



# iPhone SE Teardown

Teardown of the iPhone SE on March 31, 2016.

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## INTRODUCTION

iPhone mini? iPhone 5se? 5s Plus? After a rather long rumor cycle, we finally have our hands on the new iPhone SE. Billed as a 5s with better specs, we're excited to see the perfect union of existing Apple tech in a new body. Kinda like Taco Bell—same ingredients, new menu item. Let's open it up and spill the beans!

Want to be the first to see inside the latest gadgets? Follow us on [Facebook](#), [Instagram](#), or [Twitter](#) for the latest news from the repair world.

[video: <https://www.youtube.com/watch?v=BI-KEkgAMiA>]

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### TOOLS:

- [P2 Pentalobe Screwdriver iPhone](#) (1)
  - [iSlack](#) (1)
  - [iFixit Opening Tools](#) (1)
  - [Spudger](#) (1)
  - [Tweezers](#) (1)
  - [Phillips #000 Screwdriver](#) (1)
  - [Suction Handle](#) (1)
  - [1.5 mm Flathead Screwdriver](#) (1)
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## Step 1 — iPhone SE Teardown



- Out with the old, and in with the new—hardware, that is. Here's the skinny on what's hiding behind that oh-so-familiar face:
  - Apple A9 processor with embedded M9 motion coprocessor
  - 16 or 64 GB of storage
  - 4-inch, 1136 x 640 pixels (326 ppi) Retina display
  - 12 MP iSight camera supporting 4K video recording with 1.22  $\mu$  pixels, and a 1.2 MP  $f/2.4$  FaceTime HD camera
  - 802.11a/b/g/n/ac Wi-Fi + Bluetooth 4.2 + NFC + 19-band LTE
  - Touch ID sensor supporting user authentication and Apple Pay

## Step 2



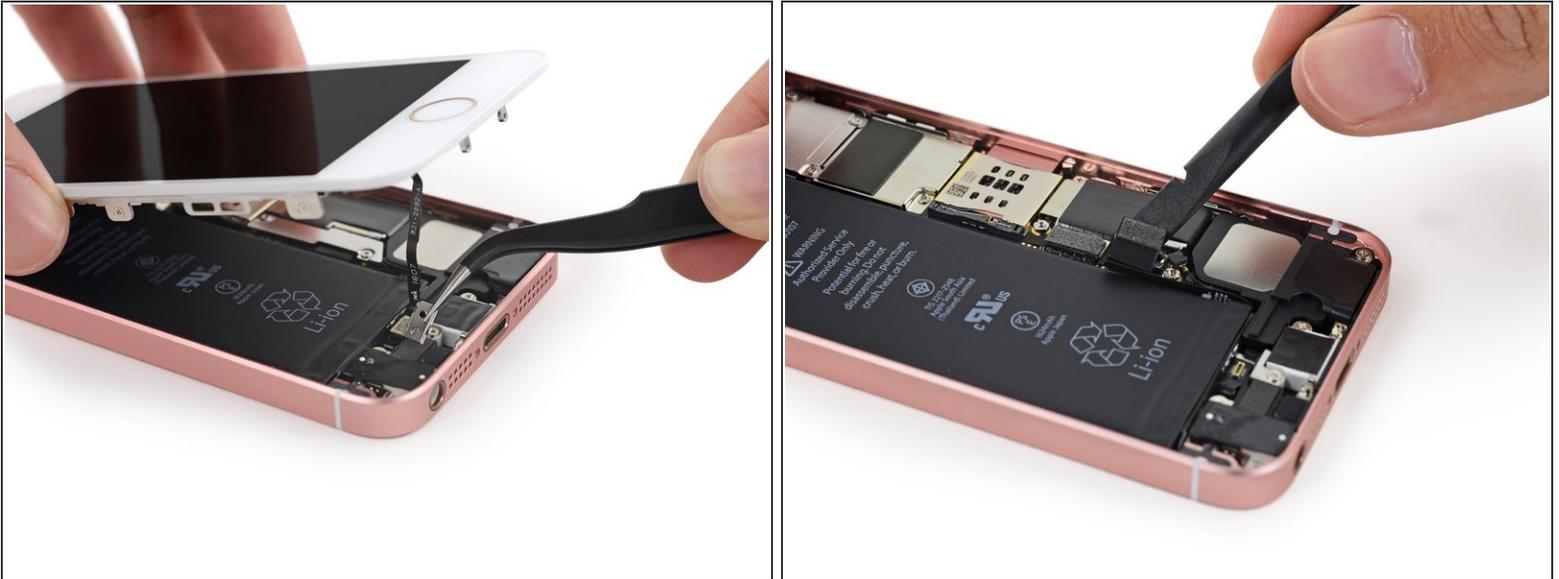
- Shifting our attention to the rose gold rear case, we spot the model number— A1662, never before seen in the wild.
- Colors notwithstanding, in a side-by-side comparison, the SE is nearly indistinguishable from its predecessor.
- ⓘ We're not surprised. While the SE represents a substantial performance boost over the 5s, they have the same display and Touch ID sensor, and identical physical dimensions.
- One new feature we *can* spot is the matte chamfered edges around the display.

### Step 3



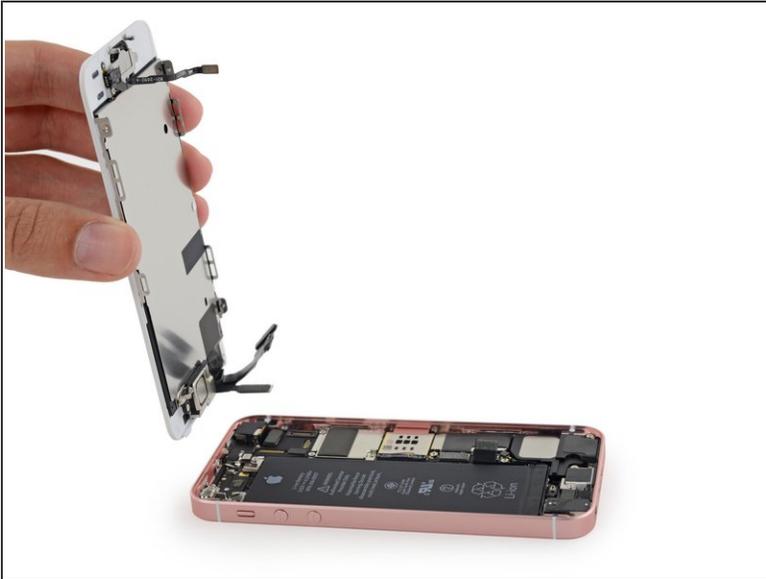
- Now for the step we don't like. Pentabolbs: a five-pointed reminder that Apple doesn't *really* want you opening up *your* device.
  - *Still, these pentabolbs are totally cute and come in a matching rose gold.*
- Setting the pretty pink screws aside, we [iSclack](#) the top off—and there's no pesky, color-matching display adhesive in sight. Compared to Apple's [S-series flagships](#), this opening procedure is a snap.
- ⓘ We had [speculated](#) that the display gasketing in the 6s and 6s Plus was added for water resistance or structural reinforcement supporting 3D Touch. Its absence from this model and some preliminary [tests](#) suggests it's the latter.

## Step 4



- Just like in the [iPhone 5s](#), lurking beneath the display of the SE we find the familiar Touch ID cable [booby trap](#).
- ⓘ For those not in the know, this cable adds a small element of danger to disassembly, as pulling up the display too far without first removing the bracket and disconnecting the cable could cause accidental damage to the cable.
- We're itching to do some comparisons and parts testing—but, safety first. Let's disconnect that battery!

## Step 5



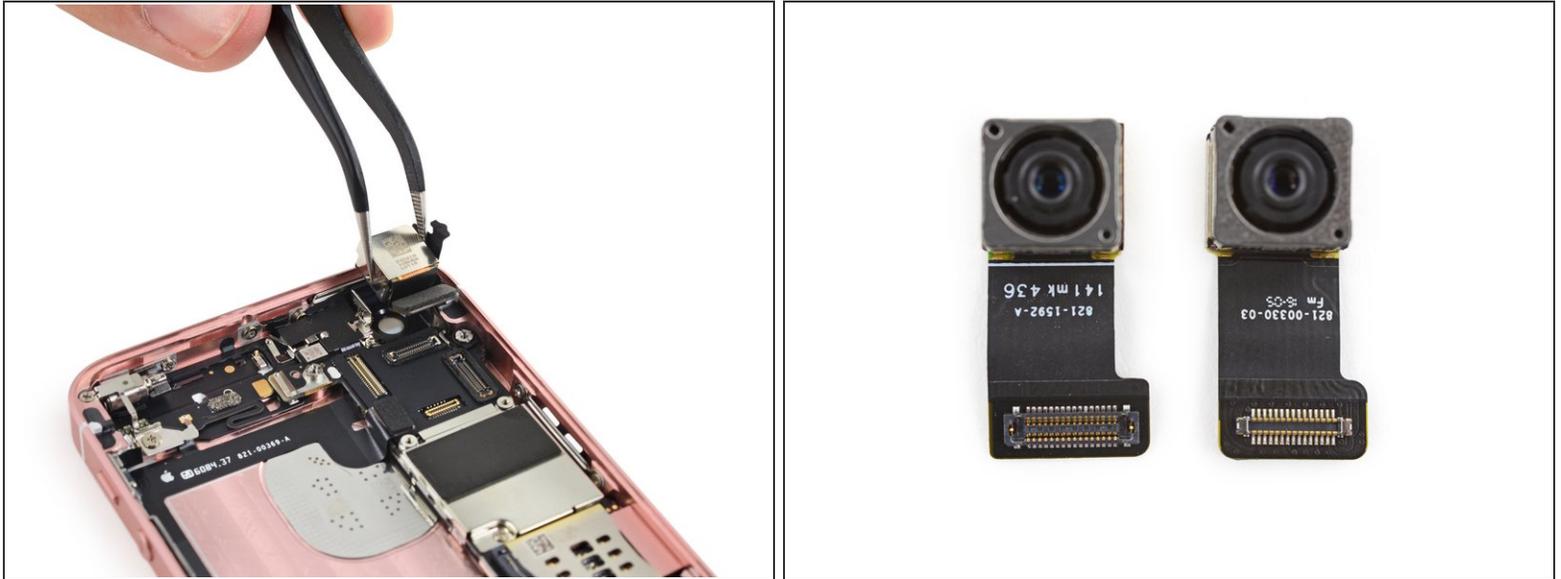
- Off pops the display assembly!
- A side-by-side comparison of displays out of the 5s (left) and SE (right) reveals... they're pretty much identical!
- ⓘ The similarities are more than skin deep. After a little testing, we found the 5s display is plug-and-play in the SE—fitment, connectors, and functionality are the same. It fires right up. That means [replacement parts](#) and [guides](#) are already available!

## Step 6



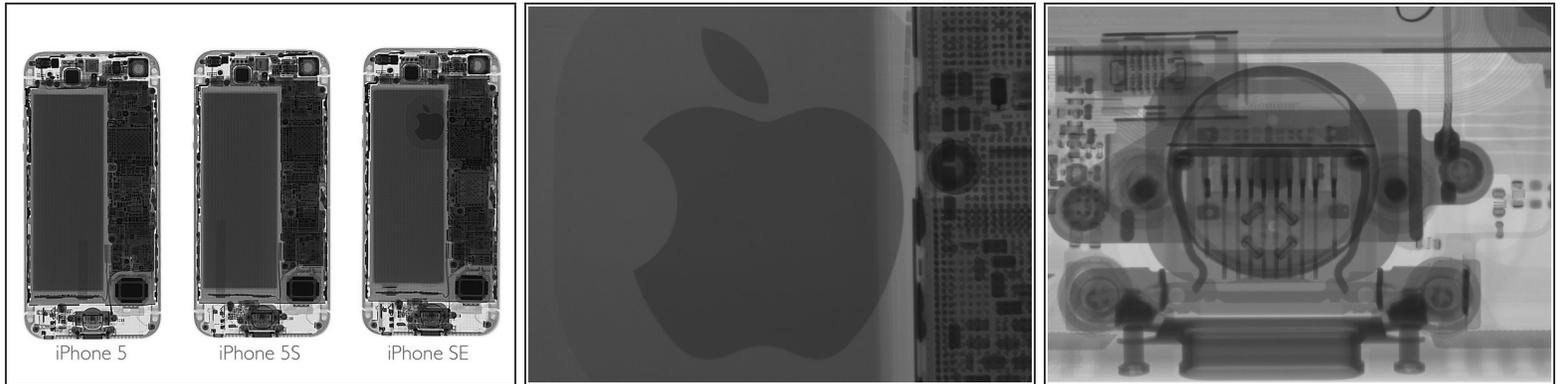
- No need to repeat the [mistakes of the past](#)—we've mastered these handy battery tabs!
- The Li-ion battery in the iPhone SE comes in at 3.82 V, 6.21 Whr, and 1624 mAh. This offers a minor (but notable) capacity increase from the [1560 mAh](#) cell in the 5s.
- ⓘ Though it's not quite as capacious as the [1715 mAh](#) cell found in the larger (and more power-hungry) iPhone 6s, Apple states this battery will provide up to 10 days of standby, 14 hours of talk time, and 13 hours of video playback.
- 🔗 Despite the apparently interchangeable displays, the SE's battery connector differs from that of the 5s. So, no chance to supercharge your old 5s, unfortunately.

## Step 7



- Next up, we pluck the upgraded rear-facing camera from its berth.
- While it looks pretty similar to the one in the 5s (left), the SE's camera (right) has far fewer pins on its connector.
- ⓘ Do you think those extra megapixels ever get stuck in connector traffic?
- The SE's iSight camera gets a resolution bump up to 12 MP, but a decrease in pixel pitch down to 1.22 $\mu$ m from the 1.5 $\mu$ m pitch in the 5s.
- ⓘ Since these are the exact same specs as the [main camera](#) in the iPhone 6s, we'd hoped the cameras might be interchangeable—but alas, our hopes of creating a complete Apple Frankenphone might be overreaching.

## Step 8



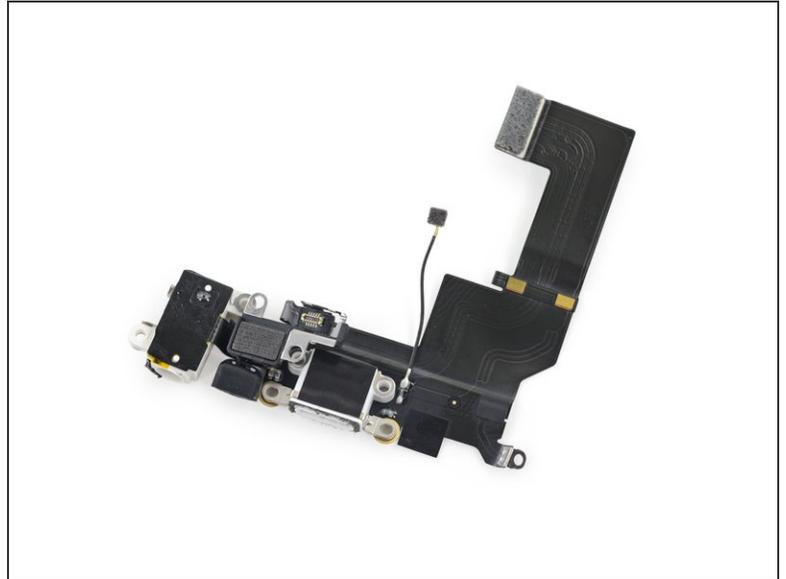
- We interrupt this teardown to bring you: more [cowbell](#) teardown!
- Our friends at [Creative Electron](#) have been getting their teardown on, X-ray style!
- We have for your enjoyment, three generations of iPhone 5 configurations.
- Really, the only obvious change is the addition of the bi-metal Apple logo.
- That, and the addition of the Touch ID cable between the 5 and 5s (unfortunate placement still intact in the SE, too).

## Step 9



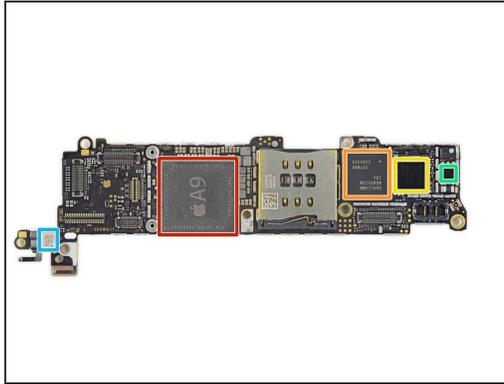
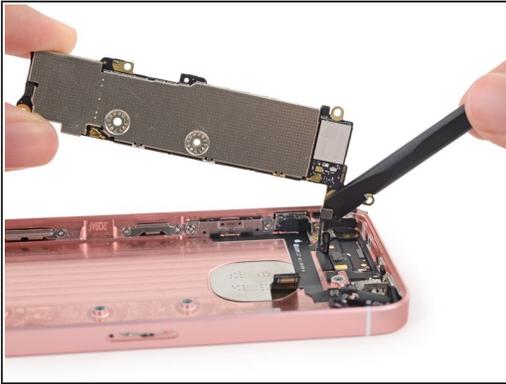
- Out speaker assembly, out vibrator, out SIM card and tray!
- ☑ Our testing confirms all these bits are interchangeable with their counterparts from the 5s—same form, same function. They bolt right up, and they work like a charm. Neat!
  - Rose gold remains SE exclusive though, so you may need to upgrade for proper color coordination.
  - Also of note: waterproof seals! There be [foamy silicone seals](#) surrounding *some*—but, mysteriously, not all—of the logic board connections.
  - ⓘ The front camera, volume controls, and rear camera connectors all get the fancy waterproofing treatment, while the LCD, digitizer, battery, and Lightning connector assembly all seemingly go without.

## Step 10



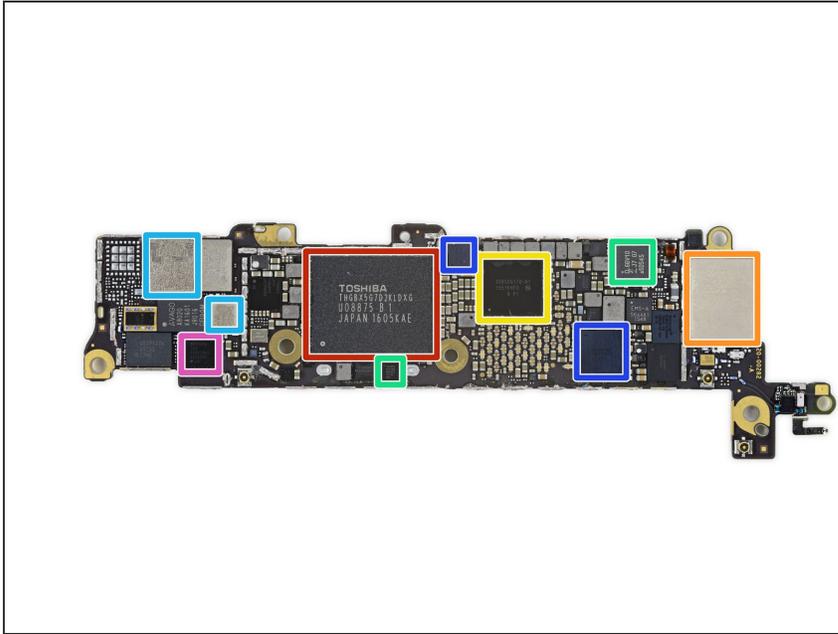
- We finally wrestle the Lightning connector assembly out of the 5s SE.
- It looks *just* like the [5s assembly](#), but the connectors are a smidge different; we couldn't get a 5s/SE swap to work out.
- ⓘ Maybe a change to allow for USB 3.0? Speculation welcome.

## Step 11



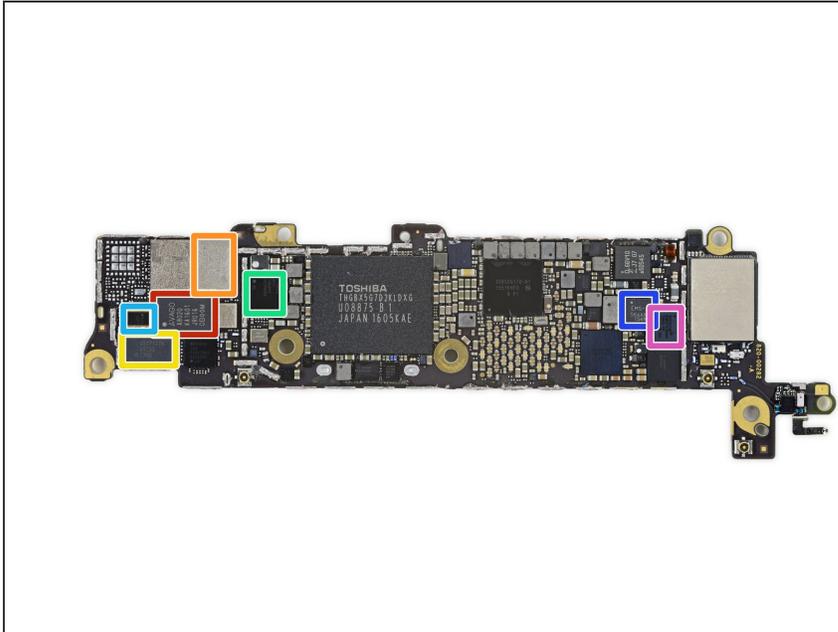
- We pop the pesky rear connector off the logic board, and are free to scan the silicon fields of glory!
  - Apple A9 [APL1022](#) SoC + SK Hynix 2 GB LPDDR4 RAM as denoted by the markings H9KNNNBTUMUMR-NLH
  - Qualcomm [MDM9625M](#) LTE Modem (as seen in iPhone 6/6 Plus)
  - Qualcomm [WTR1625L](#) RF Transceiver (as seen in iPhone 6/6 Plus)
  - Qualcomm [QFE1100](#) Envelope Tracking IC (as seen in 6s/6s Plus, and 6/6 Plus)
  - Skyworks [SKY77611](#) Quad-band Power Amplifier Module
- 👉 We'd like to extend a huge thanks to our friends at [Chipworks](#) for helping us ID all of these chips! Check out their [rad teardown](#) of the iPhone SE for even more silicon goodness.

## Step 12



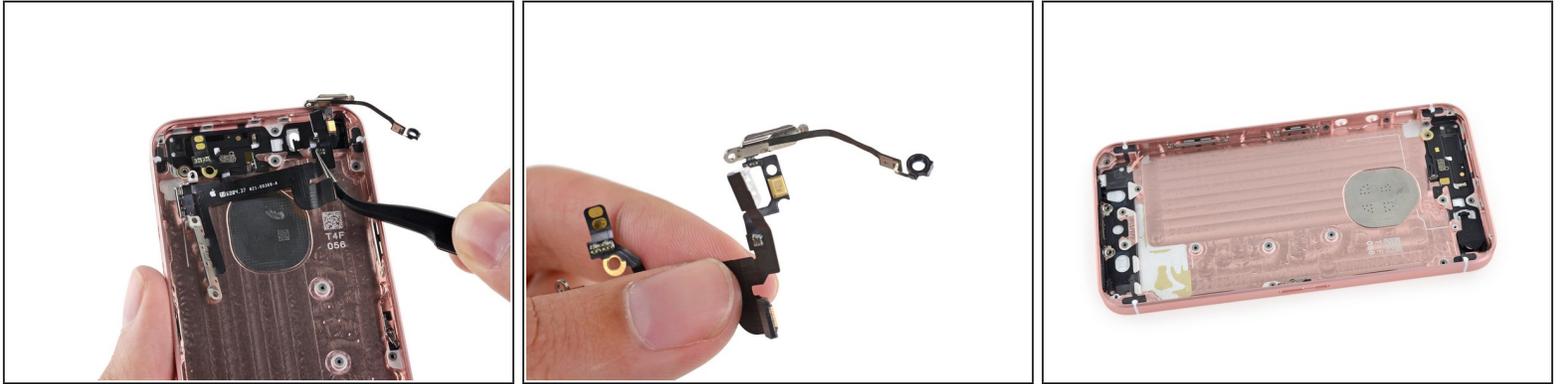
- There's even more silicon goodies on the reverse!
- Toshiba THGBX5G7D2KLDXG 16 GB NAND Flash
- 339S00134 (likely an iteration of the Universal Scientific Industrial [339S00043](#) Wi-Fi module)
- Apple/Dialog 338S00170 Power Management IC
- NXP [66V10](#) NFC Controller and 1610A3 Charging IC (as seen in iPhone 6s/6s Plus)
- Skyworks SKY77826 Ultra low-band Power Amplifier Duplexer and [SKY77357](#) 2G/EDGE Power Amplifier Module (likely an iteration of [SKY77336](#))
- Apple/Cirrus Logic 338S00105 and [338S1285](#) Audio ICs (as seen in iPhone 6s/6s Plus)
- Qualcomm [WFR1620](#) Receive-only Transceiver (as seen in iPhone 6/6 Plus)

## Step 13



- Chip identification continued...
  - Avago [ACPM-8020](#) Mid-band Power Amplifier Duplexer (as seen in iPhone 6 Plus)
  - Qorvo (TriQuint) [TQF6410](#) Low-band Power Amplifier Duplexer (as seen in iPhone 6 Plus)
  - TDK EPCOS D5255 Diversity Receive Module
  - Qualcomm [PM8019](#) PMIC (as seen in iPhone 6/6 Plus)
  - Qorvo (RF Micro Devices) [RF5159](#) Antenna Switch Module (as seen in iPhone 6/6 Plus)
  - InvenSense [EMS-A](#) 6-axis Gyroscope and Accelerometer Combo
  - Broadcom [BCM5976](#) Touchscreen Controller (first seen in iPhone 5)

## Step 14



- Whoa, now—looks like the button cable got a little more complicated since [last time](#).
- The power button bracket now has some kind of contact cable doohickey, instead of a simple clip, potentially for grounding.
- With that, we're down to the rear case—time to wrap this teardown up!

## Step 15



- iPhone SE Repairability: **6 out of 10** (10 is easiest to repair)
  - The display assembly is the first component out of the phone, simplifying screen replacements.
  - The battery is fairly easy to access, even though it's not technically "user replaceable."
  - The Touch ID cable could be easily ripped out of its socket if a user is not careful when opening the phone.
  - The iPhone SE still uses Pentalobe screws on the exterior, making it difficult to open without specialized tools.
- ⓘ The hardest part of any repair is knowing what to do. Thanks to the similarities to the 5s and our repair guides, repairs on the SE are already excellently documented—[check it out](#).