



PRODUCT NAME

TP6916

TITLE

USB hands-free phone with USB mouse Application Note

Introduction

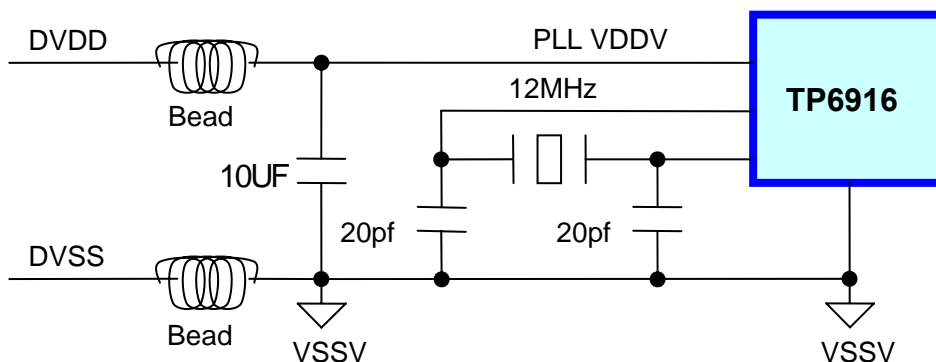
The purpose of this application note is to provide specific design and layout guidelines. The TP6916 is an USB Audio device tailored to the USB audio speaker, voice recorder and USB mouse application. It is able to play two channels speaker-out and record one channel voice through Full-Speed USB bus.

Applications

- USB Audio Speaker
- USB Audio Voice Recorder
- USB hands-free phone
- USB mouse

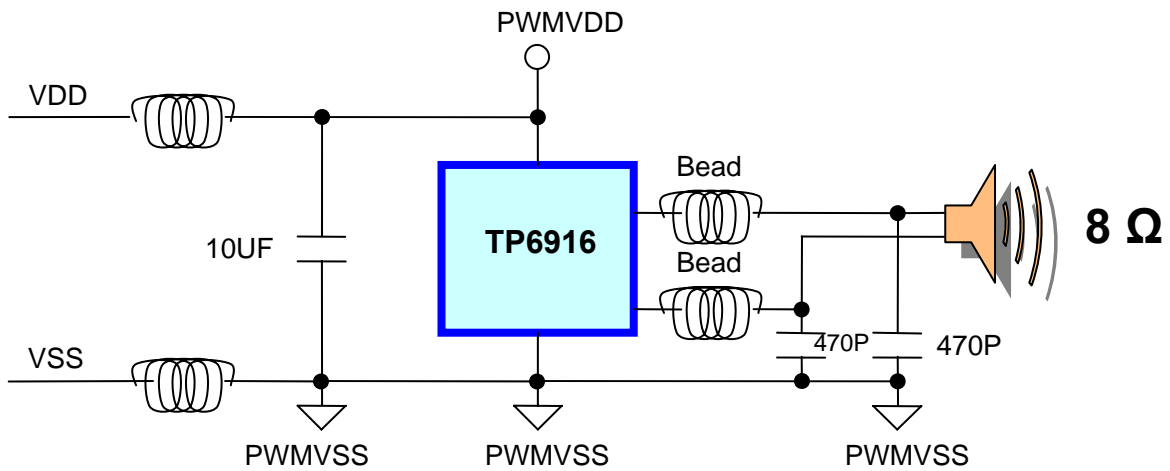
Guideline on Electrical Power

1. X'tal & PLL Circuit



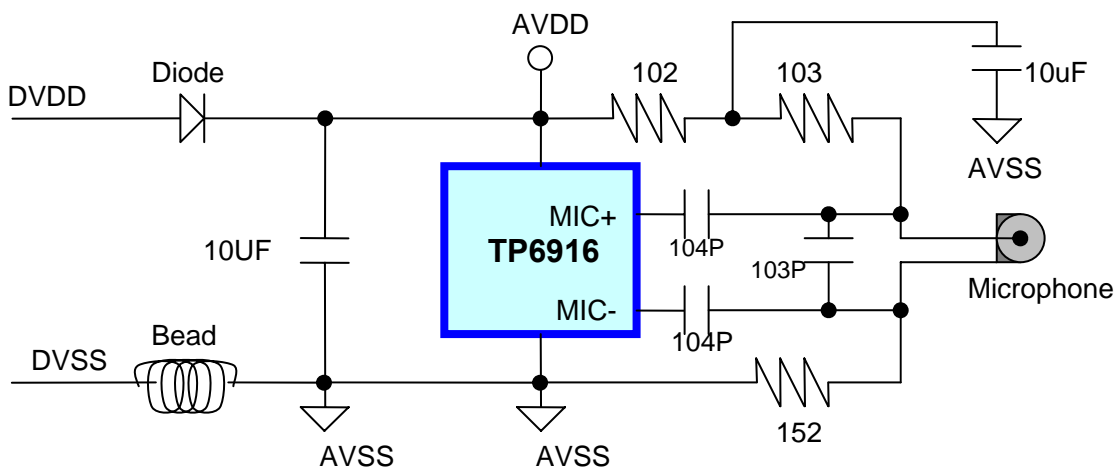
Noise on USB Power will cause phase jitter at the output of the PLL. To provide isolation from the noisy DVDD signals, VDDV / VSSV is brought to a pair of dedicated package pins.

2. USB Bus Power connect PWMVDD for Class D Speaker

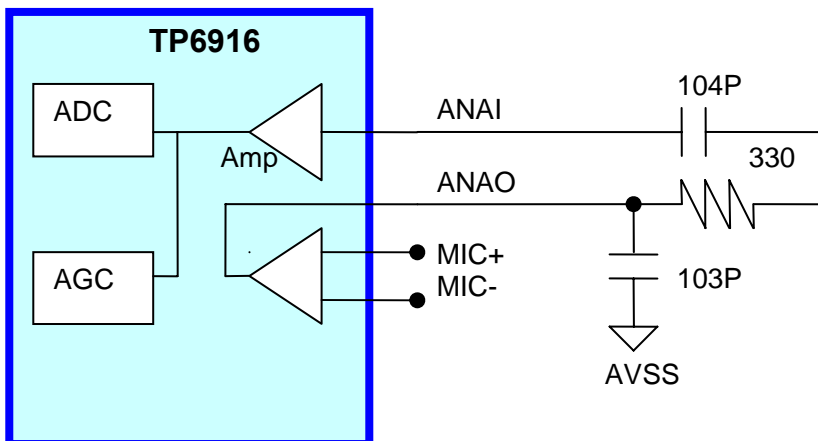


The differential SP+ and SP- pins are designed to drive a 8ohm speaker directly. A coupling capacitor is needed each the SP+/SP- pin and the speaker

3. Microphone Power Circuit

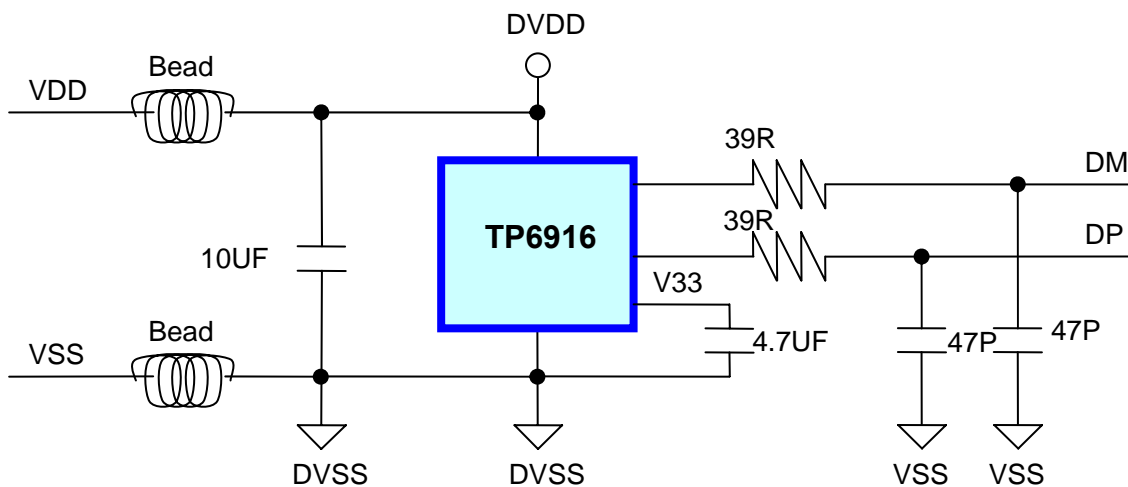


4. Analog in / out application circuit for recording



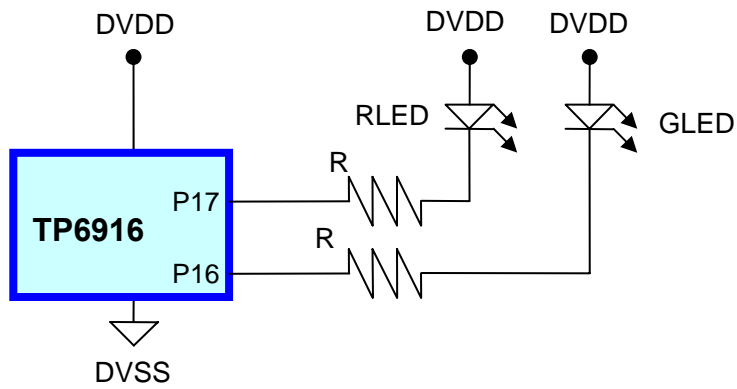
The ANA-IN transfers an input signal to the chip for recording. This ANA IN pin should be connected via an external capacitor to the ANA-OUT pin. This capacitor value, together with the 330ohm input impedance of ANA-IN, is selected to give additional cutoff at the low-frequency end of the voice pass-band. The ANA-OUT provides the preamplifier output to the user.

5. USB Full Speed Transceiver application circuit

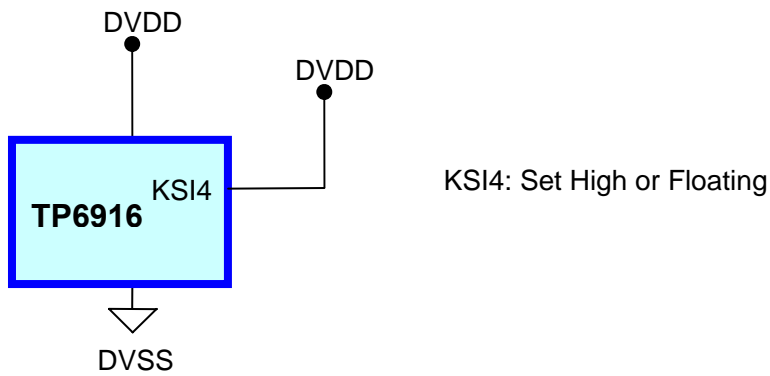


TP6916 Build-in internal regulator for USB used. The decoupling components should be connected closely to the V33 power / ground pins outside the chip

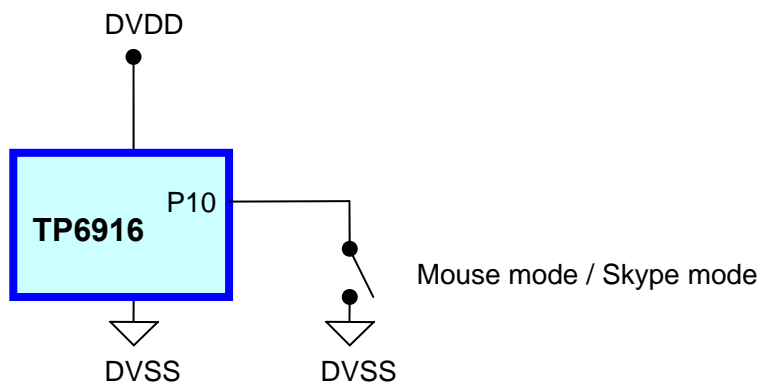
6. LED Indicators



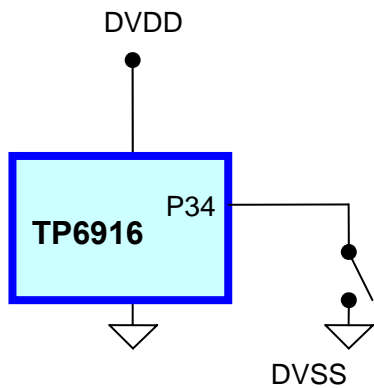
7. KSI4 Pin Define



8. P10 Pin Define



9. P34 Pin Define



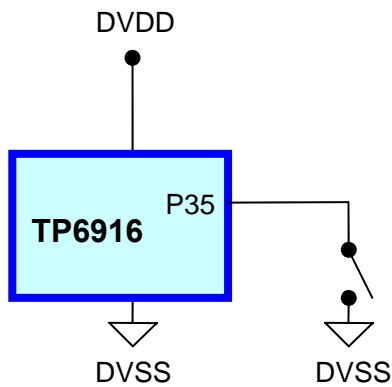
Volume adjustment:

64 levels function:
P34 : Set High or Floating

16 levels function:
P34 : Set Low

DVSS

10. P35 Pin Define

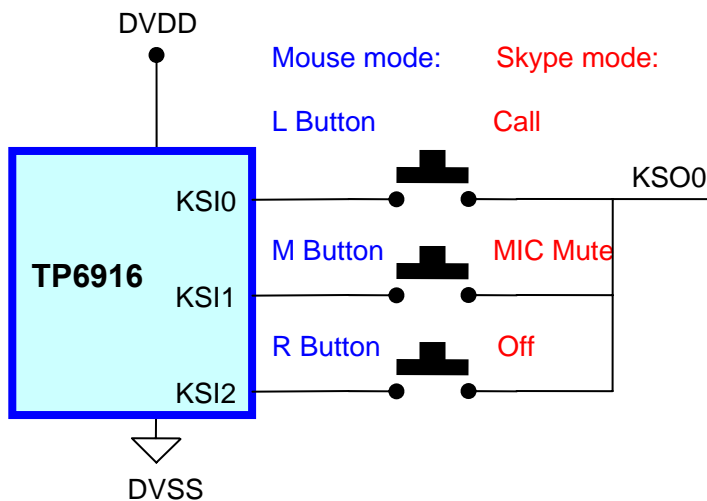


Loud setting:

Loud OFF:
P35 : Set High or Floating

Loud ON:
P35 : Set Low

11. Key Matrix Pin Define



TP6916 Circuit for USB hands-free phone with USB mouse

