

ProgrammerSought

 search

Samsung Note8 original charger EP-TA20JBE and Samsung Note7 original charger EP-TA200 disassembly comparison

It has been more than a month since the Samsung S9/S9+ domestic conference, and the charging head network brought the Samsung S9's charging evaluation to everyone in the first time. After testing, [Samsung S9 can only achieve 10W fast charge with original charger](#), although [Compatible with USB PD Fast Charge Protocol](#). However, the charging speed has not improved significantly.

In addition, the charging head network also found that Samsung's EP-TA200 charger, which has been used for many years, quietly blocked the QC2.0 fast charge this year.

What kind of medicine is sold in Samsung's gourd has to wait until the new version of the charger is disassembled.

Before disassembling the new EP-TA200 charger, let's take a look at the internal structure comparison between the Samsung Note 8 charger (EP-TA20JBE) and the Note 7 original charger (EP-TA200). The chargers are all versions that support AFC and QC2.0 fast charge. The difference is that the two chargers are an international version (EP-TA20JBE), the output interface is on the side, one is the top of the National Bank (EP-TA200), and the output interface is at the top. As for the internal structure of the two products, then see the disassembly below.



First, Samsung Note 8 original charger dismantling

This Samsung Note 8 charger disassembled this time belongs to the international version. The charger can see "Adaptive Fast Charging", which is Samsung's own AFC fast charging protocol. Although it supports QC2.0 fast charge, it is not marked.



The Samsung Note 8 International Edition charger model is EP-TA20JBE. Input voltage: 100-240V~50-60Hz 0.5A, output: 5V/2.0A, 9V/1.67A.



The output port is on the side and the specification is a common USB-A type interface.



充电头网
www.chongdiantou.com

The cover is on the top and the "SAMSUNG" logo is printed.

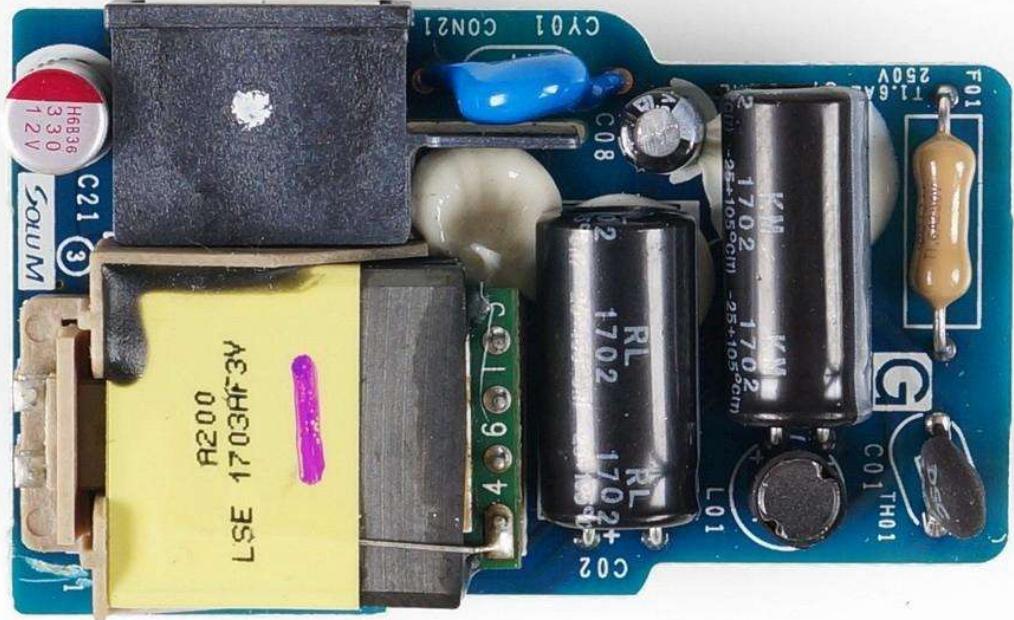


充电头网
www.chongdiantou.com

Note8 charger top cover is assembled by ultrasonic welding, which has high firmness.

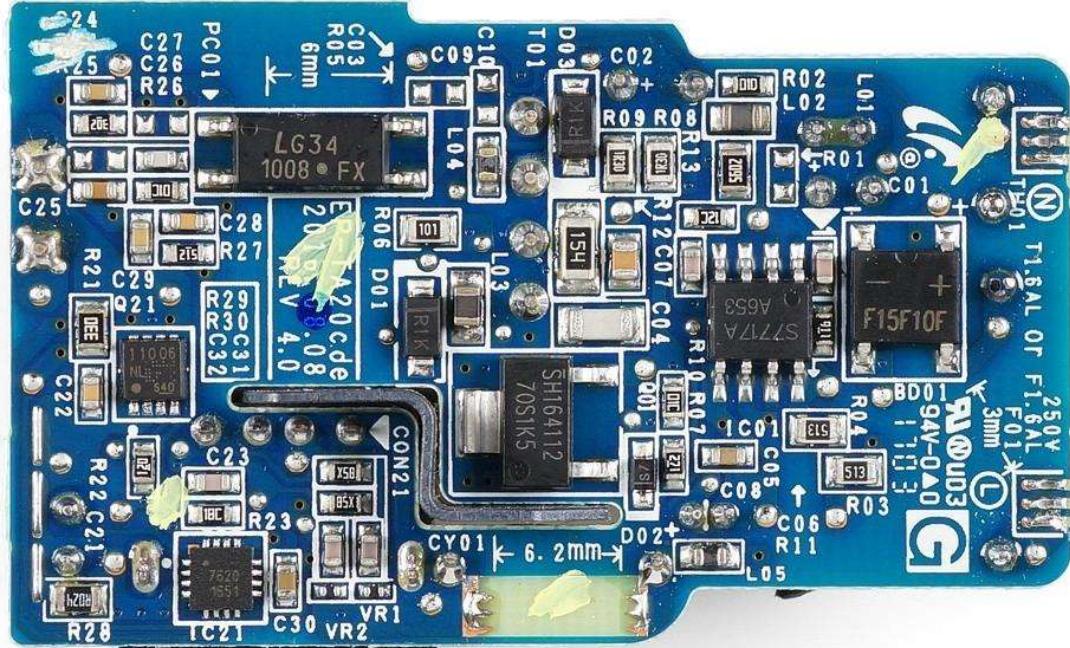


A list of PCB pin device faces.

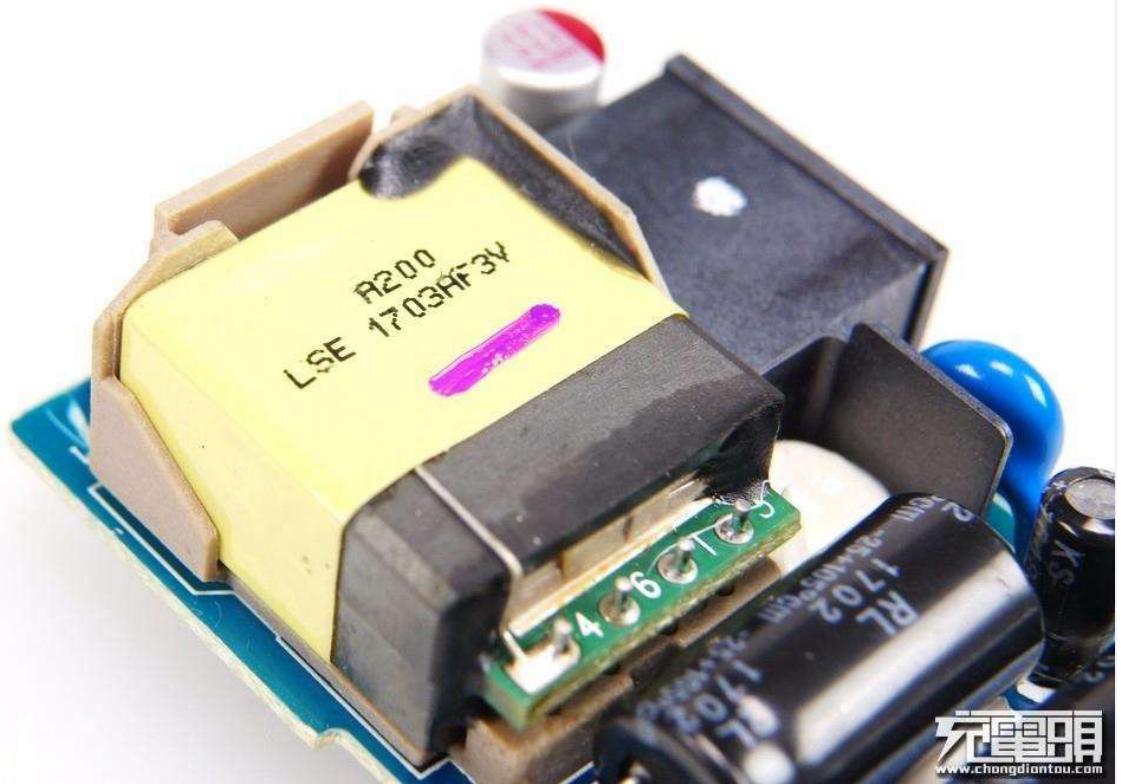


充电头网
www.chongdiantou.com

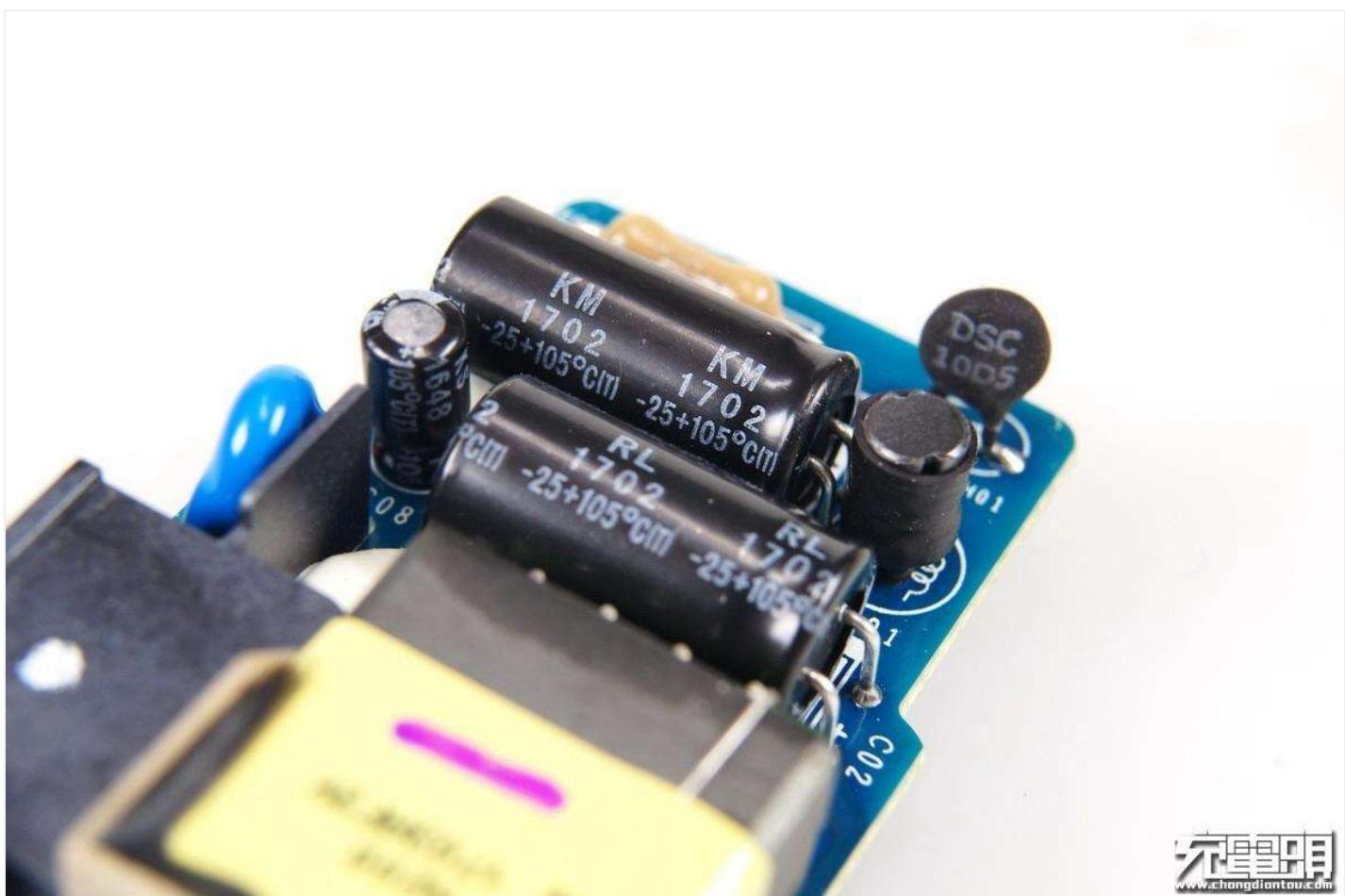
A list of PCB chip devices.



There is a code on the transformer, which looks like a planar transformer.

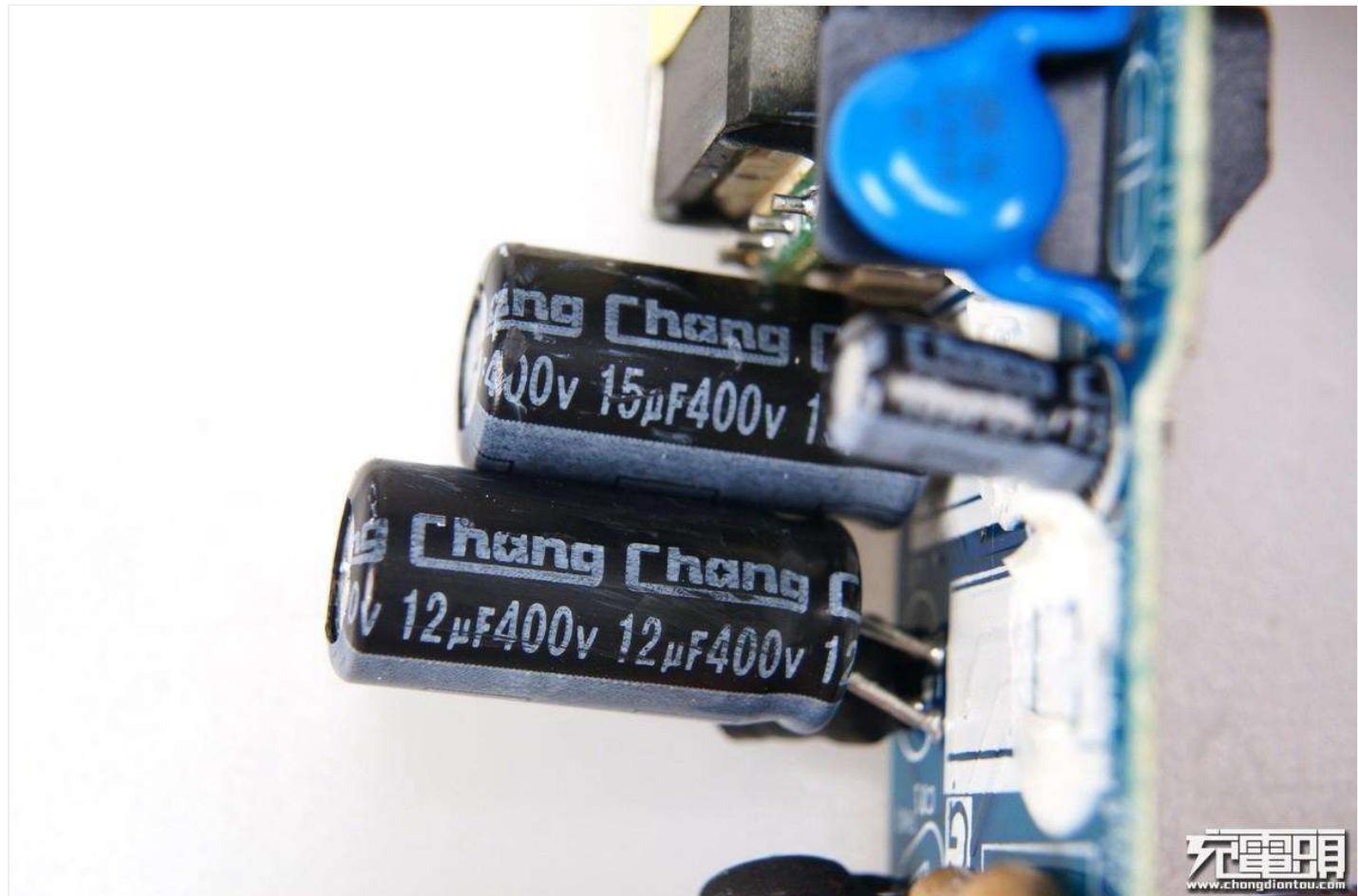


Input CLC filtering, the traditional tradition of Samsung chargers.

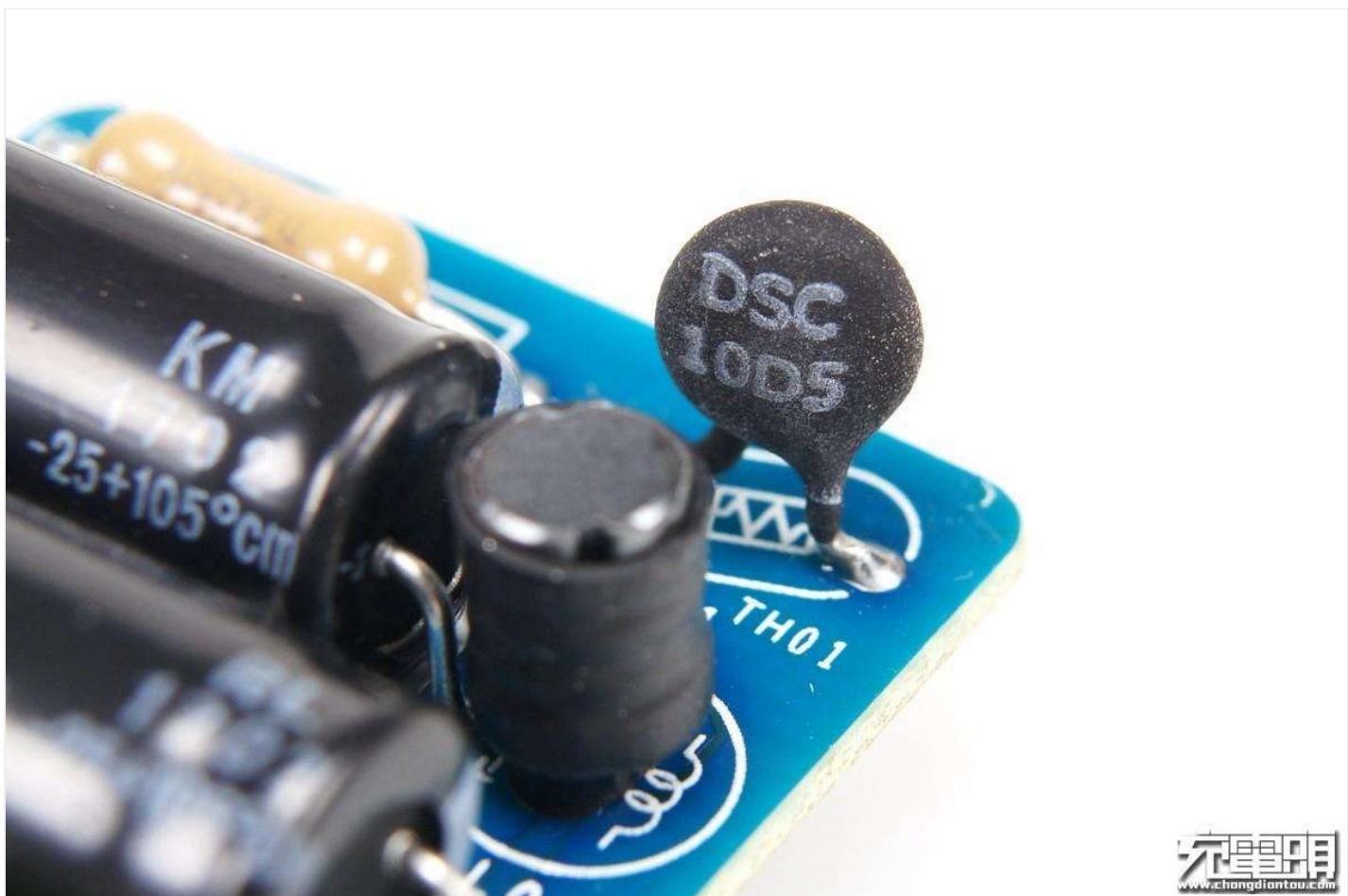


充电頭
www.chongdiantou.com

The high-voltage input filter uses two Warwick electrolytic capacitors, 400V 12 μ F + 400V 15 μ F, and the bottom is glued and fixed.

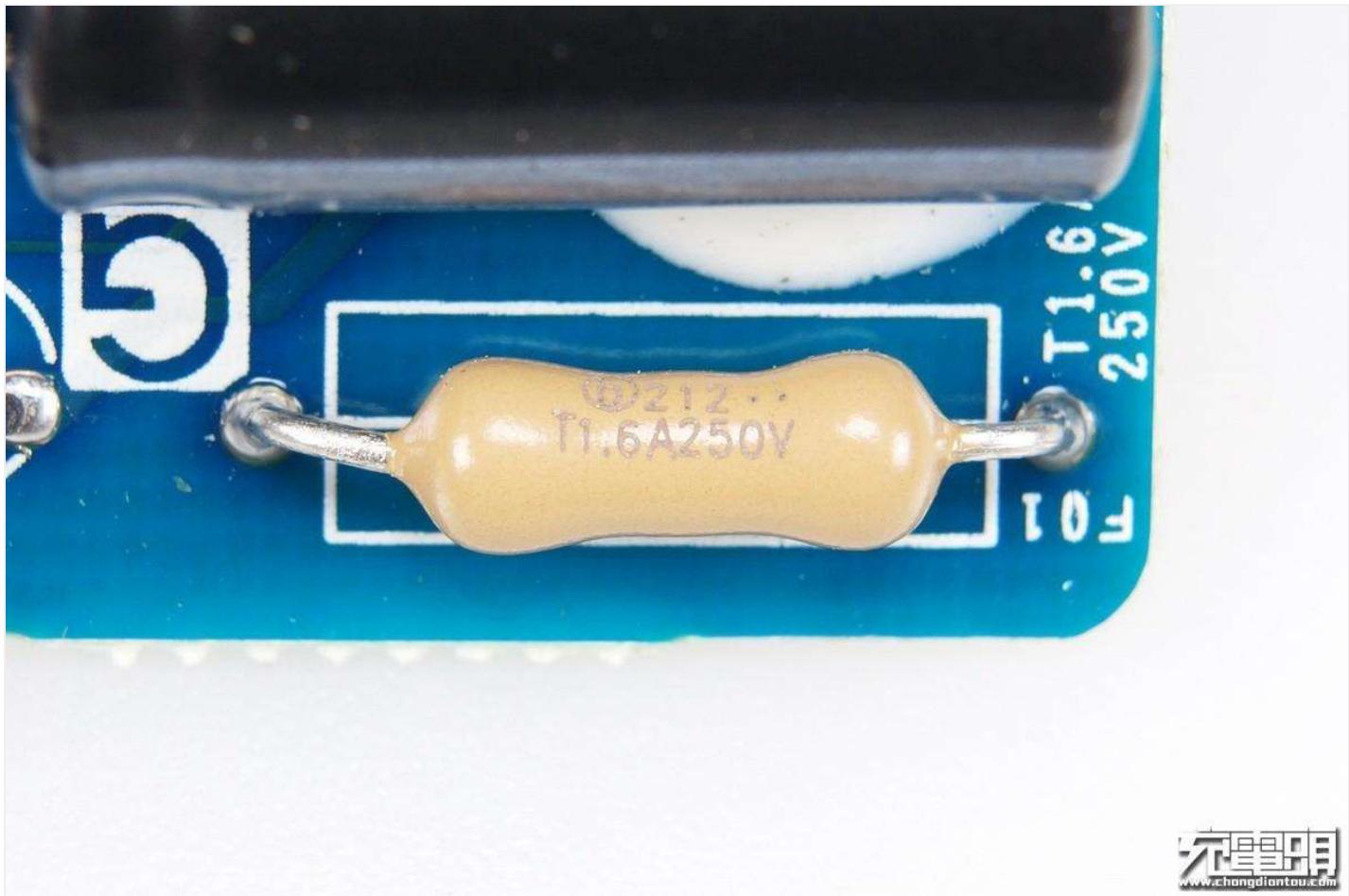


Reduce the plug-in NTC thermistor.



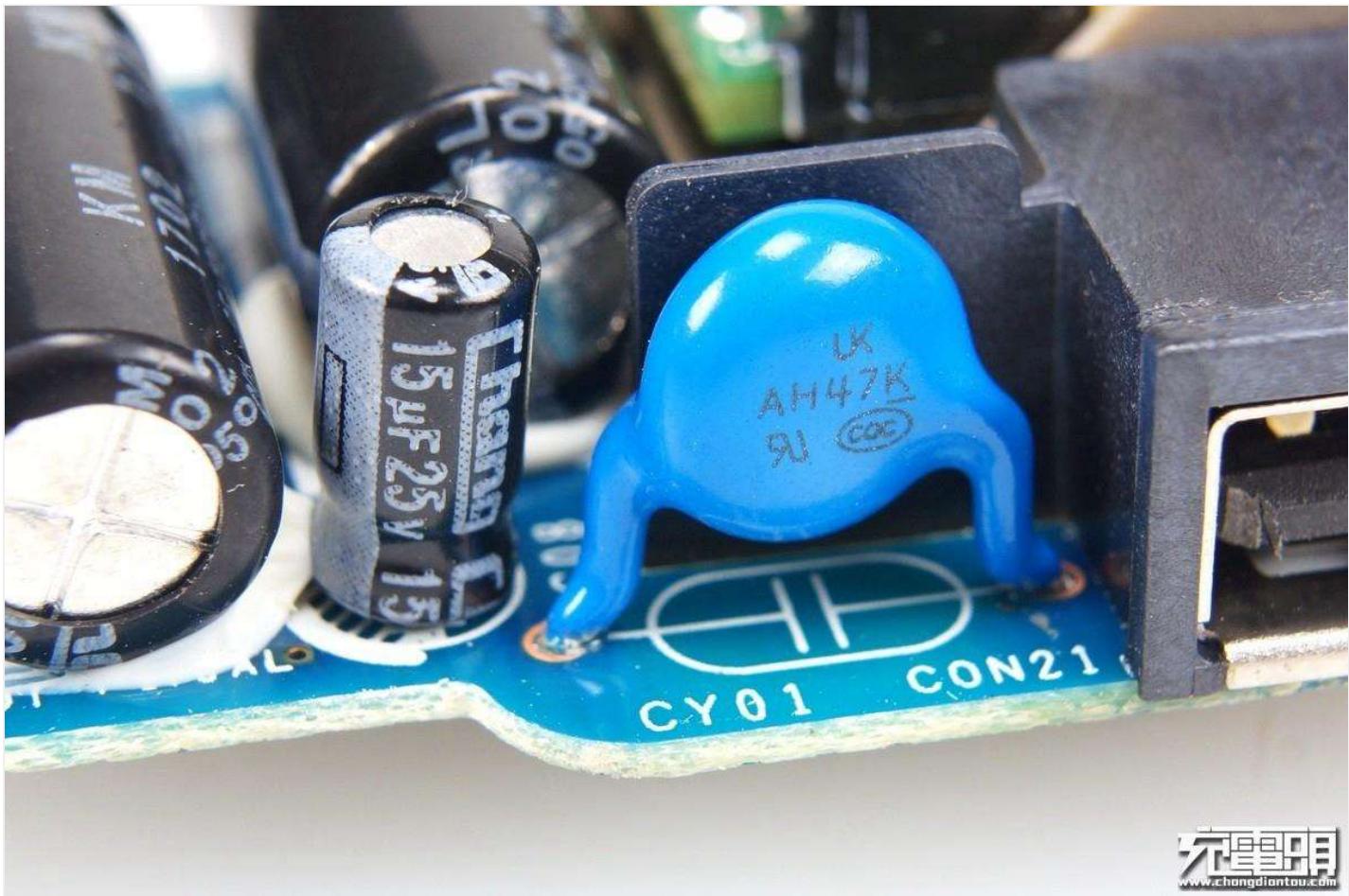
充电头网
www.chongdiantou.com

250V 1.6A fuse.

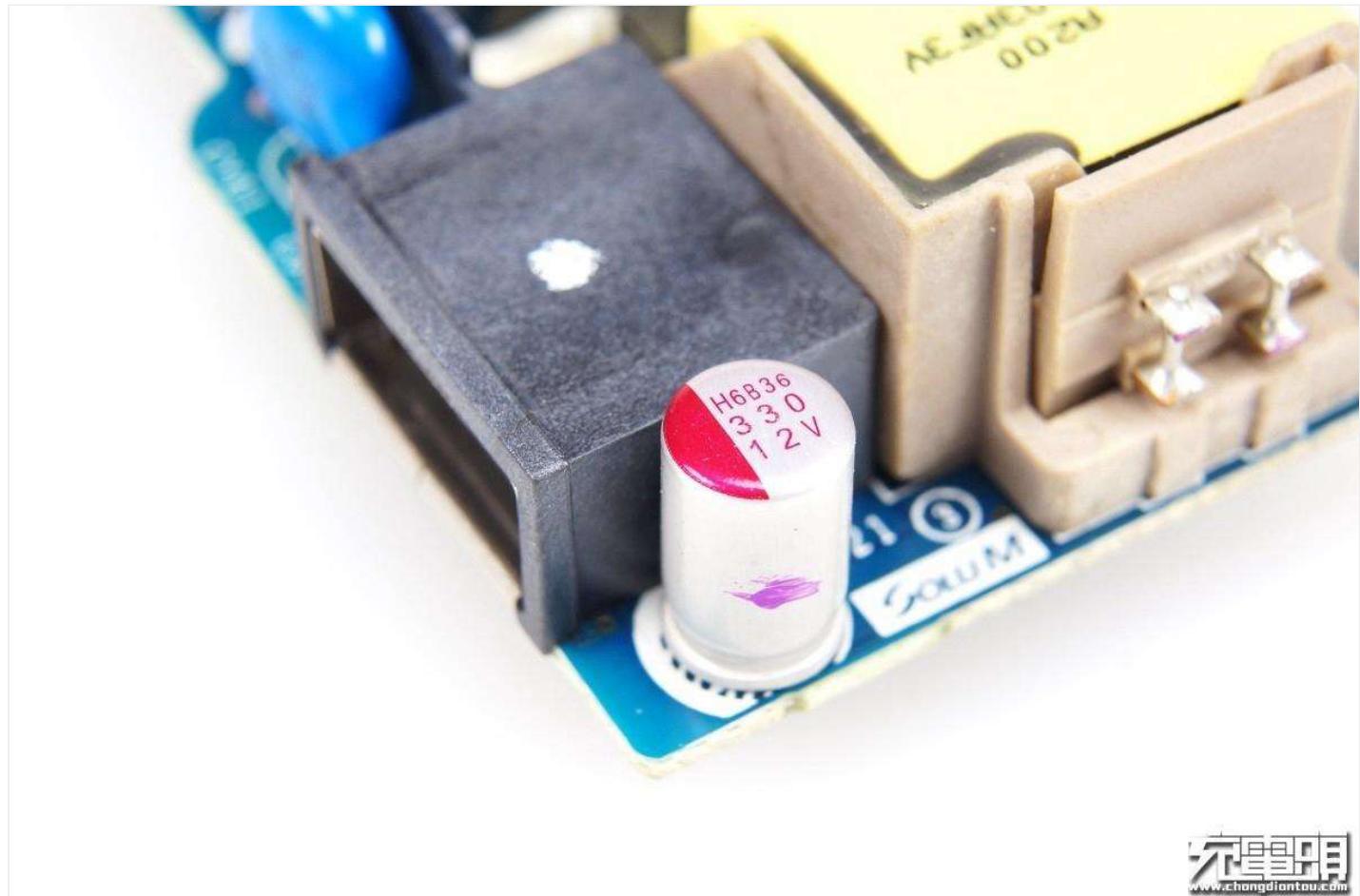


充电头网
www.chongdiantou.com

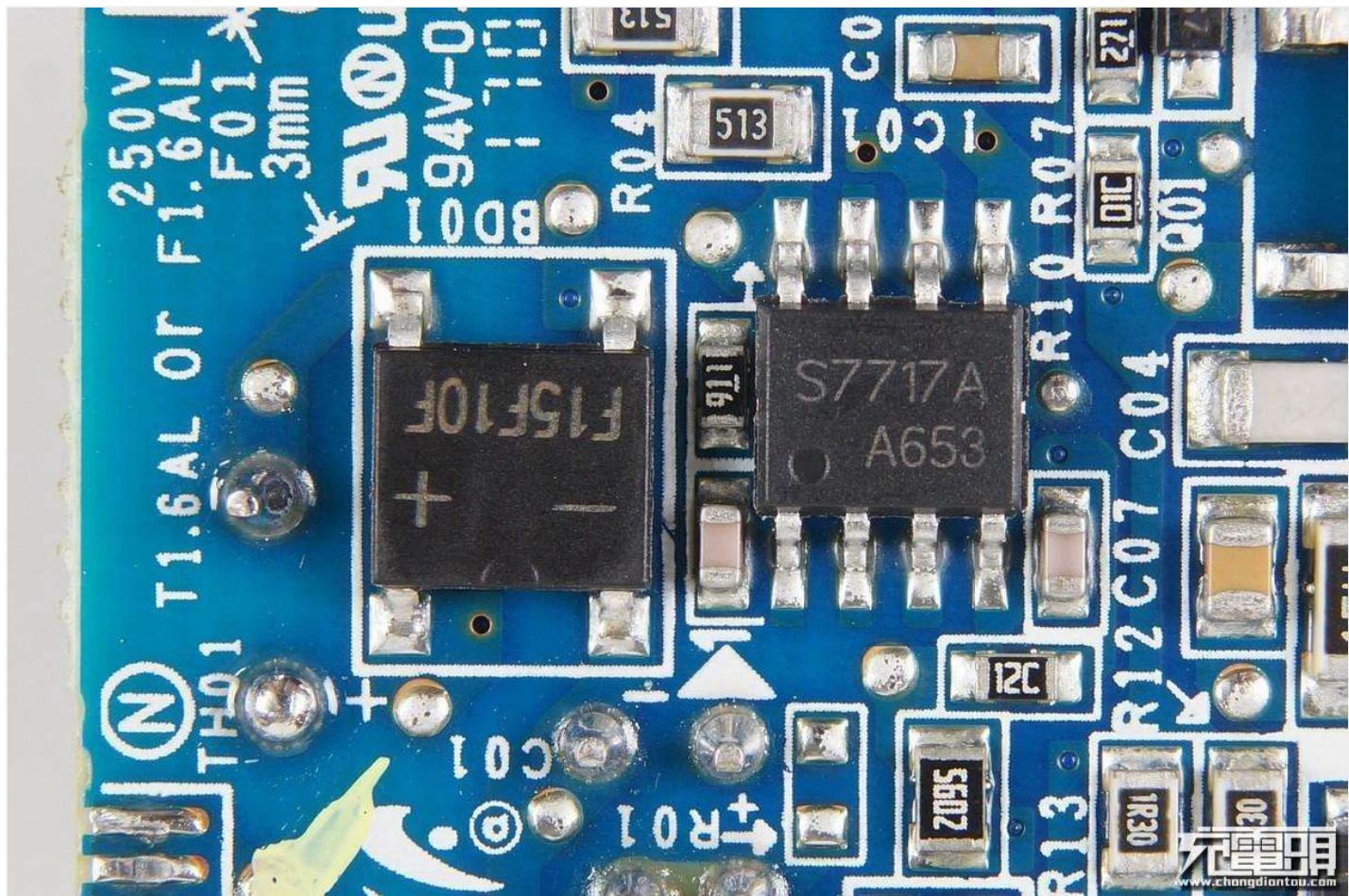
Primary PWM chip filtering, Warwick 25V 15μF electrolytic capacitor, Y capacitor.



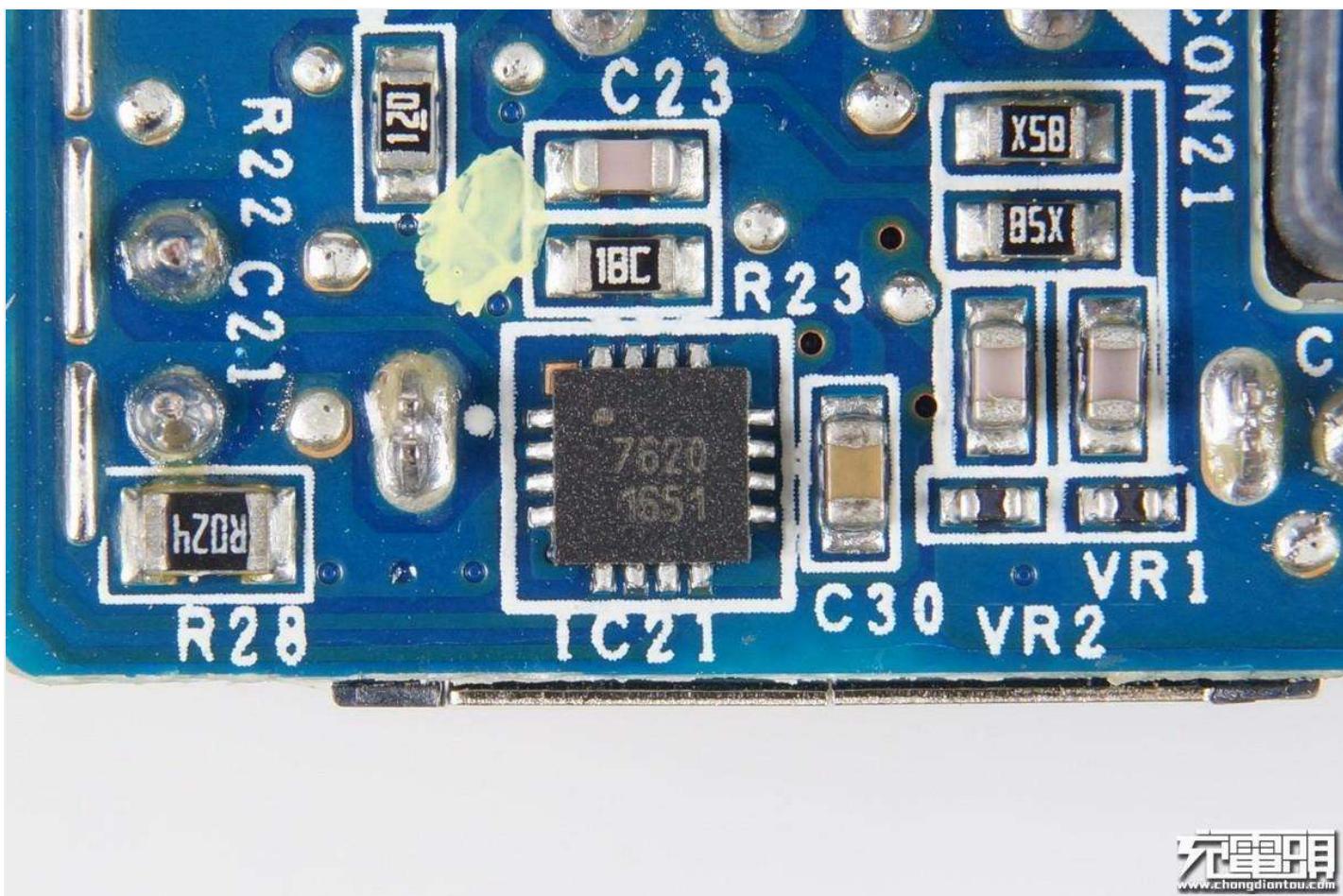
The USB output is fully wrapped and next to a 12V 330 μ F solid capacitor.



SOLUM SLM7717A Primary PWM controller and input rectifier bridge stack.

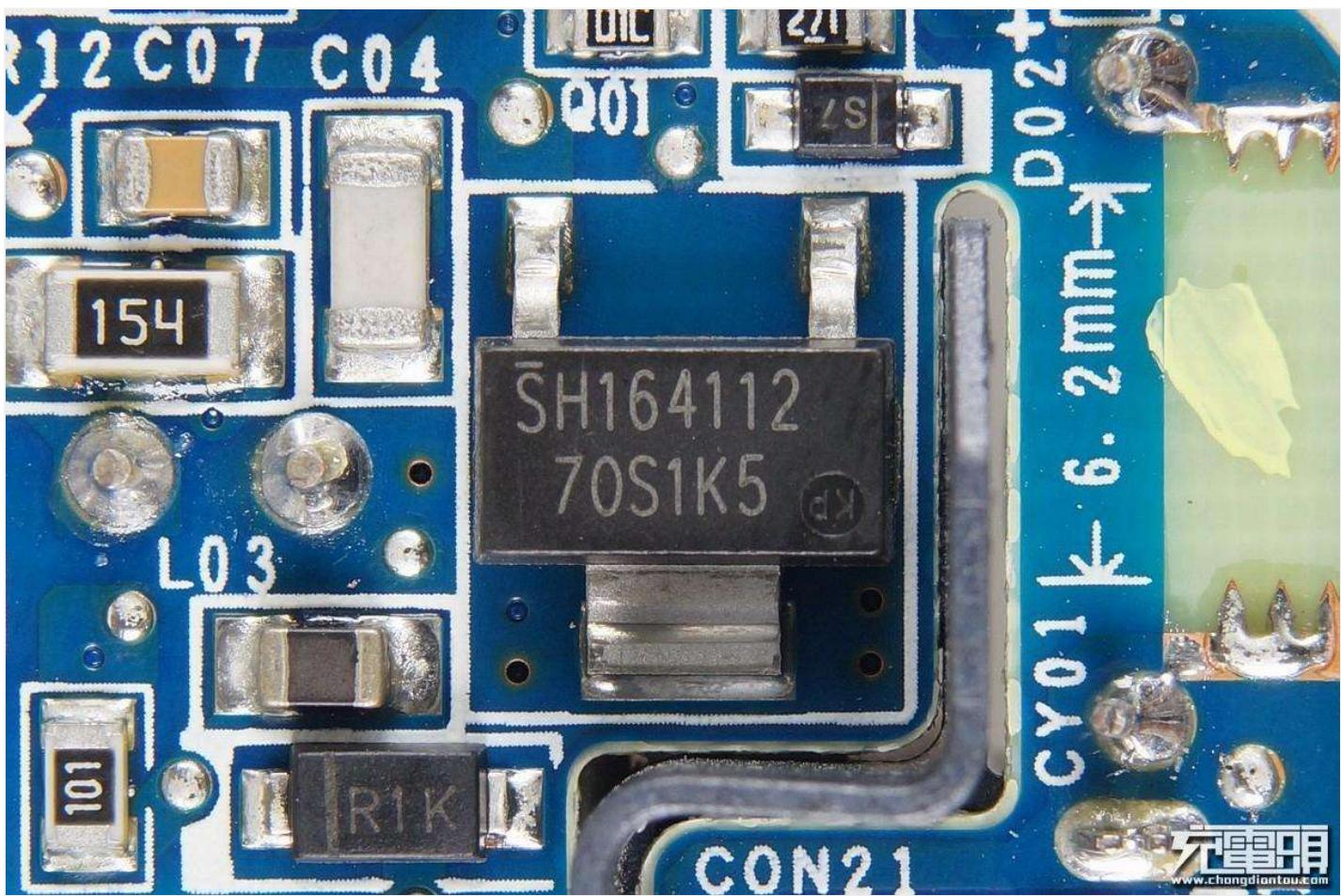


SOLUM SLM7620 Output Identification and Synchronous Rectifier Controller.



充电頭
www.chongdiantou.com

INFINEON Infineon IPN70R1K5CE switch tube, much smaller than before.



INFINEON Infineon IPN70R1K5CE details.

IPN70R1K5CE



MOSFET

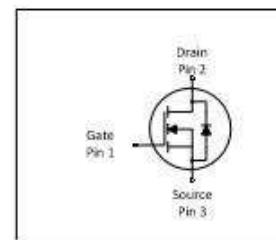
700V CoolMOS™ CE Power Transistor

CoolMOS™ is a revolutionary technology for high voltage power MOSFETs, designed according to the superjunction (SJ) principle and pioneered by Infineon Technologies. CoolMOS™ CE is a price-performance optimized platform enabling to target cost sensitive applications in Consumer and Lighting markets by still meeting highest efficiency standards. The new series provides all benefits of a fast switching Superjunction MOSFET while not sacrificing ease of use and offering the best cost down performance ratio available on the market.



Features

- Extremely low losses due to very low FOM $R_{dson} \cdot Q_g$ and E_{oss}
- Very high commutation ruggedness
- Easy to use/drive
- Pb-free plating, Halogen free mold compound
- Qualified for standard grade applications



Applications

Adapter, Charger and Lighting

Please note: For MOSFET paralleling the use of ferrite beads on the gate or separate totem poles is generally recommended.



Table 1 Key Performance Parameters

Parameter	Value	Unit
$V_{DS} @ T_{j,max}$	750	V
$R_{d(on),max}$	1.5	Ω
$Q_{g,typ}$	10.5	nC
$I_{D,pulse}$	8.8	A
$E_{oss}@400V$	1.2	μJ
Body diode dI/dt	500	A/ μs

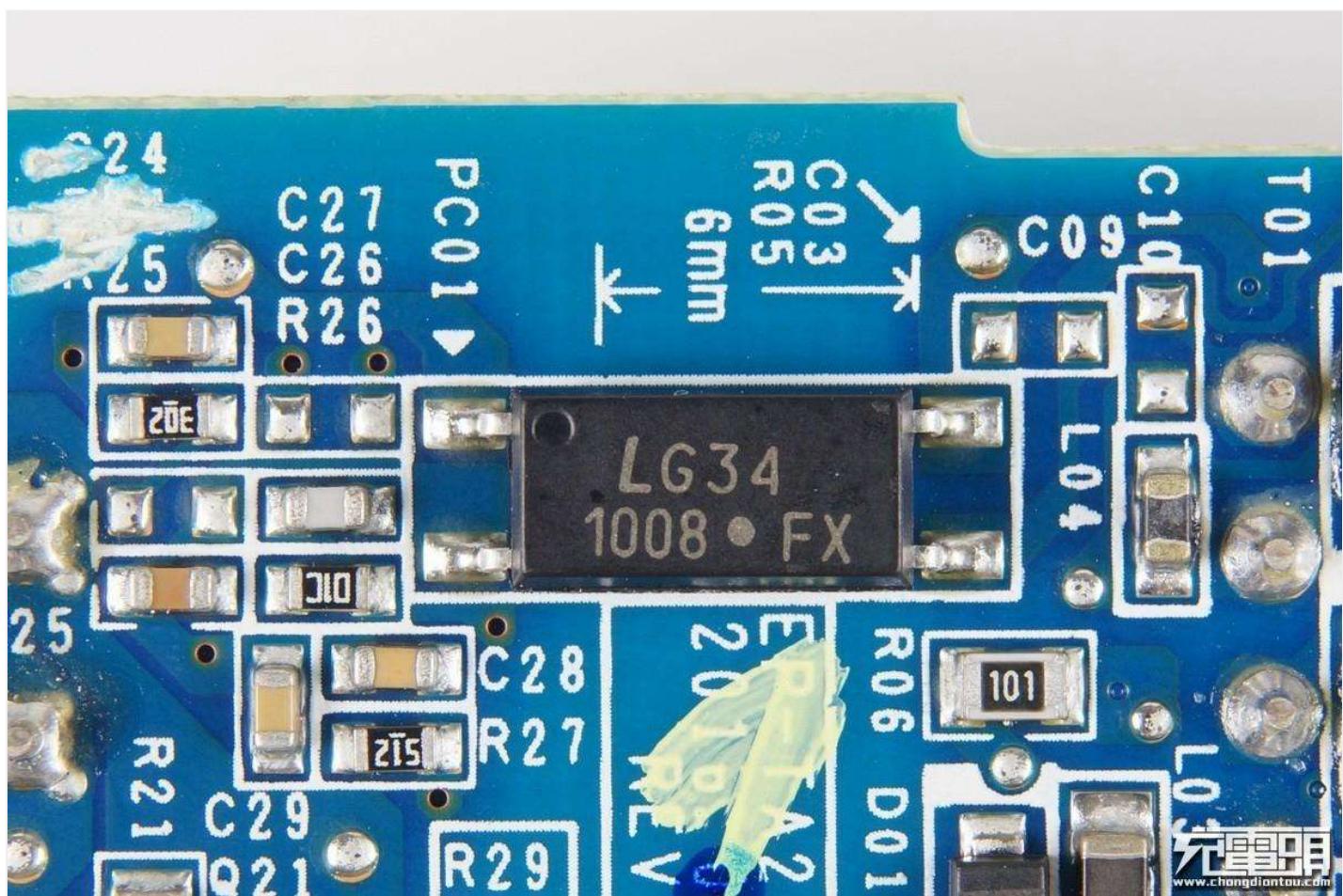
Type / Ordering Code	Package	Marking	Related Links
IPN70R1K5CE	PG-SOT223	70S1K5	see Appendix A

Final Data Sheet

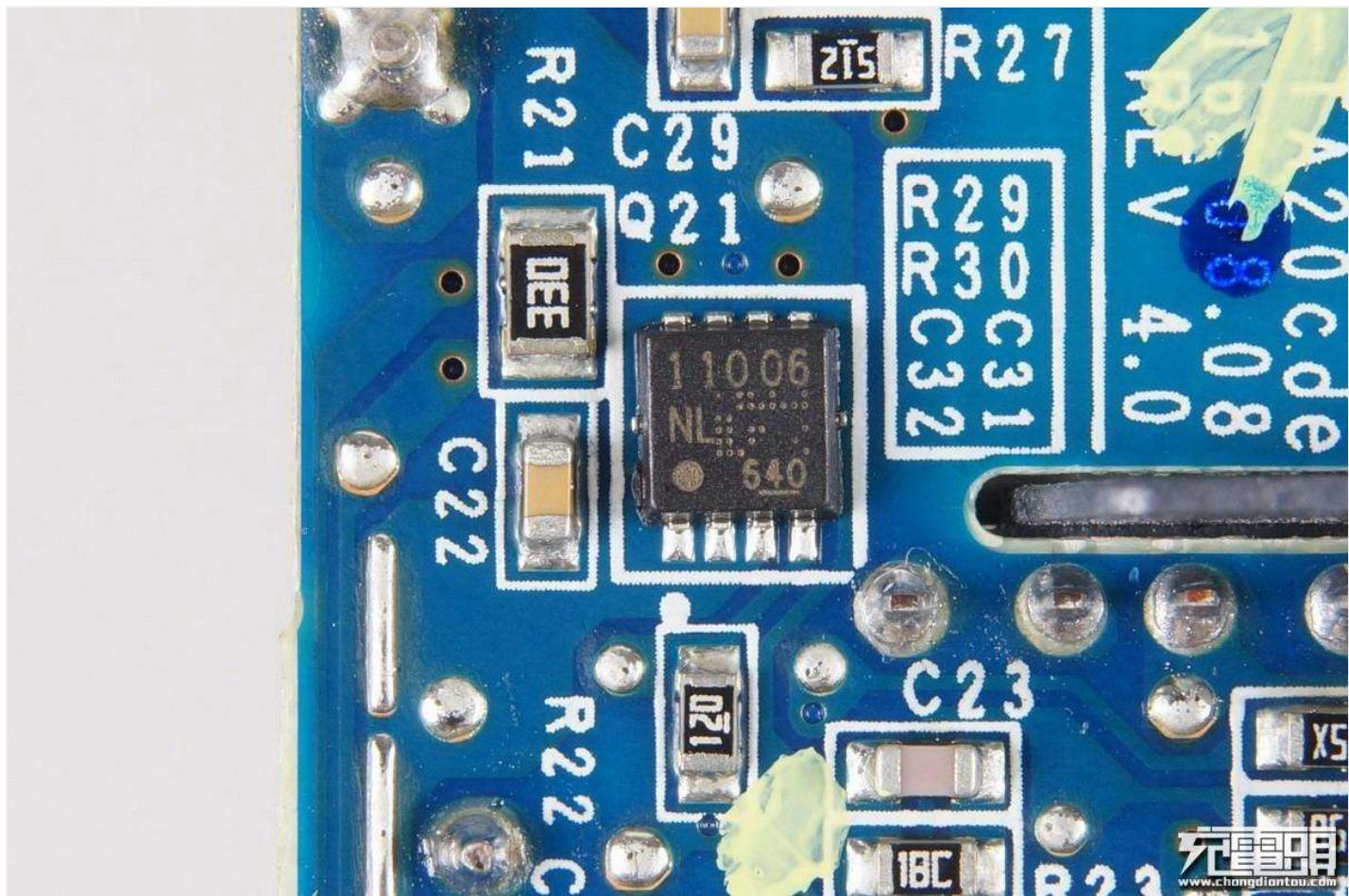
1



Optocoupler.



TOSHIBA Toshiba TPN11006NL Synchronous rectifier.



TOSHIBA TPN11006NL details.

TOSHIBA**TPN11006PL**

MOSFETs Silicon N-channel MOS (U-MOSIX-H)

TPN11006PL

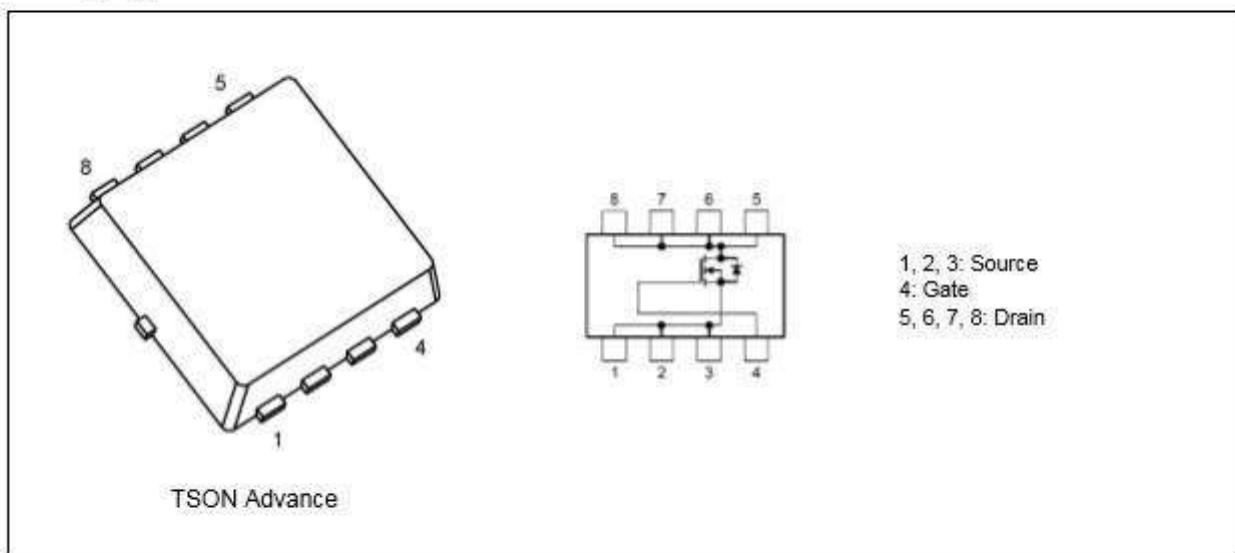
1. Applications

- High-Efficiency DC-DC Converters
- Switching Voltage Regulators
- Motor Drivers

2. Features

- (1) High-speed switching
- (2) Small gate charge: $Q_{SW} = 5.8 \text{ nC}$ (typ.)
- (3) Small output charge: $Q_{OSS} = 14.4 \text{ nC}$ (typ.)
- (4) Low drain-source on-resistance: $R_{DS(ON)} = 8.8 \text{ m}\Omega$ (typ.) ($V_{GS} = 10 \text{ V}$)
- (5) Low leakage current: $I_{DSS} = 10 \mu\text{A}$ (max) ($V_{DS} = 60 \text{ V}$)
- (6) Enhancement mode: $V_{th} = 1.5$ to 2.5 V ($V_{DS} = 10 \text{ V}$, $I_D = 0.2 \text{ mA}$)

3. Packaging and Internal Circuit



Start of commercial production
2016-07

©2016 Toshiba Corporation

1



Second, Samsung Note7 original charger dismantling

The disassembled Samsung Note7 charger is a national version, with a white casing, and the national standard pin magnet does not suck.



充电头网
www.chongdiantou.com

The front of the charger is marked with "SAMSUNG" logo and "Adaptive Fast Charging". Also supports QC2.0 fast charge but it is also not marked. On the back, the product model is EP-TA200. The input is suitable for the global wide-grid voltage. The two-output is 9V/1.67A and 5V/2A respectively. The production date is July 2016.



The USB-A output is at the top.



Unpacking the top, it is difficult to achieve non-destructive disassembly due to the use of very strong ultrasonic welding.



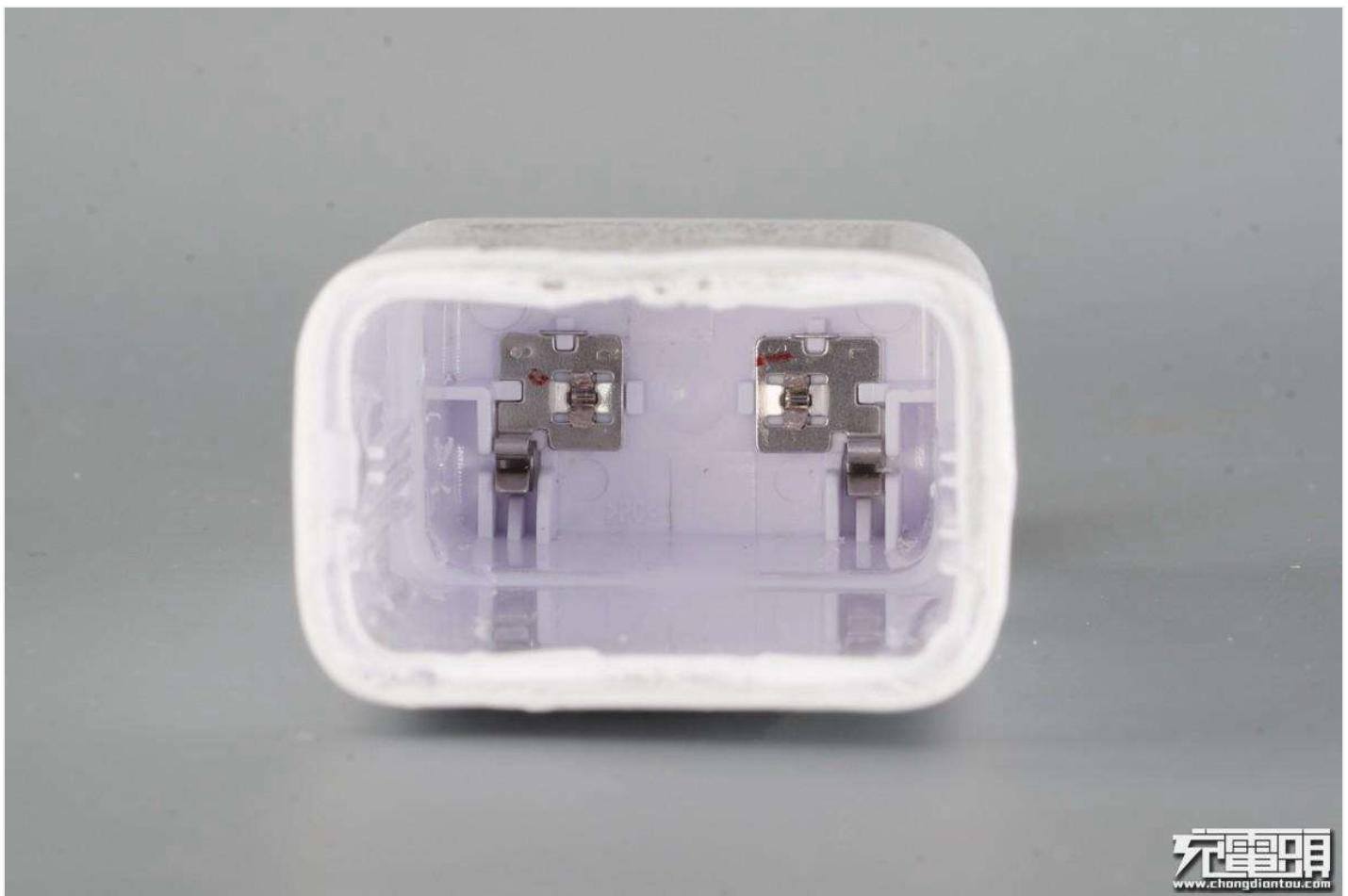
充电头网
www.chongdiantou.com

The cover has an EP-TA200 model and the internal circuit board is secured with a card slot.



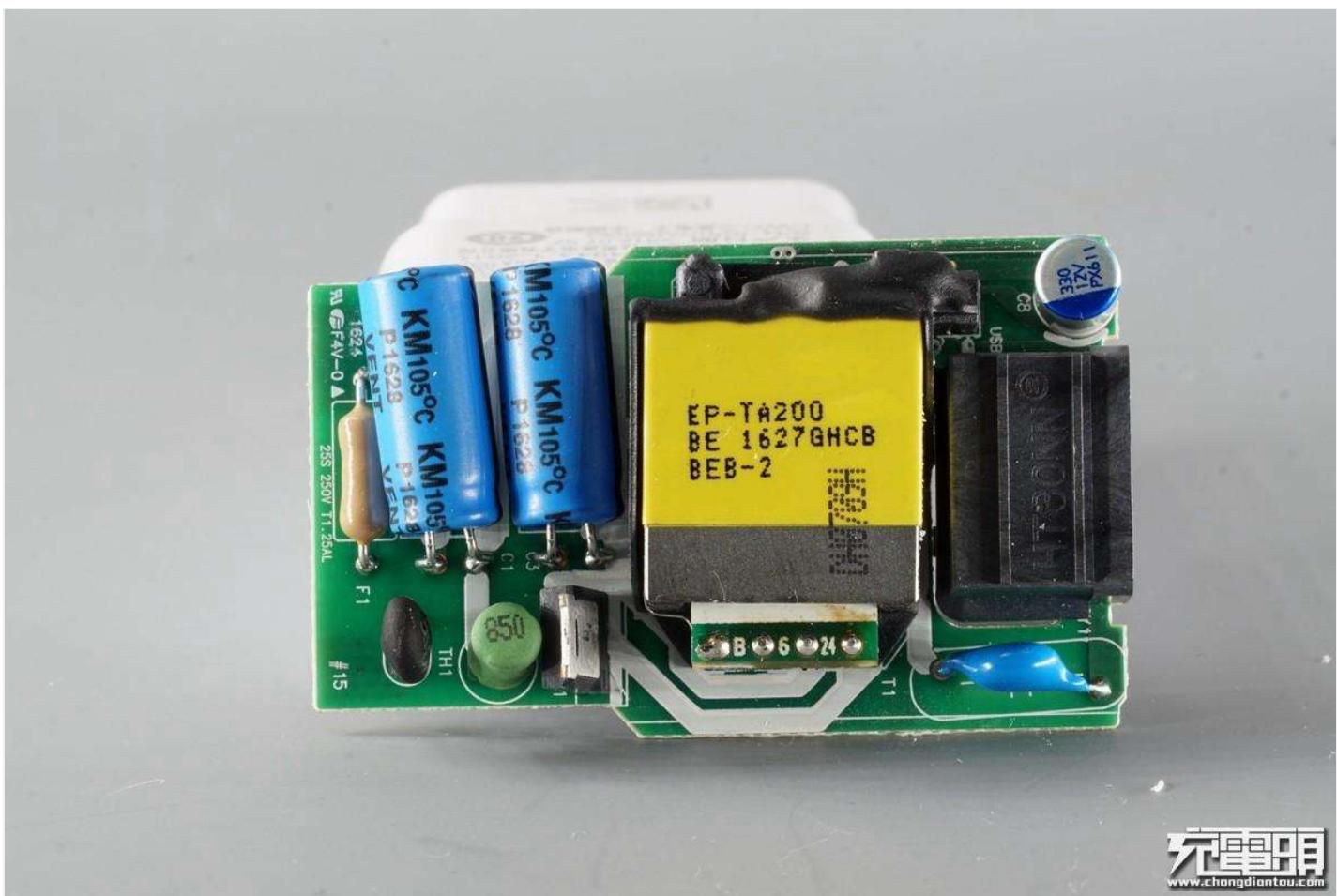
充电頭
www.chongdiantou.com

The pins are fixed and the PCB board is pushed along the card slot to just get stuck.

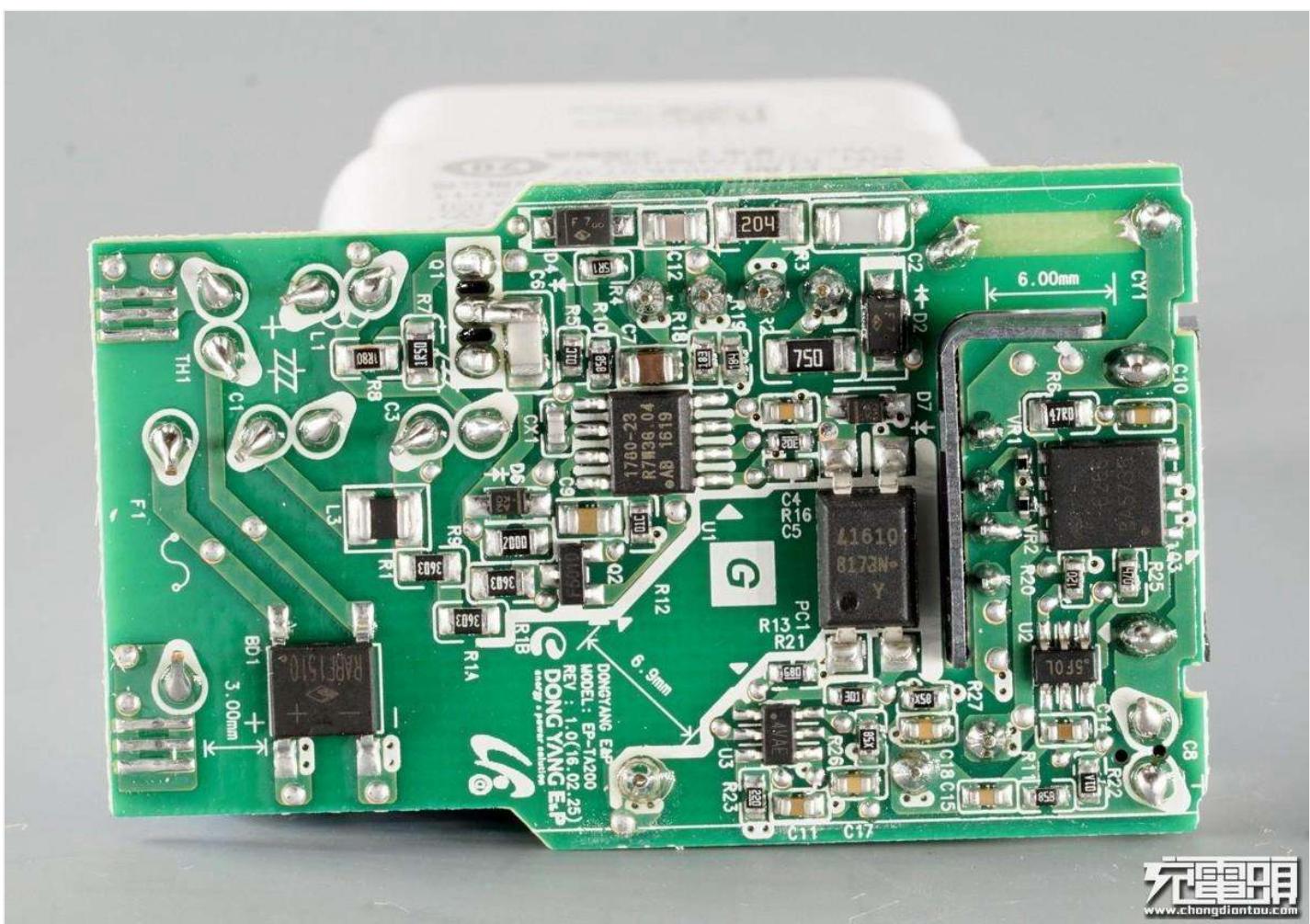


充电头
www.chongdiantou.com

An overview of the top components of the PCB, which shows thermistors, fuses, switches and transformers, and the power supply layout is very compact.



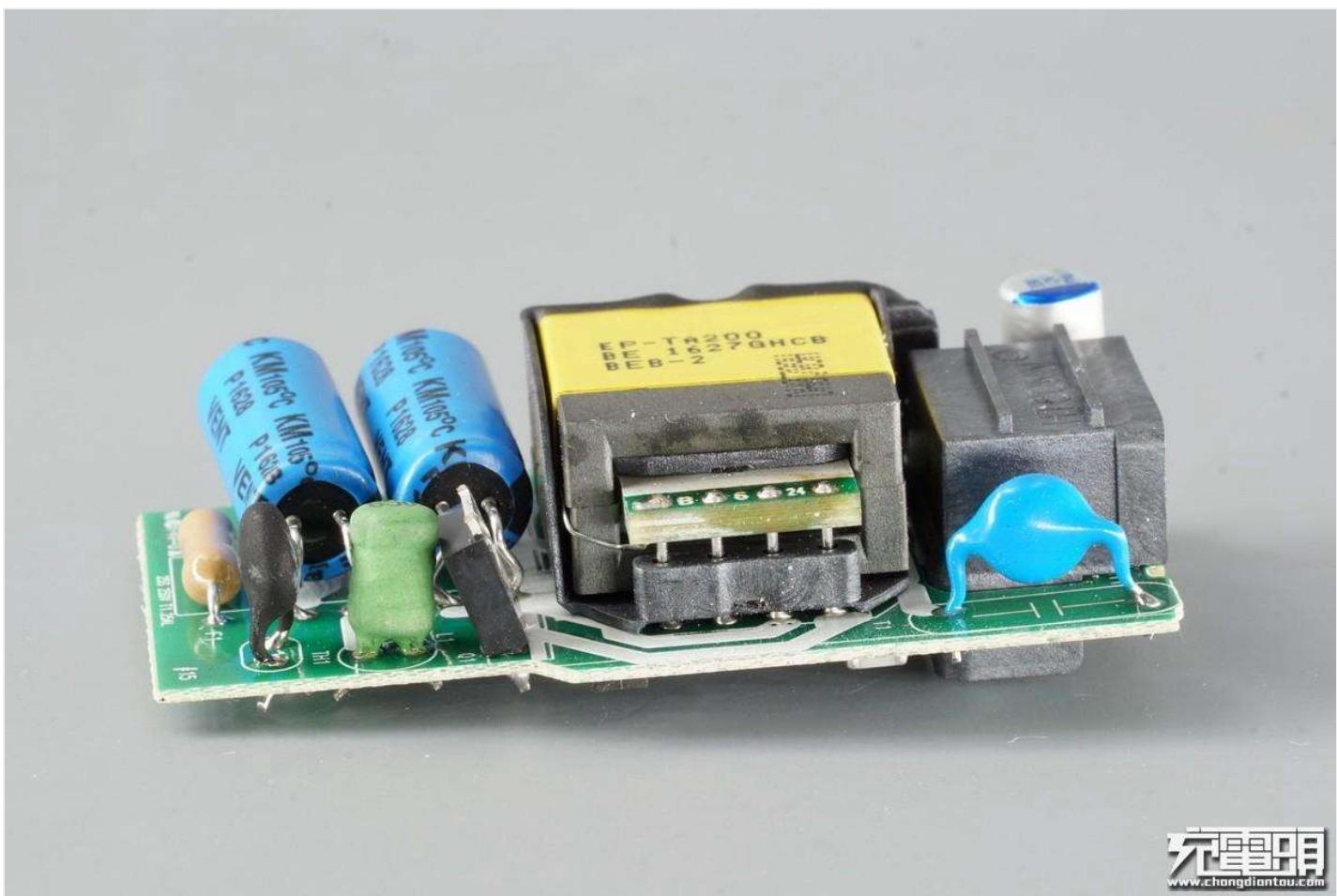
A list of PCB chip components. The spacing between the primary and secondary is required to be 6.9 mm.



Two electrolytic capacitor filters are used at the input of the charger, and the brand is VENT. The output uses a solid-state electrical filter, 12V 330 μ F.

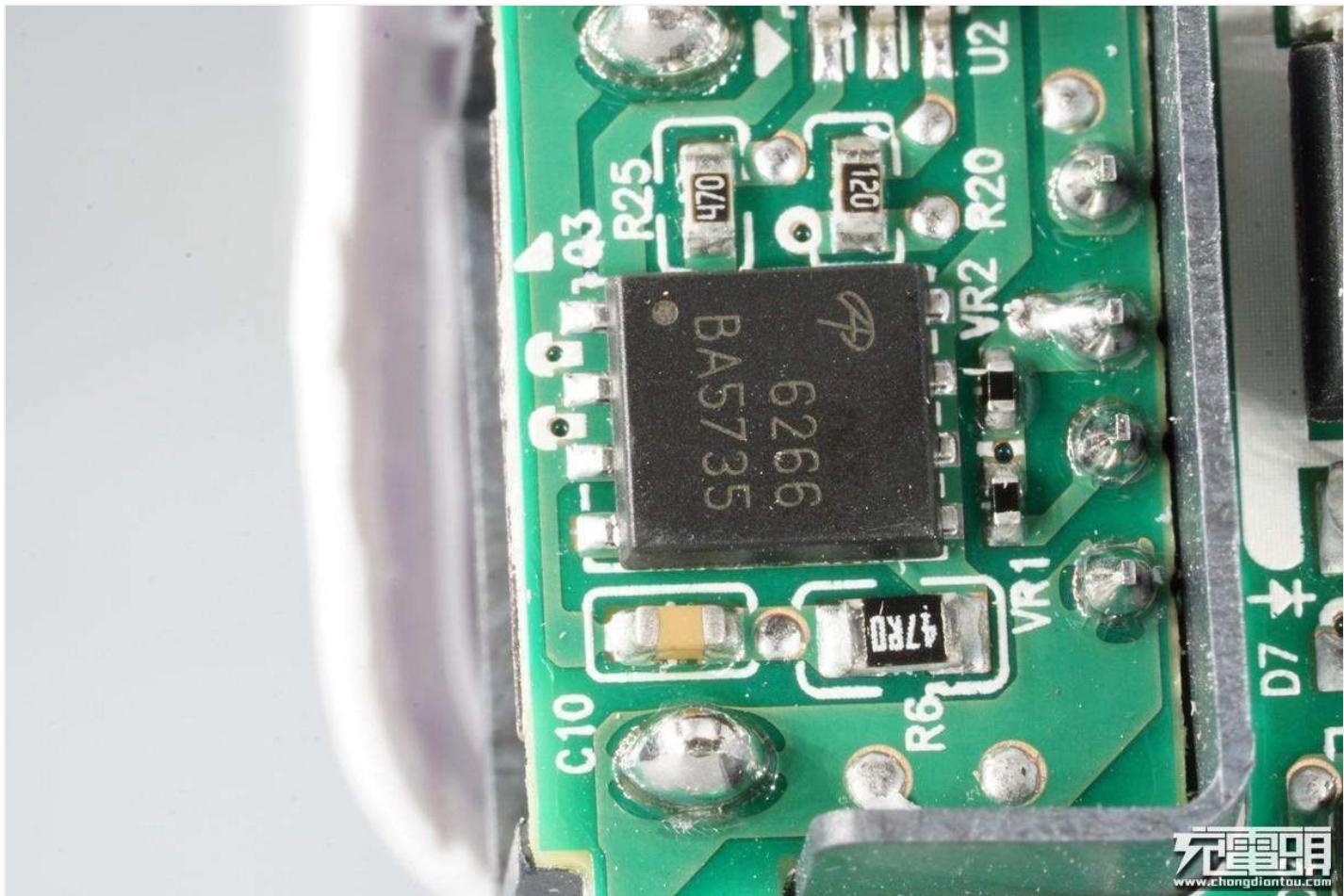


The blue Y capacitor acts as an anti-jamming, and the USB busbar is designed with a full package.

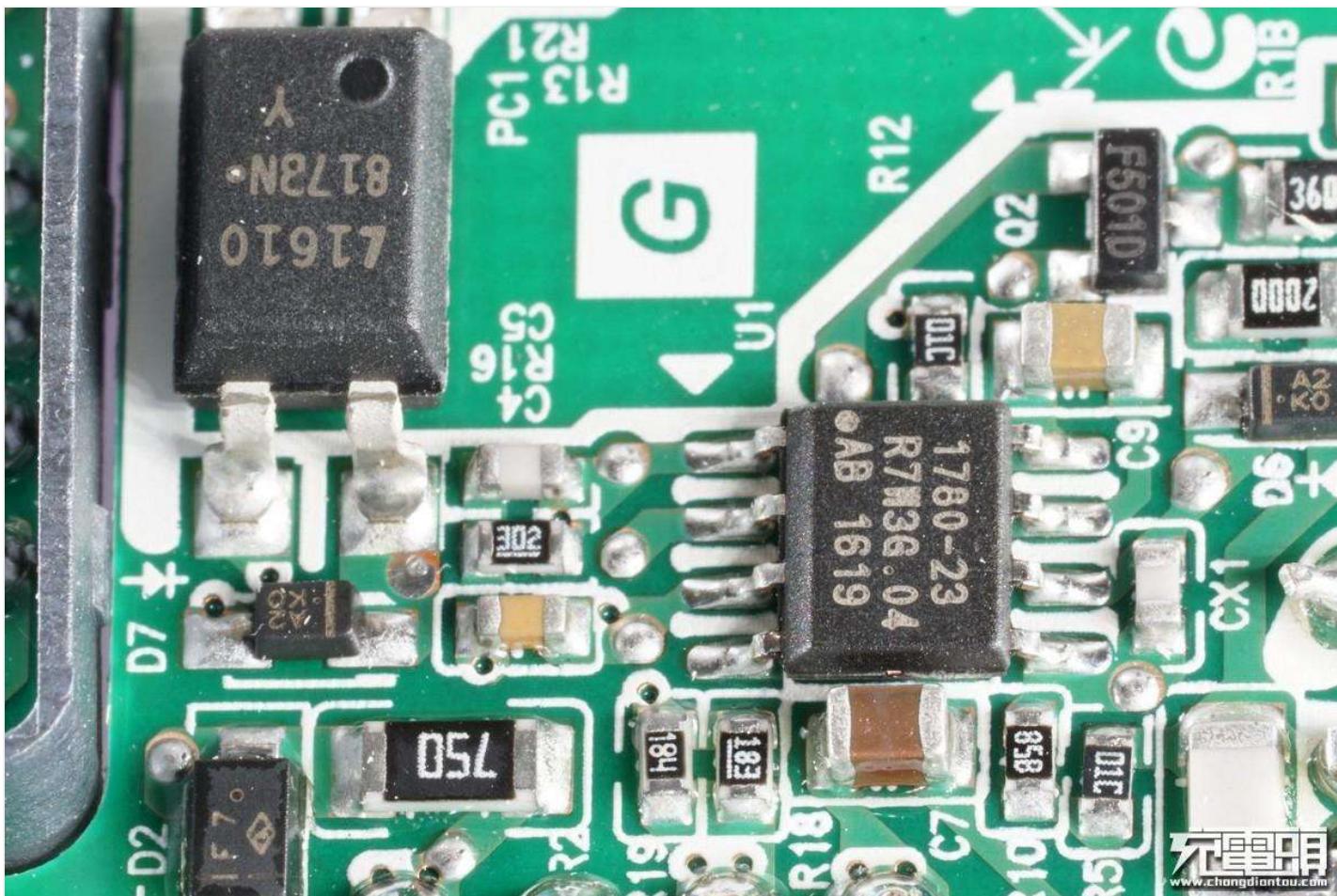


充电頭
www.chongdiantou.com

AON6266 Synchronous rectification MOS between AD/DC converters.



Above is the 817 optocoupler, which is responsible for identifying the communication between the chip and the primary PWM chip; the Dialog iW1780 PWM controller is used to output different voltages.



充电頭
www.chongdiantou.com

Dialog iW1780 details.



iW1780

Rapid Charge™ AC/DC Digital Quasi-Resonant PWM Controller

1 Description

The iW1780 is a high performance AC/DC power supply controller for rapid charge that uses digital control technology to build peak-current mode PWM flyback power supplies. The device operates in quasi-resonant mode to provide high efficiency and a number of key built-in protection features. The iW1780 can achieve tight multi-level constant voltage and multi-level constant current regulation without a traditional secondary-feedback circuit. It also eliminates the need for loop compensation components while maintaining stability over all operating conditions.



The iW1780 is optimized to work with Dialog's secondary-side controller for Qualcomm® Quick Charge™ 2.0 (QC2.0) interface and secondary-primary communication, iW626, to achieve fast and smooth voltage transition upon request by portable devices (PD). When paired with the iW626, the iW1780 eliminates the discrete decoders on the primary side, minimizes the external component count and simplifies system designs. The iW626 can communicate with the iW1780 through one optocoupler for all the necessary rapid charge information including output voltage requests, output current limits, output voltage undershoot and output over-voltage.

Dialog's innovative proprietary technology ensures that power supplies designed with the iW1780 and iW626 can provide 5V/9V/12V output voltage configuration, with user-selected various output current limit combinations.

2 Features

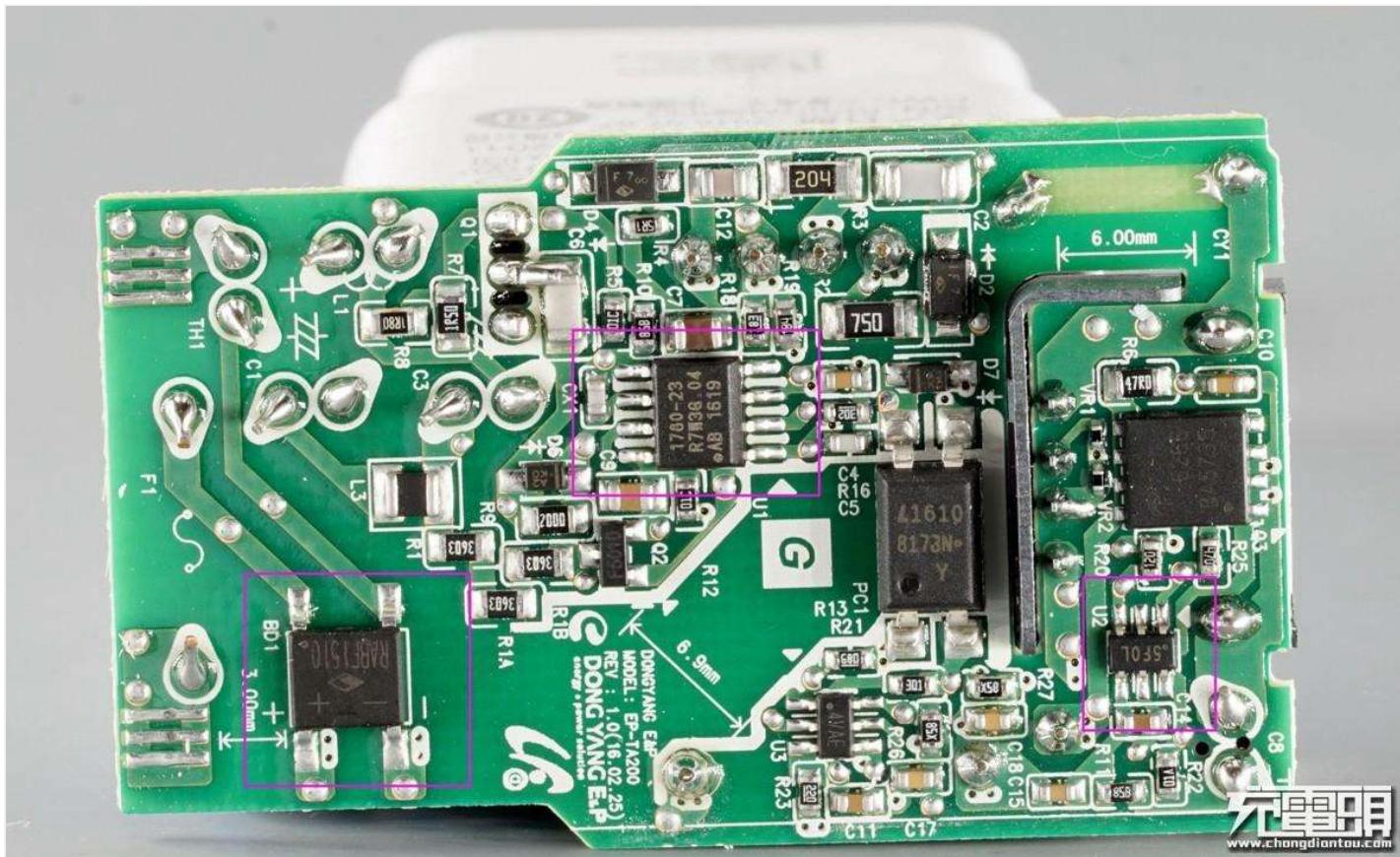
- Supports rapid charge technologies such as Qualcomm® Quick Charge™ 2.0 (QC2.0) technology to provide 5V/9V/12V with user-selected various output current limit combinations
- Proprietary secondary-to-primary digital communication and built-in decoder eliminate discrete decoder and significantly simplify system design
- Single optocoupler for all the rapid charge information: output voltage request, output current limit, output voltage undershoot, and over-voltage protection
- Tight multi-level constant-voltage and multi-level constant-current regulation with primary-side feedback and control
- Ultra-low no-load power consumption with lowest system cost (< 10mW at 230V_{AC} with typical 5V2A setting using Schottky diode rectifier; < 20mW at 230V_{AC} with typical 5V2A setting using synchronous rectifier)
- Fast dynamic load response (DLR) with secondary-side load transient detection
- Proprietary optimized line/load adaptive maximum constant frequency PWM switching with quasi-resonant operation achieves best size, efficiency, and common mode noise
- Multi-mode PWM/PFM control improves efficiency at various load conditions
- User-configurable 5-level cable drop compensation independent of output voltage
- EZ-EMI® design enhances manufacturability
- Built-in single-point fault protections against output short-circuit including soft short and half short, output over-voltage, and output over-current
- SmartDefender™ smart hiccup technology helps address issues of soft shorts in cables and connectors by effectively reducing the average output power at fault conditions without latch
- User-configurable external shutdown control
- No audible noise over entire operating range

3 Applications

- Rapid-charging AC/DC adapters for smart phones, tablets and other portable devices (5V-12V, 1A-3A).



The USB base has a spacer for high and low voltage isolation. In the lower right corner is the Dialog iW627 identification IC, which supports Samsung AFC and Qualcomm QC2.0 dual fast charging protocol.



iW627 details.

iW627



AC/DC Secondary-Side Controller for Adaptive Fast Charging and Quick Charge 2.0

1.0 Features

- Supports Samsung Adaptive Fast Charging (AFC) for output voltage and current negotiation
- Supports Qualcomm® Quick Charge™ 2.0 (QC2.0) technology High Voltage Dedicated Charging Port (HVDCP) Class A with voltage configuration of 5V, 9V, and 12V
- Automatic distinguish of AFC and QC2.0 protocols
- Proprietary secondary-to-primary digital communication eliminates discrete decoders in the primary side and simplifies system designs
- Proprietary D- impedance detection addresses soft short issues in the output cables and connectors and provides protection against damages
- Single opto-coupler transmits all information for rapid charge: output voltage requests, output current limits, output voltage undershoot, over-voltage protection, and fault and reset signals
- Backward compatible with USB Battery Charging Specification Revision 1.2 (USB BC1.2) Dedicated Charging Port (DCP)
- Backward compatible with iW626
- Programmable active fast discharge from 9V/12V to 5V at portable device (PD) unplug or from a high voltage level to a lower level upon request with built-in switch or external switch
- Normally OFF state with <120 μ A cut-off current during 5V steady-state operation to achieve <10mW power consumption at no load
- Wide operating voltage range from 3V to 25V
- Built-in opto-coupler LED driver with minimum driving current of 2mA
- 6-lead SOT-23 package



2.0 Description

The iW627 is an AC/DC secondary-side controller for AFC and QC2.0 USB interface and secondary-to-primary communication. This device allows rapid charging of AFC or QC2.0-enabled PDs, and it automatically distinguishes between the AFC and QC2.0 protocols. The iW627 resides on the secondary side of an AC/DC power supply and allows the adapter to be configured for multi-level output such as 5V, 9V, or 12V depending on the voltage requested by PD. It can be used in Dialog's primary-side controlled AC/DC systems to achieve fast voltage transition, low no-load power consumption, and fast dynamic load response. The iW627 implements Dialog's proprietary secondary-to-primary digital communication technique. When paired with Dialog's primary-side controller iW1780, the iW627 eliminates the discrete decoders in the primary side and simplifies system designs. The iW627 uses one opto-coupler to transmit all necessary information for rapid charge, including output voltage requests, output current limits, output voltage undershoot, output over-voltage, and fault and reset signals. It also has a built-in opto-coupler LED driver to minimize the bill of material cost. In addition, iW627 implements a proprietary D- impedance detection to address soft short issues in the output cables and connectors that can be caused by such things as a poor or loose connection between the cable connector and the socket, contamination in the USB connector, or a worn-out cable, and provides protection against the damages.

Dialog's innovative proprietary technology ensures that power supplies designed with the iW627 and iW1780 can provide multi-level output voltage configuration, with user-selected various output current limit combinations. Furthermore, the chipset can achieve <10mW no-load power consumption at 5V2A output setting and fast dynamic load response in typical AC/DC rapid charge adapter designs.

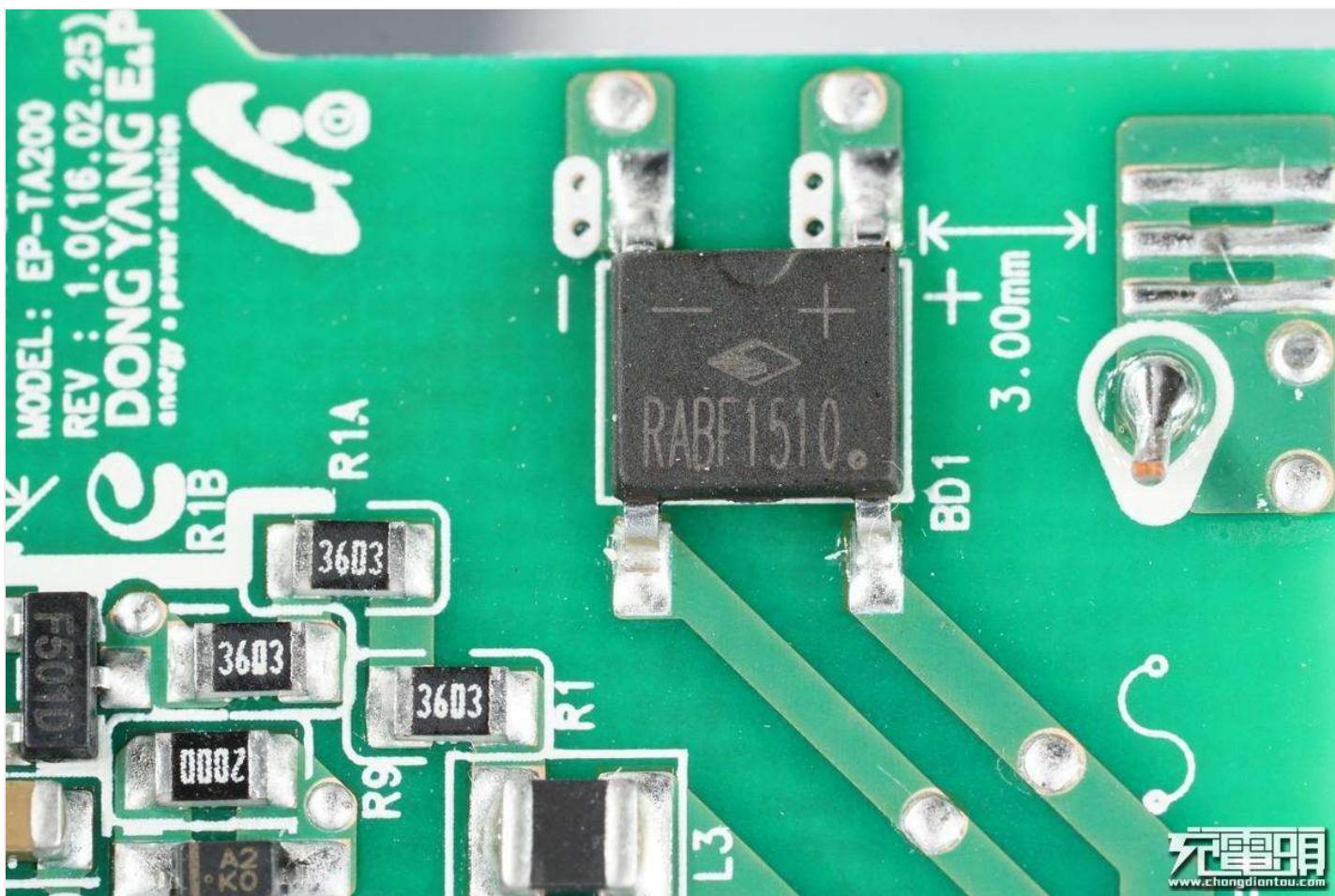
Qualcomm® Quick Charge™ 2.0 is a product of Qualcomm Technologies, Inc.

3.0 Applications

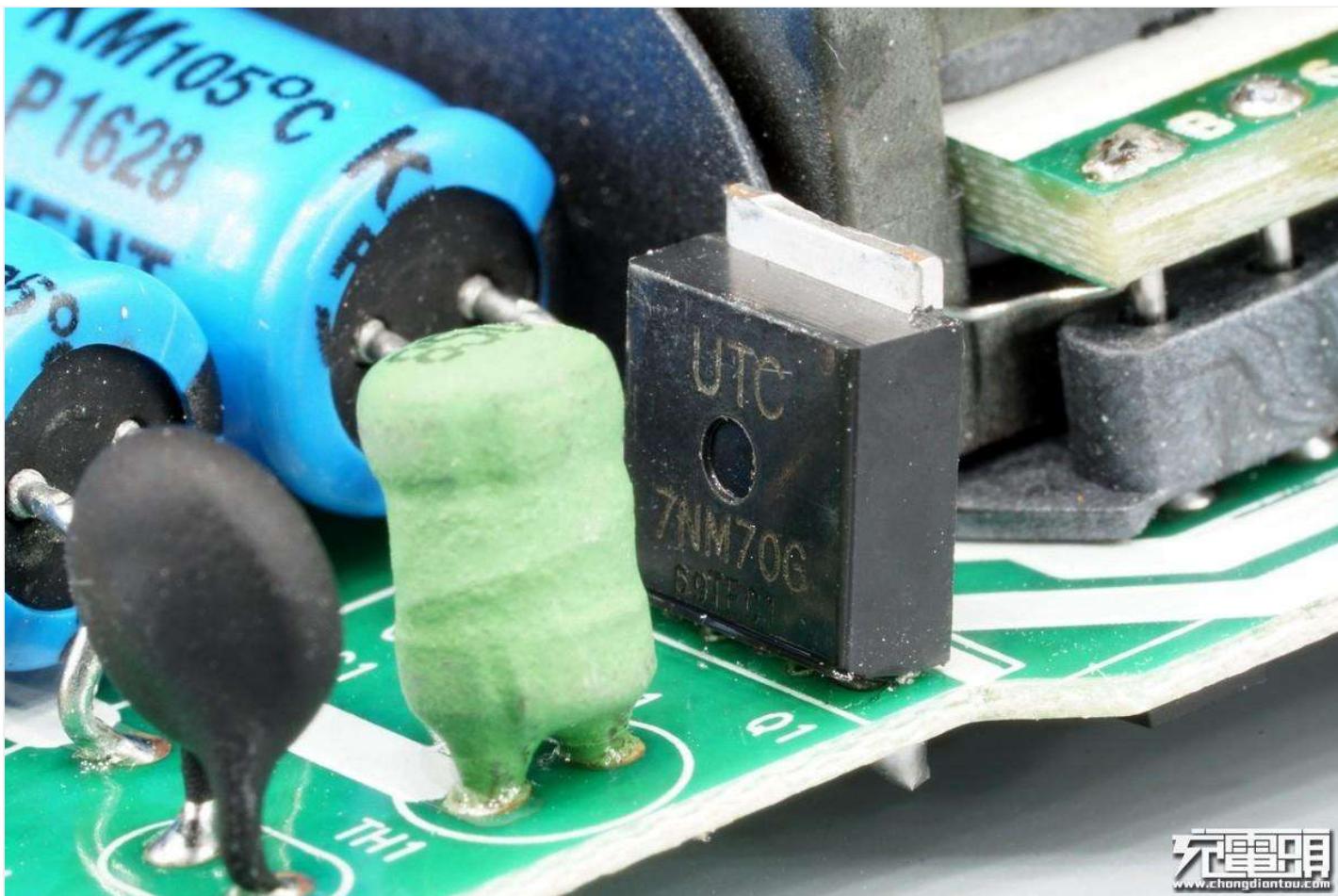
- Rapid-charging AC/DC adapters for smart phones, tablets, and other portable devices



The rectifier bridge silk screen number is RABF1510, and the specification is 1.5A, 1KV withstand voltage.



UTC is Taiwan's Youshun High Voltage MOS with a specification of 7NM70G.



充电头网
www.chongdiantou.com

三星EP-TA200与三星EP-TA20JBE拆解对比

www.chongdiantou.com

型号	三星EP-TA200	三星EP-TA20JBE
支持协议	USB DCP、AFC、QC2.0	USB DCP、AFC、QC2.0
输出规格	5V/2A或9V/1.67A	5V/2A或9V/1.67A
电源主控	Dialog iW1780	SOLUM SLM7717A
协议芯片	Dialog iW627	SOLUM SLM7620
MOS管	同步整流: AON6266 初级开关管: 台湾友顺, 7NM70G	同步整流: 东芝TPN11006NL 初级开关管: 英飞凌 IPN70R1K5CF
电容	初级滤波: VENT (规格未知) 次级滤波: 12V 330μF	初级滤波: 华威400V 12μF + 400V 15μF 次级滤波: 12V 330μF

Summary of the charging head network disassembly

Although these two chargers support Samsung's own AFC fast charging and Qualcomm QC2.0 charging protocol, due to production batches, production sites, etc.,

these two chargers use two models, the internal materials of the charger also have a big difference. National Bank Samsung Note7 original charger EP-TA200 uses a full set of Dialog program, and the international version of Samsung Note 8 original charger uses a SOLUM custom solution. In general, the internal materials and workmanship of these two rushing machines are in place and difficult to distinguish.

[Copyright Complaint](#) [Spam Report](#)



Powered By **VDO.AI**

Zabbix disk performance monitoring



The banner features the Infineon logo on the left, followed by the text "Power up, size down!" in large white letters. Below it, smaller text reads "GaN discretes | NEW SMD packages | 70 - 340 mΩ". On the right side, there is a small PDF icon with the word "PDF" next to it.

Intelligent Recommendation



Compatible with Apple Samsung Wireless Fast Charge: ZMI Purple Meter Wireless Fast Charger starts presale

2018 showed a wave of wireless charging, there are many wireless chargers on the market, and the wireless charging function on the low-end machine is just around the corner. However, the cheaper wirel...



Rome launched 29W Type-C PD charger AC29 adapter Apple Samsung Huawei

Recently, the famous domestic charging accessories brand - ROMOSS Roman introduced a support Type-c Output USB PD Power adapter - AC29, output power is 29W, can supply power for Apple MacBook notebook at fu...



The easiest way to open the Samsung note8 Samsung galaxy susb debug mode

Whenever we use Android phone to connect to PC, if the phone does not enable usb debugging mode, PC can't successfully detect our mobile phone, and some APP can't use it normally. At this time, we nee...



Javase Ep.

The method of the function Knowledge point: | Combined with the above analysis, the conclusion of value transmission and reference transfer can be drawn: (1) Basic data type passes, the modification o...



One plus mobile phone 6 original charger iteration, charging performance to maintain DA SH flash charge original style

On the morning of May 17, 2018, the full-speed flagship one plus mobile phone 6 was officially released in Beijing. On the afternoon of May 21st, the POP-UP offline event was held in Shenzhen Vientian...



More Recommendation



ROTATER Super Charger 5000mAh Disassembly, Model R2050

and the capacit...

Since the last evaluation of the compass supercharged R3100, I found that ROTATER has two mobile power supplies with similar appearance and no built-in compass. The capacity is 5000mAh



Disassembly Report: PHILIPS Philips Wireless Charger (DLP9022)

for many years, is w...

The relationship between Philips and wireless charging technology is deep. For example, the charging technology used in Philips electric toothbrushes, which has been well received

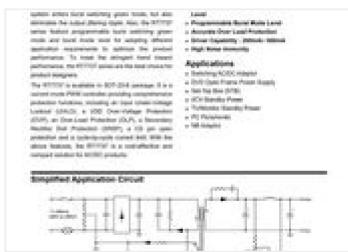


Disassembly Report: Omars 15W Wireless Charger (WC15BKC)

supports normal 5W, Appl...

At present, the general wireless charging in the market generally supports 10W. The one we want to bring to you today is a 15W wireless charger: Omars 15W wireless charger. It

Momiss MOMAX UM10CN 18W PD Charger Disassembly



MOMI MOMAX recently introduced a USB-C charger that supports 18W PD fast charge. From this power, it can be seen that it is definitely directed at the iPhone X/8/8P. This product just meets the power....



IQOS electronic cigarette standard with charger disassembly

As smokers, perhaps many people have already heard of an electronic cigarette called IQOS. IQOS attracts more and more users with its unique smoking and experience. However, due to

its high price and ...

Cloud Storage Might Be Cheaper Than You Think

Cloud Storage | Search Ads

Trade the World with TMGM

Giao Dịch Ngay

Investing in leveraged products involves significant risks. VFSC

Related Posts

- Streamlined replacement: Samsung fifth-generation vertical wireless charger (EP-N5100) disassembly evaluation
- Samsung GalaxyS9 original charger test: does not support QC2.0 fast charge
- Disassembly Report: Samsung Dual Wireless Charging Base (EP-N6100)

- Disassembly Report: Samsung Wireless Charging Base (EP-P3100)
- ep
- Refurbished version of Samsung Note7 release news exposure: original price 30% off, June sale
- Millet, purple rice wireless charger disassembly comparison
- Nut R1 original QC4+ charger CD106 dismantling
- Hammer is worth buying: Nut R1 original QC4+ charger out of the box
- Support Huawei, Apple, Samsung wireless fast charge, Huawei wireless charger (CP60) out of the box evaluation

Slow, Old Laptop? Check What A New One Costs

Affordable Laptops | Search Ads Sponsored Links by Teahub

[Search Now](#)

Popular Posts

- JavaScript---function
- MongoDB
- [Nginx] reverse proxy and load balancing
- Android P Modify System Default Time
- Android gradle compilation acceleration
- Linux study notes 05 configure FTP server in Ubuntu 20.04
- Two modeling methods of data warehouse: dimensional modeling and paradigm modeling
- 119. Pascal's Triangle II Python

- IOS Development OC Getting Started 5 (Classification)
- HQL simple search query statement usage Query

**[Hình] Người phụ nữ mua 43 kệ gỗ
kê hàng cũ và những người hàng...**

Clever-Tricks.com

**Các bí kíp tài ba để lấy được chìa
khóa gãy và bị kẹt ra khỏi ổ khóa ...**

YakudaChihinto

Sponsored Links by Taboola

Recommended Posts

- Record mysql-installer-community-8.0.25.0.msi installation steps
- mapshaper usage record
- Qt-based OpenCV Face Recognition (4)
- About the js of the old driver
- 7.10 Structure of Structure Structure of Sunflower Columns
- Url manually to achieve weight

- [Flink] Flink cluster construction
- Difficulty ranking! (with sister artifact)
- linux
- Oracle VM VirtualBox - Connect to a local computer

This US\$39 Device Stops Annoying Dog Barking in Seconds!

Top Gadget Insider

Sponsored Links by Techode

Related Tags

ep

Javase

Copyright **DMCA** 2018-2023 - All Rights Reserved -
www.programmersought.com **User Notice**