



# iPod shuffle 3rd Generation Teardown

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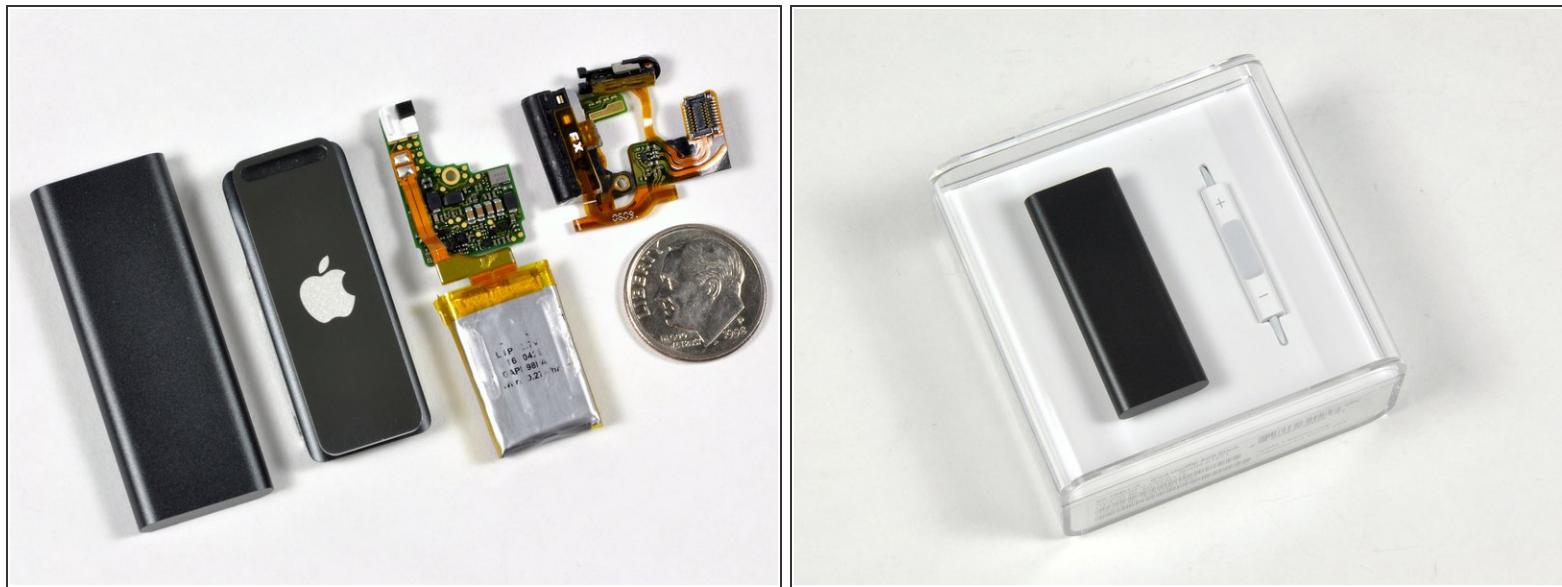
## INTRODUCTION

We got our hands on a brand-new 3rd Generation shuffle and wondered what was inside...

### TOOLS:

- [Metal Spudger \(1\)](#)
- [Phillips #000 Screwdriver \(1\)](#)
- [iFixit Opening Tools \(1\)](#)
- [Spudger \(1\)](#)

## Step 1 — iPod shuffle 3rd Generation Teardown



- Here it is, in all its magnificent glory -- the new Shuffle! We'll post updates on [twitter](#) about interesting things that we discover as we go.
- The box is as dainty as its contents.
- According to [Apple](#), the Shuffle has a "true volume" of 4,326 cubic millimeters and weighs in at 10.7 grams. A single [MacBook Pro 17"](#) weighs as much as 286 of these Shuffles.
- Shameless plug: In addition to taking things apart, we also sell [Mac and iPod parts and upgrades](#).

## Step 2



- Contents of the box:
  - iPod Shuffle
  - Apple Earphones (with in-line remote)
  - USB Cable
  - Quick Start guide
- We gave it a quick listen before tearing it apart...
- The controls are not as awkward as we expected, but we still prefer pushing buttons.

**i** Compatibility does not appear to be this iPod's strong suit. We tried this iPod with a Shuffle 2nd Generation dock, but it doesn't fit. We tried the cable with a Shuffle 2nd Generation, and that didn't work either.

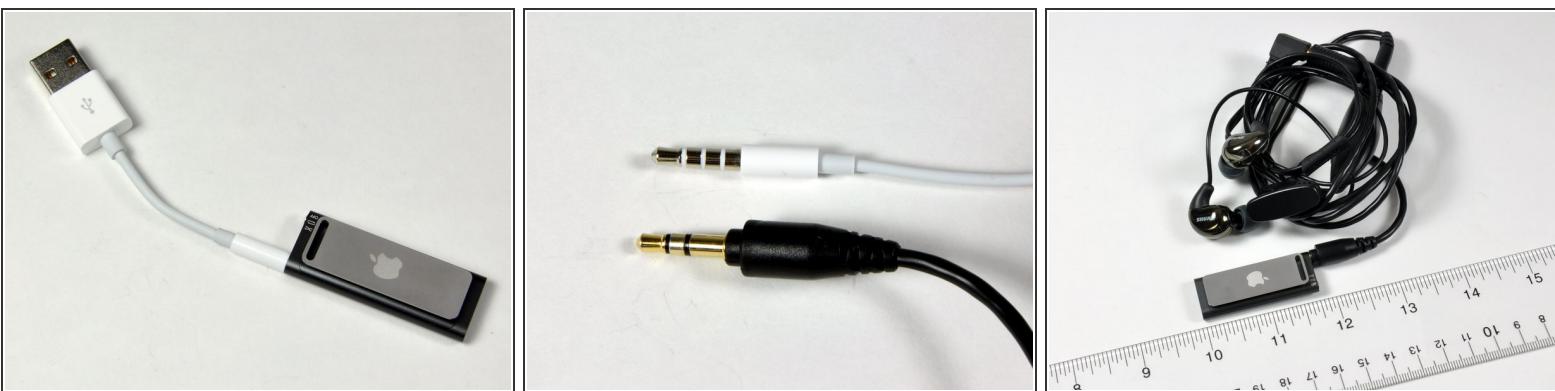
## Step 3



- The usual suspects.
- Can you pick the Shuffle out of this lineup?

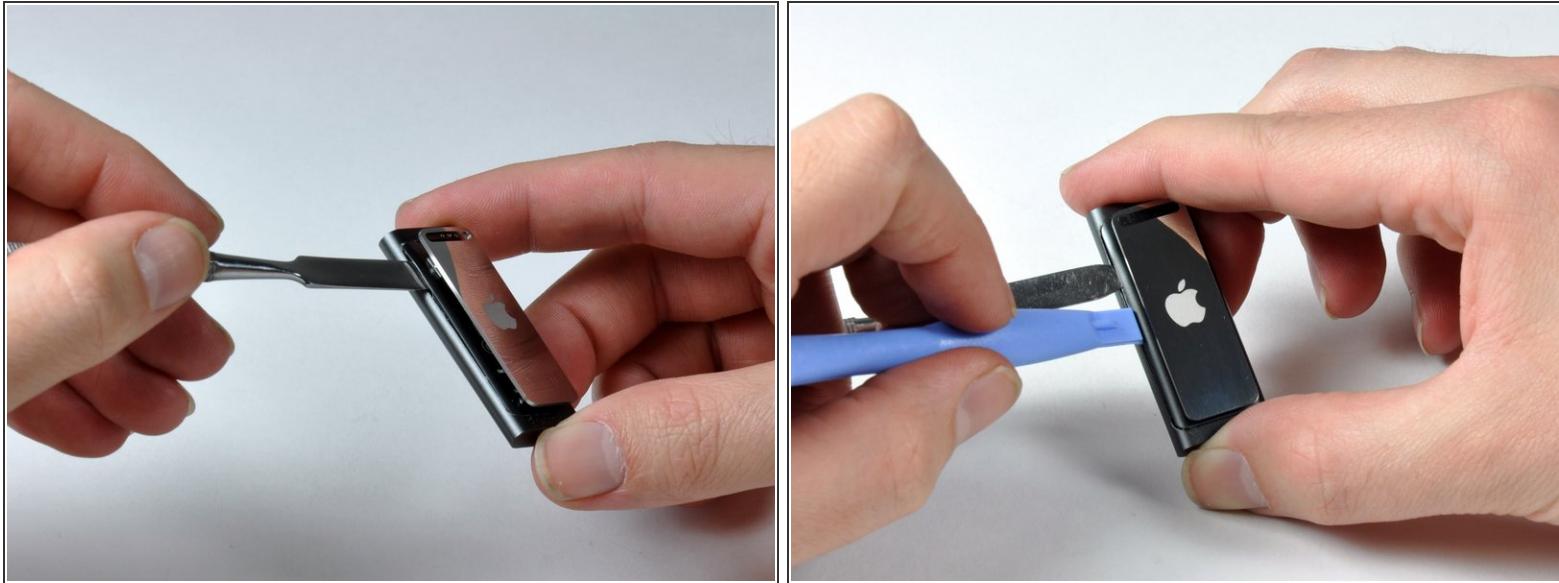
**i** The Shuffle does not say iPod (or Shuffle) anywhere. As far as we know, this is the first iPod that Apple didn't label.

## Step 4



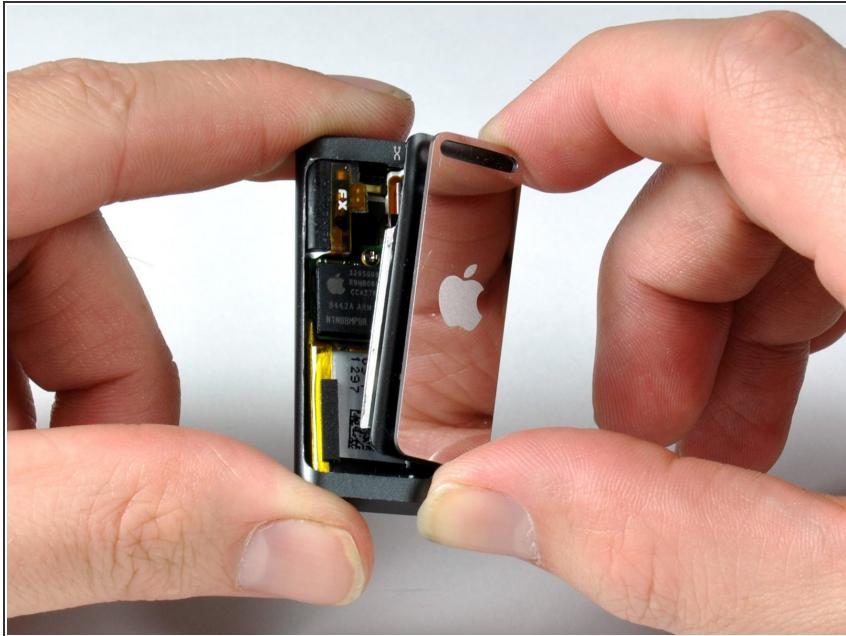
- Upon connecting the shuffle to a computer, we learned that the voice-over feature must first be downloaded via iTunes.
- Interestingly enough, normal headphones can still be used to listen to music. The only drawback: without Apple's proprietary headphone playback control, you will not be able to change songs or adjust the volume.
- The headphone playback control offers two buttons for volume control and a center button for playback control. The center button can be clicked once to play, twice for the next track, and three times for the previous track.

## Step 5



- On to the dismemberment...
- Apple hasn't made their iPods easy to open lately, and unfortunately we don't expect things to change with this iPod.
- We begin by inserting a metal spudger into a crevice between the rear cover and the rest of the shuffle.
- Inserting the metal spudger creates a gap big enough to insert an iPod opening tool. We slide the iPod tool across the length of the gap to dislodge the left side of the rear cover.
- Now that one side of the rear cover is fully dislodged, it's easy enough to use the iPod opening tool to dislodge the right side as well.

## Step 6



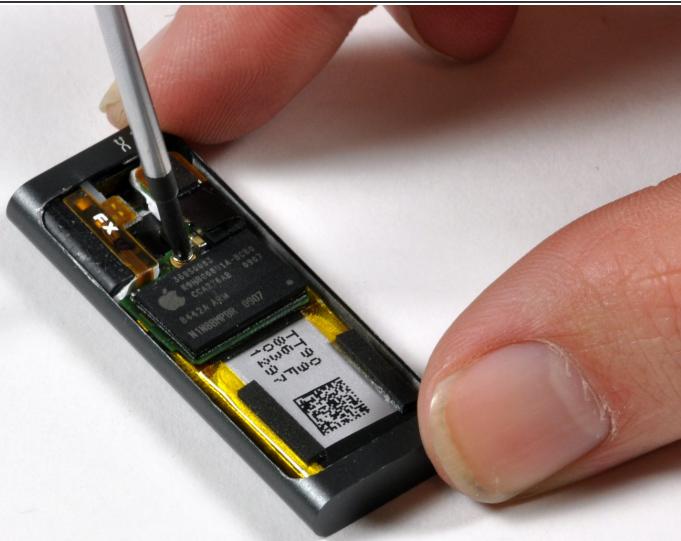
- We're in. That wasn't too bad, but the shuffle isn't going to win any awards for easy serviceability.
- *i* It's fairly easy to bend the rear cover even though it is made out of aluminum.
- *i* There is a retaining tab on the top of the shuffle that prevents the rear cover from being pulled apart on the top side. The rear cover should be pulled apart from the iPod on the bottom side first.

## Step 7



- Is this the future? A single IC, a battery, and some user interface components.
- Amazingly, at least on our scale, both halves weighed 5 grams. That means the entire functional half of the iPod weighs only about 10% more than a single sheet of [letter size paper](#).

## Step 8



- Remove the small Phillips screw. We won't waste our time circling it -- there's only one.
- We get lots of requests to add more [screw guides](#). Fortunately we don't need to make one for this iPod. Just don't drop the screw, and you'll be fine.

**i** Don't let these pictures fool you, this iPod is *very* small.

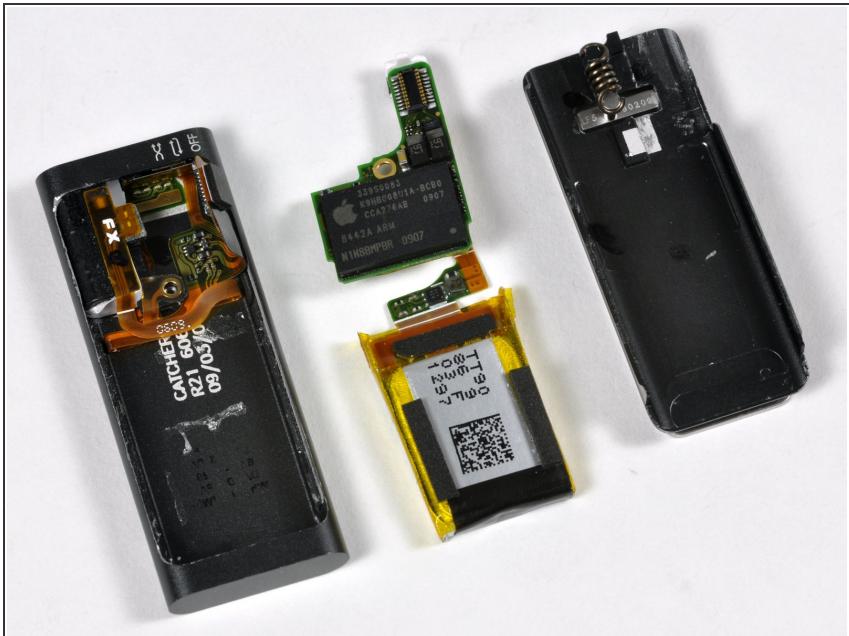
## Step 9



- Removing the internals. There's a single connector that attaches the logic board and battery to the rest of the iPod.

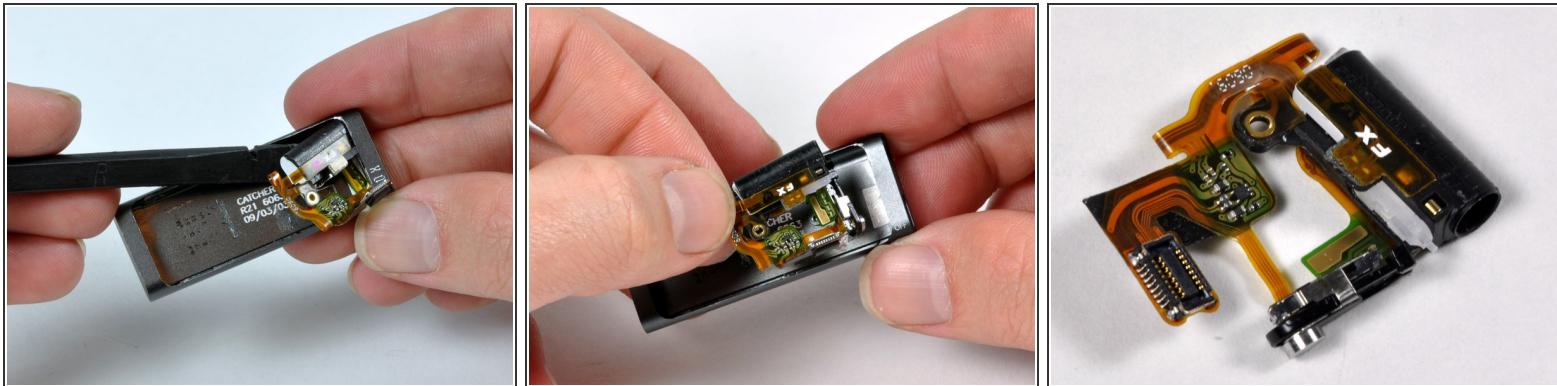
**i** The form factor of this iPod shares more similarities with the [original iPod Shuffle](#) than its [immediate predecessor](#).

## Step 10



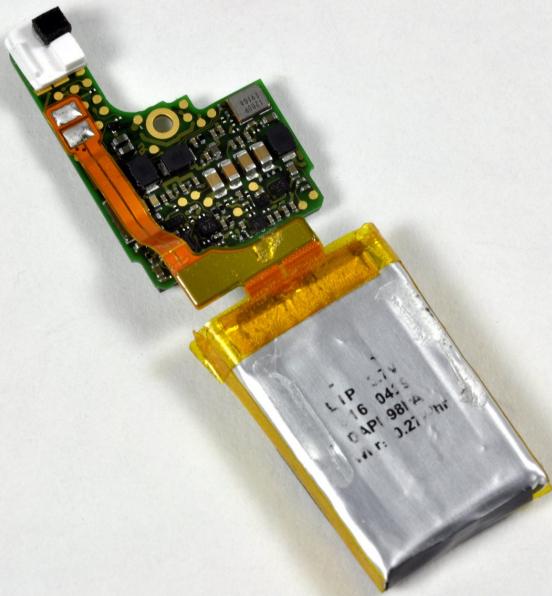
- It's in three pieces now. There are not many parts in this iPod.
- This is not a surprise, but like all other Shuffles, the battery is soldered to the logic board. Apple does offer a [battery replacement service](#), but \$49 is pretty steep considering the entire iPod was only \$79.

## Step 11



- The headphone jack and shuffle switch come out as one unit.
- The back of the casing is stamped 09/03/03. If that means March 3rd of 2009, then this Shuffle has been assembled for no more than nine days.
- In the third picture, you can see the white translucent piece of plastic to the left of the headphone jack. This serves to transmit the LED status light to the outside of the iPod.

## Step 12



- Apple's claimed battery life on this iPod is 10 hours. That's two hours less than the previous Shuffles.
- The 3.7 volt lithium-polymer battery lists a capacity of 0.27 watt-hours.
- To calculate the capacity in amp-hours, we know  $P(\text{power}) = I(\text{amps}) \cdot V(\text{volts})$ , so  $I = P/V$ . That yields a capacity of about .073 amp-hours, or 73 mAh. That's definitely record-breakingly small in terms of iPod batteries.

## Step 13



- The primary (and only) chip, which is a multi-layered stack containing the CPU, RAM, and 4GB of flash memory. According to its markings, the chip was manufactured in week 7 (late February) of 2009.
- A quick look at the innards of the earbuds' controls -- nothing too exciting.

## Step 14



- The complete innards of the shuffle.
- We found a dime in our shuffle.
- Please don't open your shuffles to look for a dime. There was no dime in our shuffle.

To reassemble your device, follow these instructions in reverse order.