

TZT Original Products, With Technical Support!!
Other pirated products they do not support the technology. Please be careful!!!

INTRODUCTION

SWITCH CHARGING

Current up to 5A, efficiency up to 95%
 Support 4.2/4.35/4.4/4.5v battery type
 Support for JEITA specification
 Support temperature loop control

SYNCHRONOUS BOOST

Output power up to 22.5w, efficiency up to 95%
 We Are The Distributor Of TZT Brand In Hong Kong, China.
 Automatic load detection / light load detection
 Support wireless charging mode
 Support small current mode

OUTPUT FAST CHARGING PROTOCOL

Support PPS / pd3.0 / pd2.0
 Support qc4+ / qc4 / qc3.0 / qc2.0
 Support AFC
 Support FCP
 Support FCP
 Support SCP
 Support pe2.0 / pe1.1
 Support SFCP
 Support for vooc

INPUT FAST CHARGING PROTOCOL

Support pd3.0 / pd2.0
 Support AFC
 Support FCP
 Support SCP
 Support pe1.1

TYPE-C INTERFACE

Built in USB type-C interface logic
 support Try.SRC function

BC1.2 MODULE

Support bc1.2 DCP mode
 Support apple / Samsung mode

LIGHTNING DECRYPTION

Built in lightning decryption function

BUILT IN 12BIT ADC FOR POWER METERING AND DISPLAY

Built in coulometer for accurate electric quantity

PROTECTION MECHANISM

Input Overvoltage Protection
 Output over current / short circuit protection
 Charging timeout / overvoltage protection
 Temperature protection

RECOMMENDED PARAMETERS

Parameters	Syool	MIN	Typical	MAX	UNIT
Input Voltage	VBUS/VB	4.5		13.5	V
Battery Voltage	BAT	2.8		4.5	V
Working Temperature		-20		+60	° C

The charging process is divided into the following three processes

Trickle mode, constant current mode and constant voltage mode.

When the battery voltage is lower than 3V, the charging module is in **trickle mode** and the charging current is 300mA;
 When the battery voltage is greater than 3V, the charging module will enter the **constant current mode**. At this time, it will charge at full speed according to the set target current, and the power can be about 21W.

When the battery voltage rises to the charging target voltage (such as 4.2V), the charging module enters the **constant voltage mode**, and the current gradually decreases while the battery terminal voltage remains unchanged;
 When the charging current decreases to the cut-off current, the charging ends. After full charge, if the battery voltage drops to 0.1V lower than the target voltage, it will automatically restart charging.

(Note: if the voltage exceeds 4.2V, it is normal and the battery will not be damaged. When the voltage is 4.2V, the light is still flashing, which means it is not fully charged. Full charge depends not only on the charging voltage.)

There are five USB ports on the motherboard,

which are Type-A1 + Type-A2 + Micro-B + Type-C + Lightning,

Type-A1 and Type-A2 support QC3.0/QC2.0/AFC/FCP/SCP/PE2.0/PE1.1/SFCP/VOOC fast charging output;
 Type-C supports PPS/PD3.0/PD2.0/QC4+/QC3.0/QC2.0/AFC/FCP/SCP/PE2.0/PE1.1/SFCP fast charging output,
 Support PD3.0/PD2.0/AFC/FCP/SCP/PE1.1 fast charging input;
 Micro-b supports QC2.0/AFC/FCP/SCP/PE1.1 fast charging input;
 Lightning supports PD fast charging and 5v2.4a slow charging.

When the input matches the fast charging, the default input is 9V, and the input power can reach 21W.

Support filling and discharging at the same time. It supports fast charging input and output in single port operation and 5V input and output in multi port operation.

Support simultaneous external discharge of Type-A1 / Type-A2 / Type-C ports.

Integrated PPS/PD3.0/PD2.0 fast charging protocol, support input and output bidirectional fast charging.PPS output supports 5-5.9V@3A, 5-11V@2A, PD3.0/PD2.0 output support 5V@3A, 9V@2A, 12V@1.5A。The input voltage supports 5V / 9V / 12V.

Integrated QC fast charging protocol, support QC4+/QC4/QC3.0/QC2.0, support class A. QC2.0 supports 5V / 9V / 12V output voltage. QC3.0 supports 5V-12V output voltage, 200mV / step.

Integrated AFC fast charging protocol, output support 5V / 9V / 12V. The input supports 5V / 9V voltage.

Integrated FCP fast charging protocol, output support 5V / 9V / 12V. The input supports 5V / 9V voltage.

Integrated SCP fast charging protocol, output support 5V@4.5A.Input support 5.5V@3A. Integrated with PE2.0 and PE1.1 fast charging protocol, PE2.0 supports 5V ~ 12V output voltage, 500mV / step. PE1.1 supports 5V / 7V / 9V / 12V output voltage. The input supports 5V / 9V voltage.

SFCP fast charging protocol is integrated to support 5V / 9V / 12V output voltage. Integrated vooc fast charging protocol, output support 5V@4A.

BATTERY POWER INDICATOR UNDER LED DISCHARGE STATE

Capacity	LED1	LED2	LED3	LED4
75~100%	On	On	On	On
50~75%	On	On	On	Off
25~50%	On	On	Off	Off
5~25%	On	Off	Off	Off
1~5%	Flicker	Off	Off	Off
0%	Off	Off	Off	Off

BATTERY POWER INDICATOR UNDER LED CHARGING STATE

Capacity	LED1	LED2	LED3	LED4
100%	On	On	On	On
75~99%	On	On	On	Flicker
50~75%	On	On	Flicker	Off
25~50%	On	Flicker	Off	Off
0~25%	Flicker	Off	Off	Off

The layout is reasonable. The high current part has been windowed and tinned to reduce the loss and improve the charging and discharging efficiency.

R8 sets the resistance for the battery capacity.

If the later replacement battery capacity difference is not big, you can leave it alone, if the difference is too big, please replace the resistance again

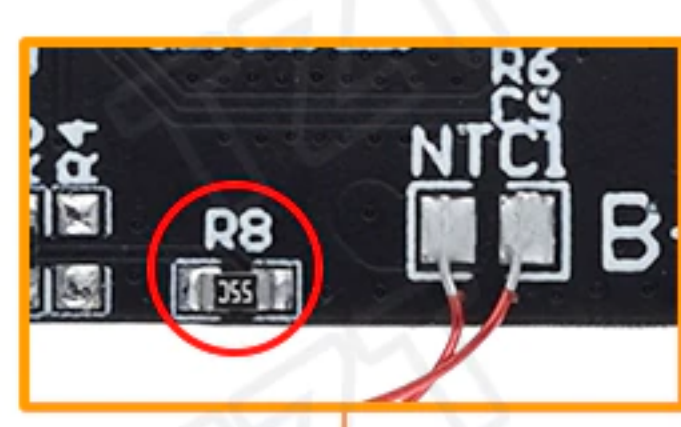
Calculation formula of resistance value:

$$\text{Resistance value } \Omega = (\text{Total battery capacity MAH} + 2000) * 5 / 3$$

For example, the resistance of 30000 MAH should be

$$(30000 + 2000) * 5 / 3 = 53333 \Omega$$

It can be replaced by a similar resistor, such as 53k.

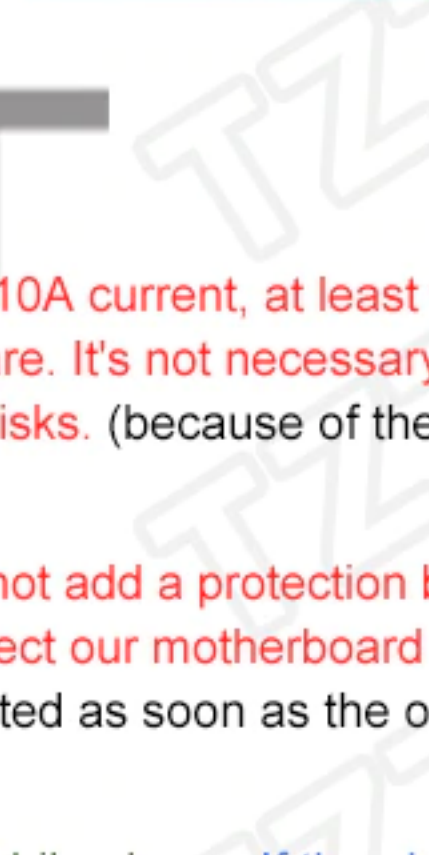


The five USB ports are protected by MOS tube, so there is no need to worry about the short circuit of USB port. High current wiring will be bare copper tin, reduce high current motherboard heating temperature. (The picture above is marked with a yellow box)

The main control chip, protection chip and boost inductor are hot. Please do not cover them with glue or thermal conductive silicone grease to affect the heat dissipation.



Power LED : D3 D4 D5 D6
LED1: Fast Charging Indicator



POINTS FOR ATTENTION

- 1: Motherboard external battery line needs to be able to pass 10A current, at least with more than 1 square copper wire, ordinary wire to use 1.5 square. It's not necessary to be too thick, but it can't be too thin, too thin will have security risks. (because of the high current at the battery end)
- 2: Motherboard comes with a protection chip, the battery can not add a protection board, if you have, please remove the protection board, directly connect our motherboard cell. (because the built-in current can't be too high, it will be protected as soon as the output power is high.)
- 3: Use crocodile clip motherboard test, please don't charge mobile phone. If the phone needs to be charged, it must be soldered (many buyers don't listen to it. Whenever there is a problem, they will tell us the motherboard is broken, how the motherboard can be charged quickly, how the motherboard can power off and restart, etc. Please operate according to the requirements, thank you for your cooperation)
- 4: The 4.2V 18650 / polymer / ternary lithium battery can be used as the battery. Large monomer and multiple 18650 can be used in parallel. Iron lithium battery, disposable dry battery, Ni MH battery, lead-acid battery and Ni Cd battery can not be used. Batteries cannot be connected in series. For the first time, there will be inaccurate power display. Please discharge the battery and then fill it up. For the first time, you can continue to charge the battery for more than 5 hours when the 4 lights are all on. There is no need to worry about it.
- 5: The motherboard must preset the battery capacity, so the approximate battery capacity must be noted or explained to the customer service. Otherwise, the preset battery capacity of the case is 30000MAH, and that of the single motherboard without the case is 20000MAH. Or replace the resistor by yourself later.
- 6: OPPO flash charging and Huawei super fast charging are supported. Different protocols have different power. Please understand clearly before shooting. Except that some mobile phones do not support fast charging, others do. (the reason why the mobile phone is not supported is that the mobile phone's own design is not open, and the third party can't use it. If you want to use it, you can only go to the official website of each mobile phone to buy it.)

KEY FUNCTION

Short press to activate the output (this method will delay the fast charging request of the later inserted device. It is recommended to insert electric equipment in standby mode, which will automatically start the output.)

If you double-click it, it will shut down by force

Long press will enter the small current charging function or flashlight function (the small current function can charge the watch Bluetooth and other small current devices. There will be water flow prompt on the four power lights. Long press again to exit, and it will not turn off within 2 hours. It's not that it's on, it's low power charging, low current mode ≠ low power charging)

Weight : 10.66g

