



Car Charger Teardown

We will be dissecting PureGear's Extreme USB Car Charger.

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INTRODUCTION

Continuing in my fascination with Quick Charge 2.0 based chargers, this is the second teardown of the fast charge series.

TOOLS:

- [iFixit Opening Tools](#) (1)
 - [Vice Grips](#) (1)
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Step 1 — Car Charger Teardown



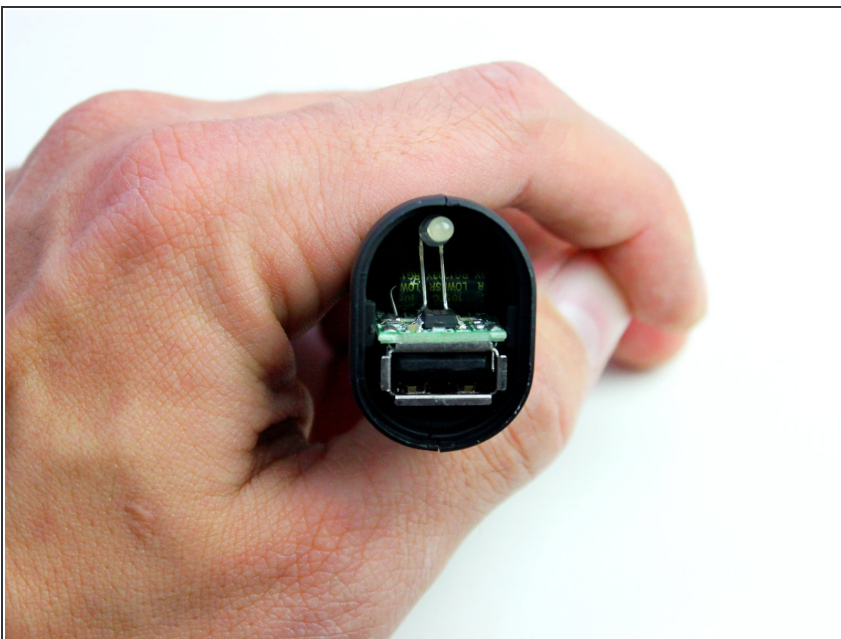
- PureGear's Extreme USB Car Charger is an elegant cigarette lighter car charger with a smooth, matte outer casing.
- This charger is able to charge devices with Qualcomm Quick Charge 2.0 compatible processors up to 4 times faster.
- The adapter is rated at 12W with 5V/2.4A for Quick Charge compatible devices and 5V/1A for all others.
- The charger includes:
 - USB adapter
 - LED to indicated status of charge

Step 2



- Just like most car chargers, the case does not have an obvious entry point.
- In order to get into the inner working, we will need to use our trusty plastic opening tool to pry off the lid to the charger.
- The lid is easy enough to remove and the green rim slides right out as well.

Step 3



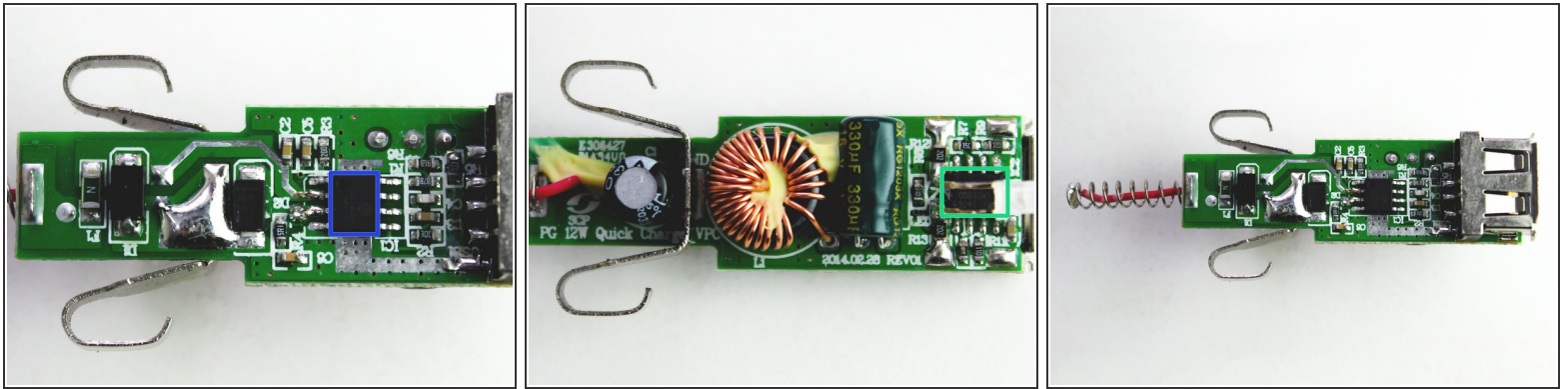
- Now we get our first glimpse at the circuitry that allows our Quick Charge 2.0 compatible devices to charge...well quick.
- From here we can see:
 - USB adapter
 - LED that shows charge status
 - A big capacitor
 - Some USB chip (assuming its proximity to the USB adapter)

Step 4



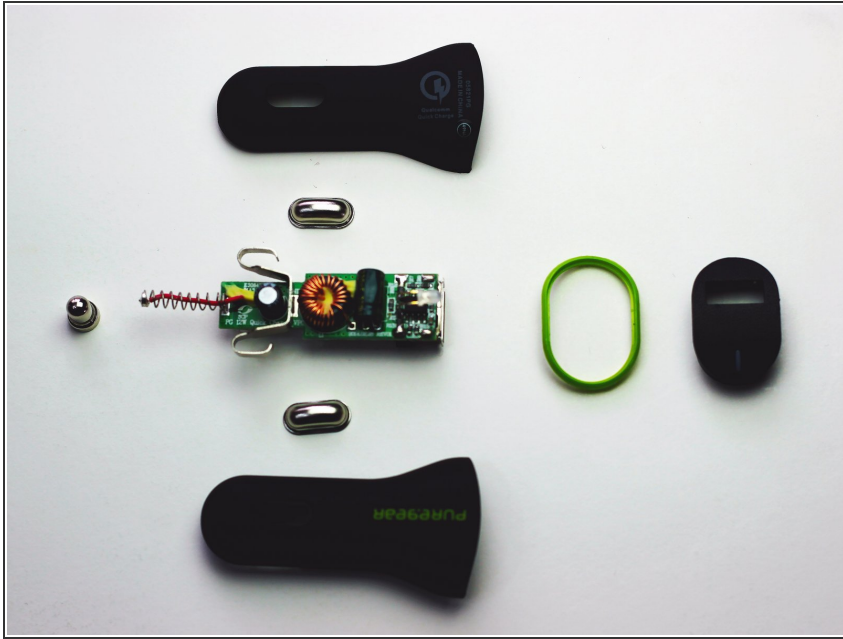
- To separate the last part of the outer shell, we need to apply some pressure from with the vice grip pliers.
- Squeezing the shell across the seem causes the connecting tabs to separate enough for us to pry them apart.
- Inside the shell are three metal leads that fell out when the shell pieces separated.

Step 5



- Finally we can see what makes this charger tick and it seems that there are two important chips at work here:
 - Active-Semi [ACT4533C](#) DC/DC Converter
 - Power Integrations [CHY100D-TL](#) Battery Management Charger Interface
- These two chips in tandem make this CLA possible with so few parts, including:
 - a couple resistors and capacitors
 - an inductor
 - a fuse
 - and two diodes

Step 6



- PureGear Extreme USB Car Charger Repairability Score: 7 out of 10 (10 is easiest to repair)
 - It was very easy to remove the lid of the casing
 - There are few parts to disassemble
 - There was not an obvious way to separate the two halves of the outer casing
- The charger reassembled very easily without any need for repair
- It's amazing how PureGear was able to make a Quick Charge 2.0 compatible charger with so few parts.

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