modulation coils

Figure S2 Detailed diagram of analog signal processing circuits (part 2): phase shifter; variable gain amplifier; LPF; and driver circuit for modulation coils.

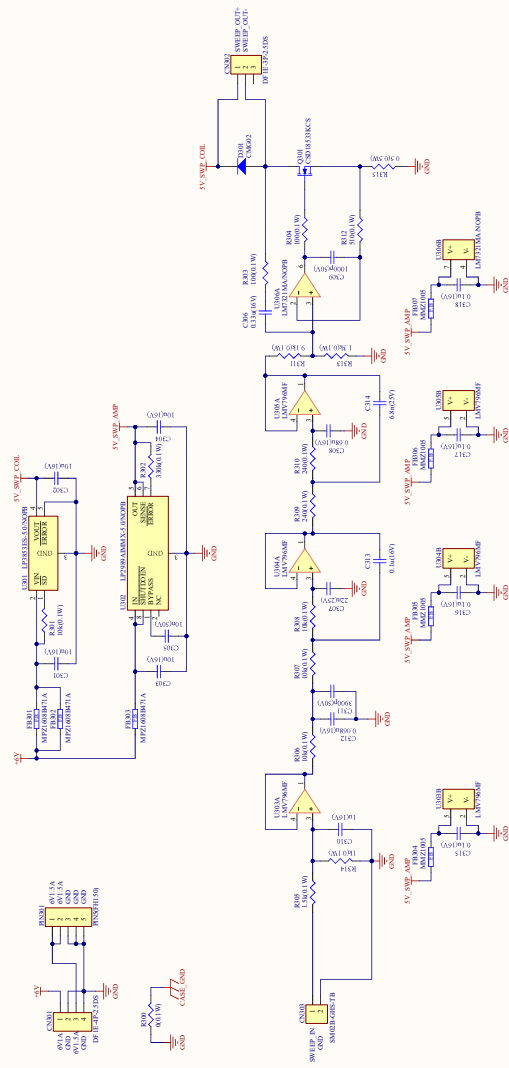


Figure S3 Detailed diagram of analog signal processing circuits (part 3), driver circuits for the field sweep coil.