File MH60484
Project 4788160608

December 1, 2017

REPORT

on

Power Banks
(BBSZ)

Complementary Product Category

Information Technology Equipment
Including Electrical Business Equipment
(NWGQ, NWGQ7)

Battery Chargers, Wireless, Low Energy
(BBJL)

USC056

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DESCRIPTION

PRODUCT COVERED:

USL, CNL - Power Bank(s), Model(s): SP0328, CPP-4785, 32190, TITAN, T1039.

MODEL DIFFERENCE: Model SP0328, CPP-4785, 32190, TITAN and T1039 are identical to each other except for model designation.

ELECTRICAL RATING:

Input Port # 1 Rated Voltage, Vdc	5.0
Input Port # 1 Rated Current, A	1.8(Micro USB)
Input Port # 2 Rated Voltage, Vdc	5.0
Input Port # 2 Rated Current, A	2.0(Type-C)
Output Port # 1 Rated Voltage, Vdc	5.0
Output Port # 1 End-of-Discharge Voltage, Vdc	4.5
Output Port # 1 Rated Current, A	1.0
Output Port # 1 Rated Capacity, mAh	1650(Wreless)
Output Port # 2 Rated Voltage, Vdc	5.0
Output Port # 2 End-of-Discharge Voltage, Vdc	4.5
Output Port # 2 Rated Current, A	2.1
Output Port # 2 Rated Capacity, mAh	2300(USB)
Manufacturer’s Maximum Recommended Ambient, °C	0~45°C for Charging; 0~50°C for Discharging

Note: The products have been tested based upon their electrical ratings. No testing with a host product including a charger has been conducted.

CELL CHEMISTRY AND CONFIGURATION:

Pack Model	Cell Model	Cell Chemistry and Type#	Number of Cells	Configuration*: X-S/Y-P
SP0328, CPP-4785, 32190, TITAN, T1039	GPC606090P	Lithium ion polymer (soft pouch)	1	1-S/1-P
* - X = No. of cells in series; Y = Number of parallel strings. # - e.g. lithium ion cylindrical, lithium ion prismatic, lithium ion polymer (soft pouch), Ni-Cad prismatic, etc.				

INTERNAL BATTERY CHARGING PARAMETERS RECOMMENDED BY MANUFACTURER:

Pack Model	Standard Charging Current, A	Standard Charging Voltage, Vdc	Maximum Charging Current, A	Maximum Charging Voltage, Vdc
SP0328, CPP-4785, 32190, TITAN, T1039	2.0	4.2	2.0	4.2

GENERAL CONSTRUCTION:

See Section General for general details regarding construction.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVES'S USE):

Products designated USL have been investigated using requirements contained in the Issue 2 of UL 2056, Outline of Investigation for Safety of Power Banks, issue dated November 3, 2015.

Products designated USL have been investigated using requirements contained in the U.S. Standard for Safety of Information Technology Equipment-Safety-Part1: General Requirements, UL 60950-1, Second Edition, issue dated March 27, 2007, with revisions through and including October 14, 2014.

Products designated CNL have been investigated using requirements contained in the Canadian Standard for the Safety of Information Technology Equipment-Safety-Part1: General Requirements, Canadian Standards Association, CAN/CSA-C22.2 No. 60950-1-07, second Edition, issue dated March 27, 2007, with revisions through and including October 14, 2014.

Products indicated as USL have been investigated using requirements contained in the U.S. Standard for Standard for Induction Power Transmitters and Receivers for use with Low Energy Products, UL2738, First Edition, issue dated April 28, 2011, with revisions through and including October 1, 2013.

MARKINGS/INSTRUCTIONS:

All markings shall be legible and permanent such as ink stamped, etched, adhesive labels, etc. All adhesive labels shall be R/C (PGDQ2) component marking and labeling systems or printed on R/C (PGJI2) Component Printing Materials.

Nameplate Marking – The Listee Name, trade name, file number (MH60484), trademark or other descriptive marking, catalog or model number, electrical rating, date of manufacturer and UL Listing Mark, UL Listing Mark for Canada.

Electrical Rating Marking - The following information shall be provided:

a. Input rating in Vdc and A.
b. Output rating in Vdc and A.
c. Electrical capacity in Ah or mAh.

Date of Manufacturer Marking can be identified as following:

S/N: YYMMXXXXXX or YY-MM-XXXXXX
Where, YY for Year, MM for Month. For example, 1708000000 indicates the Power Bank was manufactured in August, 2017.

Factory Location Marking - See Section General for manufacturing location marking.

Instructions - Each power bank shall be provided with the following, or equivalent:

a. Instructions pertaining to the proper selection and replacement of its power supply or charger. See Ill.3.
b. Instructions pertaining to a risk of fire or injury to persons associated with the use of the product. See Ill.3.

A lithium ion battery pack shall be marked with the following or equivalent: “CAUTION: Risk of Fire and Burns”. Following wording or equivalent shall also be included in the instructions packaged with the battery pack: “CAUTION: Risk of Fire and Burns, don’t open, crush, disassemble and dispose of in fire, Don’t heat above 50°C or Incinerate. Follow Manufacturer’s Instructions.”

Power Bank, Model(s): SP0337. See Fig.1~Fig.6.

See Ill.1 for additional views of overall constructions.

1. Cell – See table below:

Battery Pack Model	Cell Manufacturer	Cell Model No.	Recognized Cells, Y or N*	recognized Cells	
				File Number	Issue Date
SP0328, CPP-4785, 32190, TITAN, T1039	SHENZHEN GRAND POWERSOURCE CO LTD	GPC606090P	Y	MH49375	2012-12-03
Note: See Cell Chemistry and Configuration Table at beginning of report for information on type of cells, number of cells and their configuration in the battery pack circuit.					

Cells are located within the product in a manner that would not result in blocking of vents in the event of cell venting. Cells are secured in their enclosure and prevented from movement that would cause damage to connections and short circuit of parts as described in Fig.3.

Connections to cell terminals are constructed as described in Fig.6.

2. Power Bank Enclosure/Case – See Table Below:

Pack Model No.	Overall Dimensions, L x W x H, mm	Minimum Thickness, mm	Enclosure Material Manufacturer/Grade	Enclosure Material Type	Enclosure Material Flame Rating at Minimum Thickness*
SP0328, CPP-4785, 32190, TITAN, T1039	Approximately 135.0 mm x 73.0 mm x 20.9 mm	0.85 (Plastic Frame)	SABIC (E45329, E121562 or E207780)	CX7240 (GG)	Rated V-0, 90°C ,Refer to Fig.1 and Ill.1 for detail
* - V-0, V-1, or compliant with UL 746C 20 mm Flame Test					

Plastic Frame and Aluminum Tube are fitted by snap-in design and Adhesive.

No openings designed in the enclosure except for the recessed Input/Output connector.

3. Battery Protective Circuitry – Consists of the following:

Battery Pack Model	Component Type	Component Location	Component Manufacturer	Component Part No.	Component Ratings
SP0328, CPP-4785, 32190, TITAN, T1039	IC (U1)	Battery PWB	Developer Microelectronics	DW01	--
	MOSFET (Q1, Q2, Q3)	Battery PWB	Developer Microelectronics	DP8205	--

4. Power Bank Charging/Discharging DC/DC Circuitry – Consists of the following:

Battery Pack Model	Component Type	Component Location	Component Manufacturer	Component Part No.	Component Ratings
SP0328, CPP-4785, 32190, TITAN, T1039	L1	PWB	Various	Various	1uH
	L2	PWB	Various	Various	6.3uH
	IC (U1)	PWB	INJOINIC	IP5306	--
	IC (U2)	PWB	Developer Microelectronics	DW01	--
	MOSFET (Q1,Q2)	PWB	Developer Microelectronics	DP8205	--

See the following illustrations for details of protective circuitry:

Battery Pack Model	TestRef. No.
SP0328, CPP-4785, 32190, TITAN, T1039	ILL.1

5. Input/ Output Connector – Constructed as noted below: R/C (ECBT2 or RTRT2), minimum 30 V or made of material with minimum flammability Class V-1.

Inadvertent shorting of connector prevented by the following:

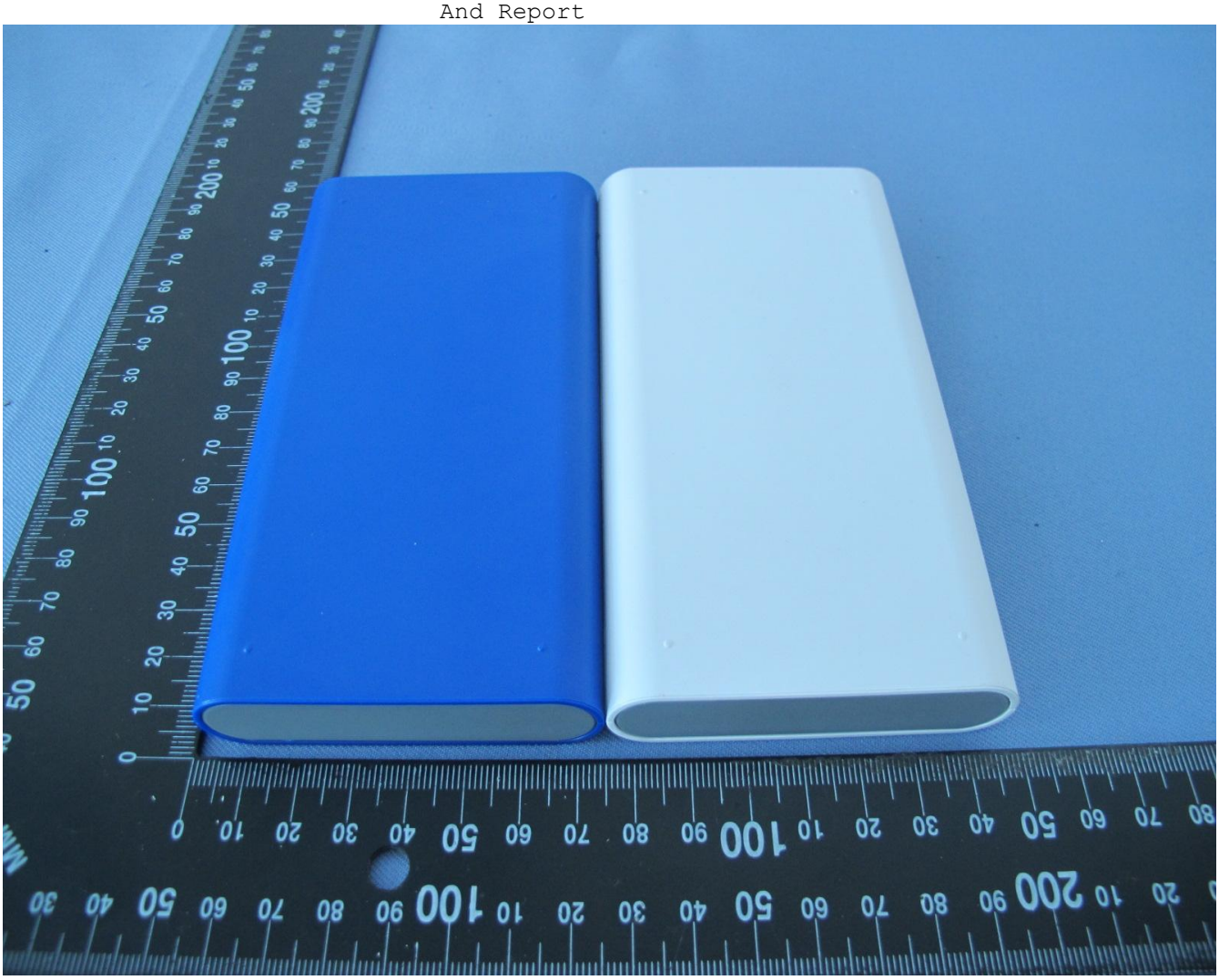
Description of Mechanism to Prevent Inadvertent Short Circuiting of Connector Terminals
Recessing construction (Construction as Fig.6)

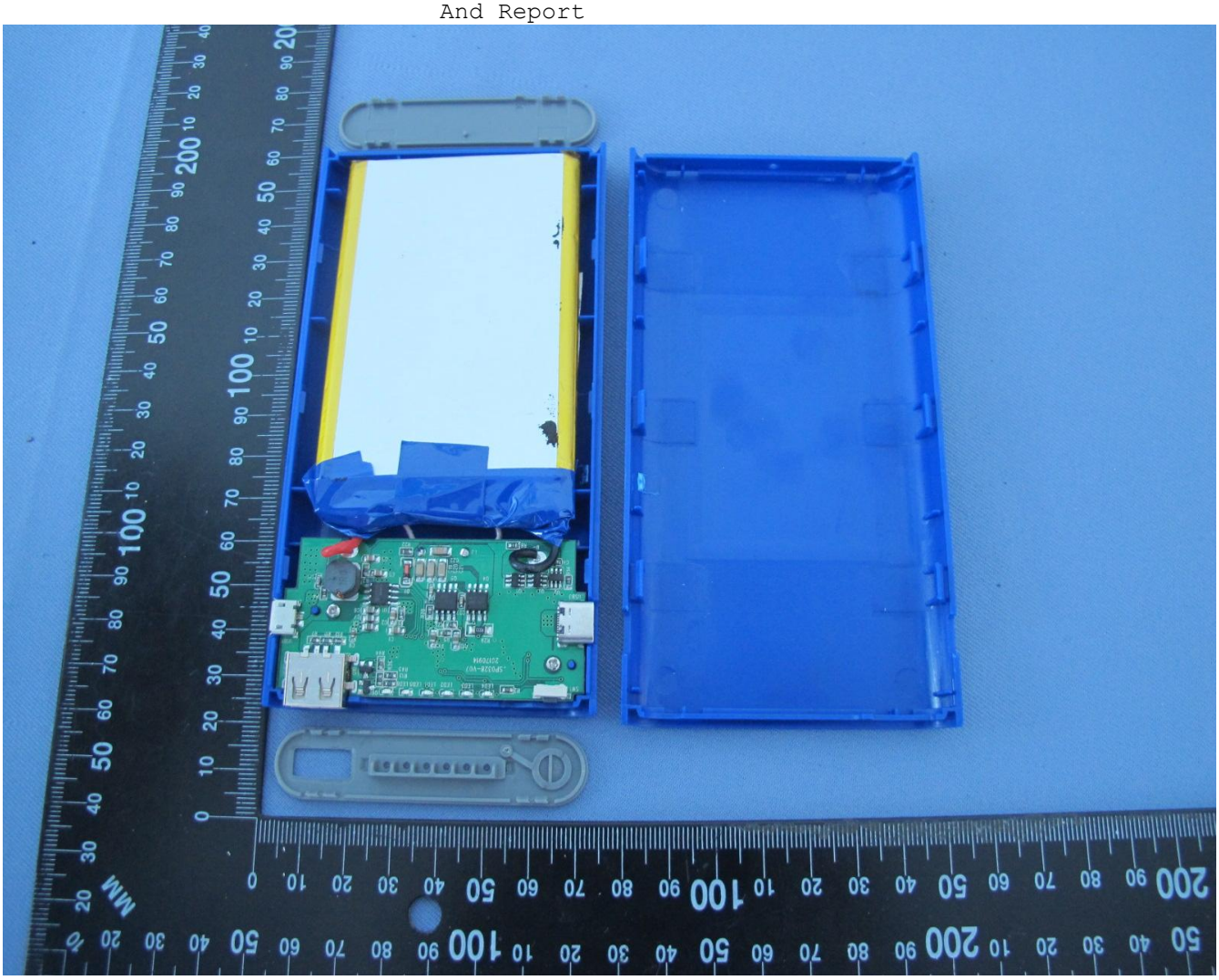
6. Insulation (Optional) – R/C (OANZ2), located between cell and other parts, minimum 100 degree C or designated “Flame Retardant”, except for less than or equal to 2cm^3.

7. Printed Wiring Board – R/C (ZPMV2 or ZPXK2), Min. V-1, Min. 130 degree C, provided for mounting of circuit, which secured in place by cover enclosure internal recessing construction.

8. Internal Lead Wires – R/C (AVLV2), Rated minimum 105 degree C, 30 V, minimum 24 AWG, FEP, PTFE, PVC, TFE, neoprene, or surface marked VW-1 or FT-1. Prevent from internal shorting. Constructed as described in Fig.6.

9. Polymeric Adhesive Systems - R/C (QOQW2), Type UT100B, by CEMEDINE CO LTD (E324741), rated -35 degree C to 80 degree C.

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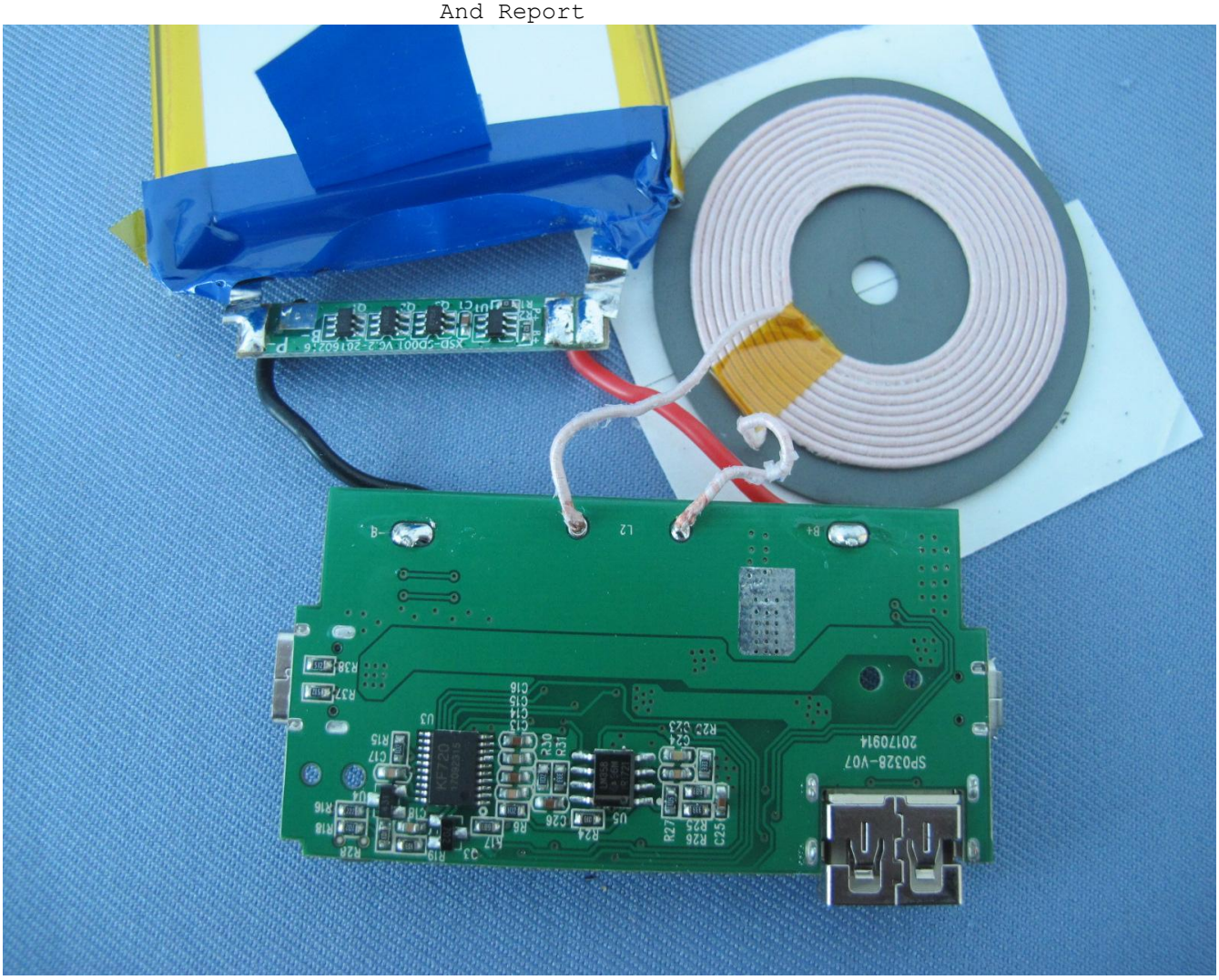
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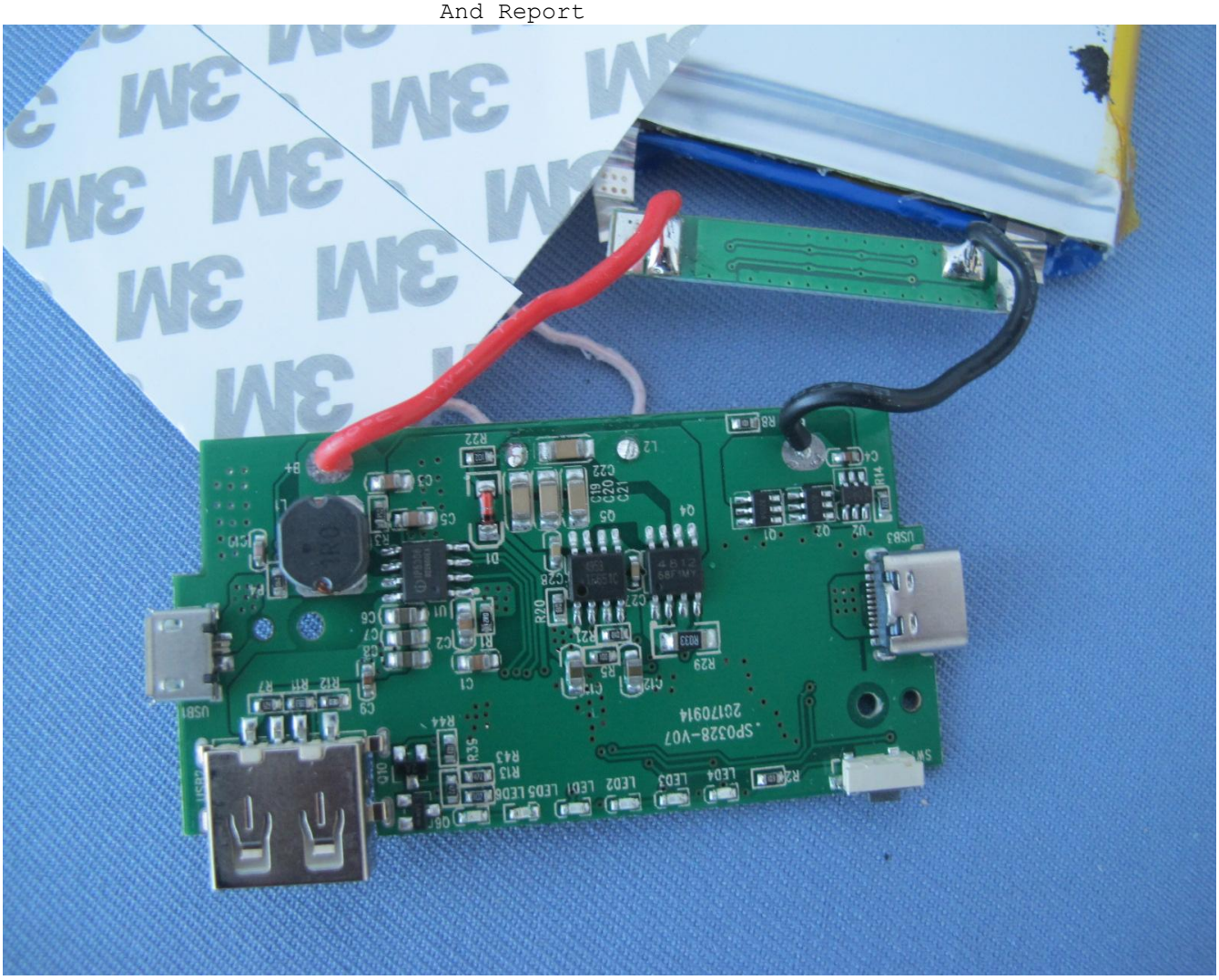
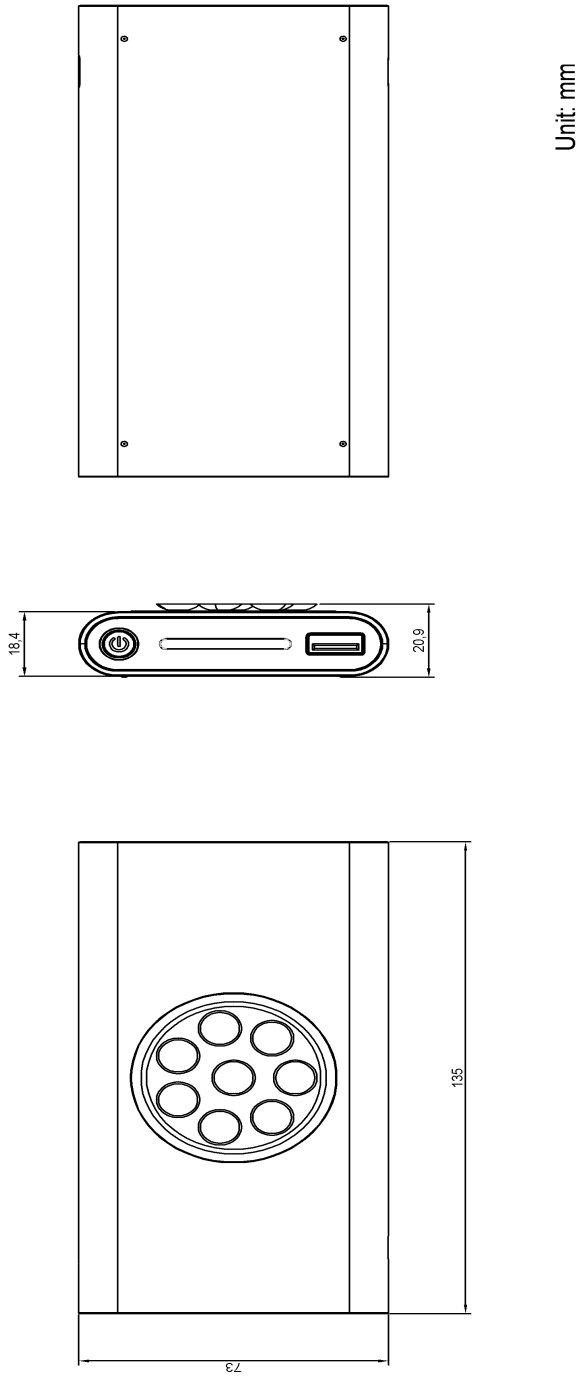
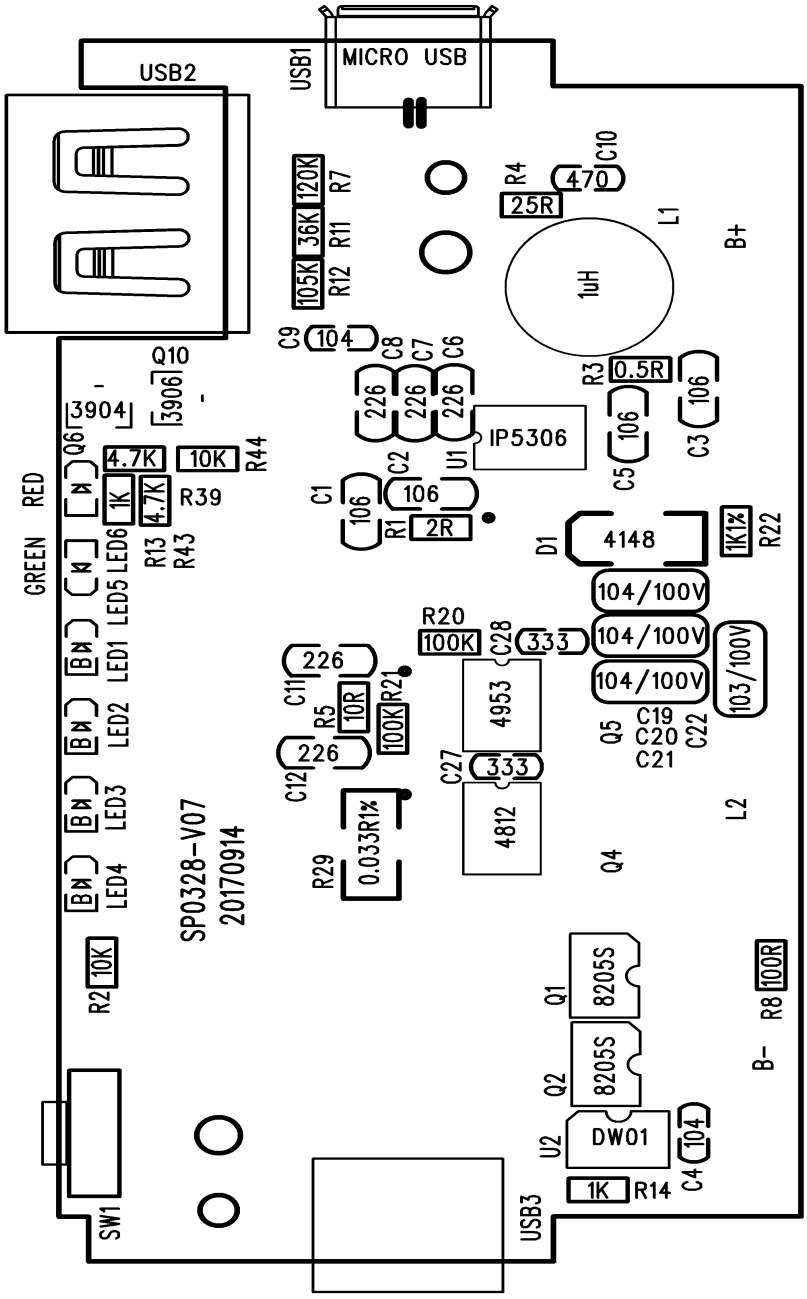

3M
SP0328-V07
20170914

Unit: mm




USB2
USB1
MICRO USB
R7 120K
R11 36K
R12 105K
R4 25R
C10 470
L1
1uH
B+
C9 104
C8 226
C7 226
C6 226
IP5306
U1
C2 106
C1 106
R1 2R
R3 0.5R
C5 106
C3 106
Q10
3906
3904
Q6
R44 10K
R39 4.7K
1K
LED6
LED5
LED1
LED2
LED3
LED4
RED
GREEN
R13
R43
D1 4148
R22 1K1%
104/100V
104/100V
104/100V
103/100V
C19
C20
C21
C22
R20 100K
C28 333
C11 226
R5 10R
R21 100K
C12 226
4953
Q5
C27 333
4812
Q4
L2
R29 0.033R1%
SP0328-V07
20170914
R2 10K
Q1 8205S
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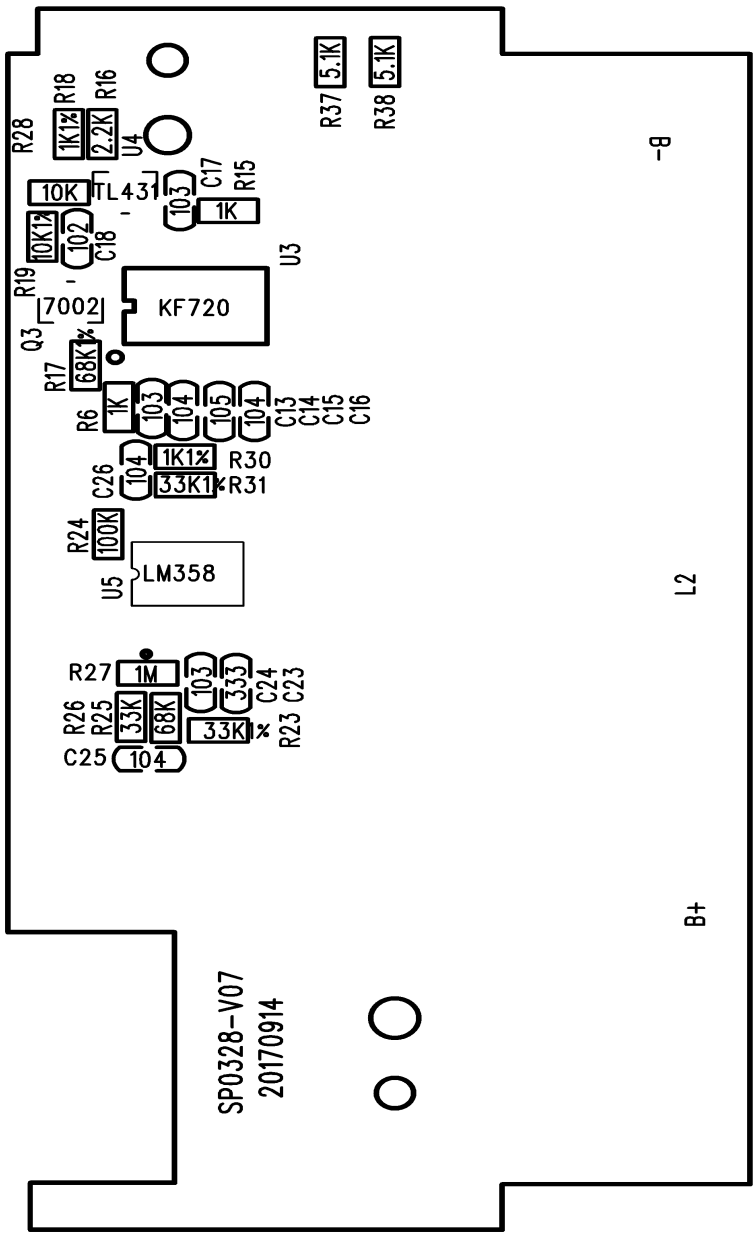
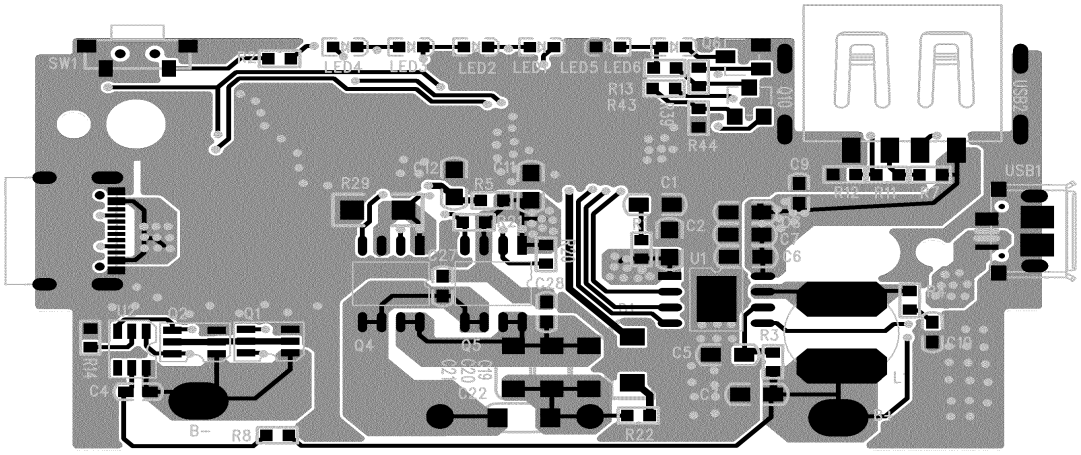
U2 DW01
C4 104
1K R14
R8 100R
B-
SW1
USB3


R28
R18
1K1%
R16
2.2K
U4
TL431
10K
C17
103
R15
1K
10K1%
102
C18
R19
U3
7002
KF720
Q3
R17
68K1%
R6
1K
103
104
105
104
C13
C14
C15
C16
1K1%
R30
C26
104
33K1%
R31
R24
100K
U5
LM358
R27
1M
103
333
C24
C23
R26
R25
33K
68K
33K1%
R23
C25
104
R37
5.1K
R38
5.1K
B-
L2
B+
SP0328-V07
20170914


SW1
LED1
LED2
LED3
LED4
LED5
LED6
R13
R43
R44
R29
C12
R5
C1
C2
C9
C6
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Q2
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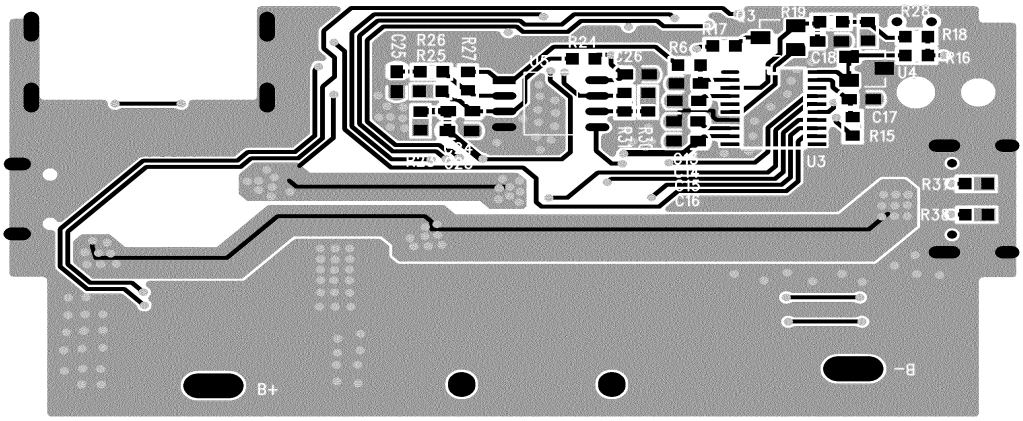
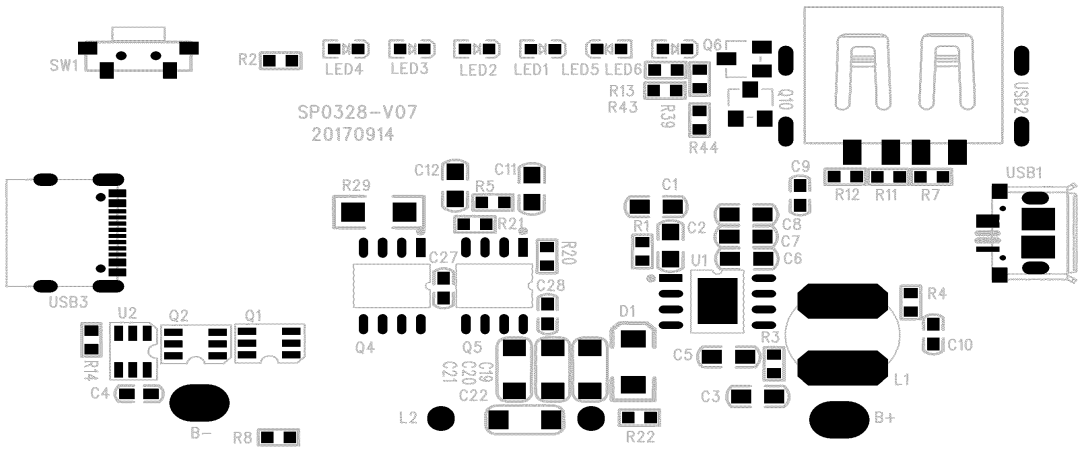
C5
C10
R3
L
B-
R8
R22
C92


R26
R25
R27
C25
R24
R26
R6
R17
R18
R16
C18
U4
C17
R15
R30
R31
U3
C16
R37
R38
B+
B-


SW1
R2
LED4
LED3
LED2
LED1
LED5
LED6
Q6
R13
R43
R39
Q10
R44
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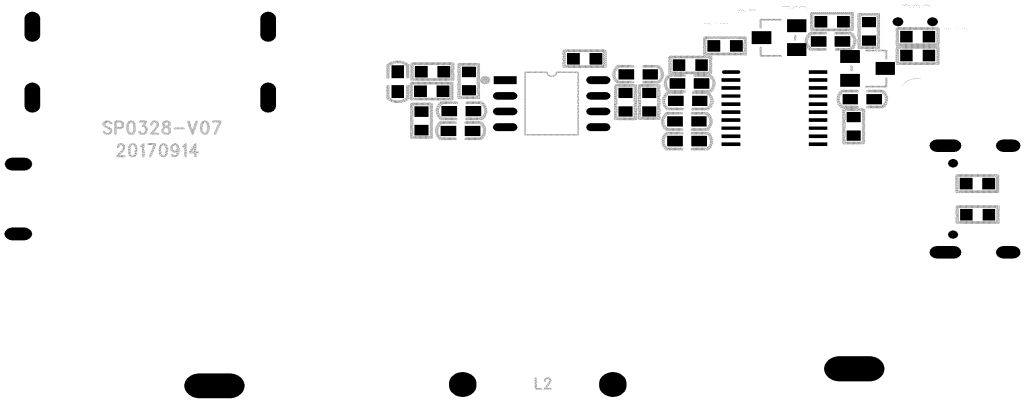
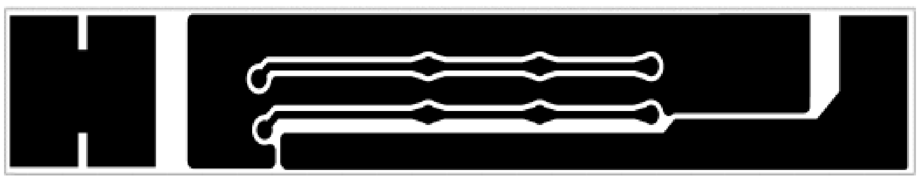
20170914
C12
C11
R29
R5
R21
C27
C28
R20
Q4
Q5
C19
C20
C21
C22
L2
D1
R22
C1
R1
C2
U1
C8
C7
C6
C9
R12
R11
R7
USB1
USB3
U2
Q2
Q1
R14
C4
B-
R8
R4
C10
R3
C5
C3
L1
B+


SP0328-V07
20170914
L2

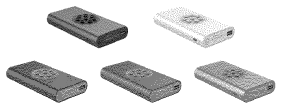
XSD-SD001 V0.2-20160216 板厚1.0mm,铜厚1.5oz

XSD-SD001 V0.2-20160216 板厚1.0mm,铜厚1.5oz

XSD-SD001 V0.2-20160216 板厚1.0mm,铜厚1.5oz



USER MANUAL
for power bank



ITE: Accessories Lithium ion battery UL 2056 certified

Model: SP0328
Item No.: 7121-41
Input: DC 5V/1800mA
Input (TYPE-C): 5V/2000mA
Maximum input: DC 5.3V/2000mA
Output: DC 5V/2100mA
Wireless output: 5V/1000mA
Wireless charging distance: 6mm
Battery/Cell capacity: 14.8Wh , 3.7V / 4000mAh
Product capacity (USB): 11.5Wh , 5V / 2300mAh
Product Capacity (wireless): 8.25Wh, 5V/1650mAh
Operating temperature: 0~45°C tor Charging
0~50°C for Discharging
Product Name: Power Bank

EN

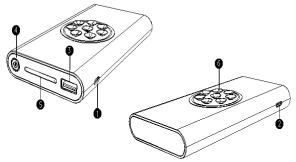
CAUTION: Risk of Fire and Burns, don't open, crush, disassemble and dispose of in fire. Accessible surfaces held or touched for short periods only. Don't heat above 50 °C or Incinerate. Follow Manufacturer's Instructions

FR

DANGER: risque d'incendie et de brûlures, ne pas ouvrir, démonter, écraser ni jeter au feu. Ne pas toucher ou tenir les surfaces accessibles sur une longue durée.

MADE IN CHINA

PRODUCT OVERVIEW



1. 5V Input Port (Micro USB)
2. 5V Input Port (TYPE-C)
3. 5V Output Port (USB A-type)
4. ON/OFF Button
5. LED indicator (advise of remaining charge – number of illuminated lights decreases as power supply dwindles.)
6. Suction pad

Button and Indicator

Status	LED Indicator
Charging	flash(Blue)
Fully charged	lit(Blue)
Working	lit(Blue)
Power On	Press once
Power Off	Double press

Accessory: USB Cable

USB CABLE

How to use

Instructions:

1. Charging the portable Power bank
a. Using your mobile phone's USB adapter. Connect a USB cable to your phone's USB adapter. Using the micro USB connector, connect the other end of the USB cable to the IN port on the portable Power bank. Plug the USB adapter into the outlet to begin charging.
b. Using your computer. Connect a USB cable to a USB outlet on your computer. Using the micro USB connector, connect the other end of the USB cable to an IN port on the portable Power bank. Make sure the computer is on to begin charging the portable Power bank.

2. Charging mobile phones and other electronic devices with USB output.
a. The portable power device has a USB output port which has the maximum output current of 2100 mA.
b. Connect to USB cable to your mobile phone/device using the appropriate connector. Connect the other end of the USB cable to the OUT port of the portable Power bank. Your mobile phone/device should display the status of charging.
c. Remove the USB cable from your mobile device when it is fully charged.

3. Charging mobile phones and other electronic devices with wireless output.
To use the wireless charging mode the mobile device needs to be a Qi-enabled device. If necessary, enable wireless charging in the settings of your mobile device. Next simply stick your device to the suction pad and the wireless charging will start.

Note: In order to charge device use only accessory cable (provided with power bank) or the cable included with your own device by the manufacturer.

IMPORTANT SAFETY PRECAUTION

WARNING – When using this product, basic precautions should always be followed, including the following:

1. Read all the instructions before using the product.
2. Power bank main unit contains an internal lithium ion battery. Upon initial use or after a prolonged storage period, fully charge it once. The unit's full performance is achieved only after 2 or 3 completed charge and discharge cycles.
3. Power banks are not allowed in checked luggage on commercial airline flights. Handle with care and dispose of in accordance to local regulations. Carry-on only.
4.To reduce the risk of injury, close supervision is necessary - when the product is used near children.
5. Do not put fingers or hands into the product.
6. Do not expose power bank to rain or snow.
7. Use of a power supply or charger not recommended or sold by power pack manufacturer may result in a risk of fire or injury to persons.
8. Do not use the power bank in excess of its output rating. Overload outputs above rating may result in a risk of fire or injury to persons.
9. Do not use the power bank that is damaged or modified. Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, explosion or risk of injury.
10.Do not disassemble the power bank. Take it to a qualified service person when service or repair is required. Incorrect reassembly may result in a risk of fire or injury to persons.
11.Do not expose a power pack to fire or excessive temperature. Exposure to fire or temperature above 100°C may cause explosion. The temperature of 100°C can be replaced by the temperature of 212°F.
12.Have servicing performed by a qualified repair person using only identical replacement parts.This will ensure that the safety of the product is maintained.
13.Do not charge the power bank while using the power bank to charge a device. Do not charge the power bank for more than 4-6 hours and do not leave unattended.
14.Disconnect off the power bank when not in use.

FCC STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1)This device may not cause harmful interference, and
(2)This device must accept any interference received, including interference that may cause undesired operation.

Warning:
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

SAVE THESE INSTRUCTIONS

File MH60484 Vol. 4 Sec. 1 III-3
And Report Issued: 2017-12-01

TEST RECORD NO. 1

SAMPLES:

A sample Power bank(s), Model(s): SP0328, CPP-4785, 32190, TITAN, T1039 as indicated below and constructed as described herein, was submitted by the manufacturer for examination and test.

POWER BANK ELECTRICAL RATING:

Input Port # 1 Rated Voltage, Vdc	5.0
Input Port # 1 Rated Current, A	1.8(Micro USB)
Input Port # 2 Rated Voltage, Vdc	5.0
Input Port # 2 Rated Current, A	2.0(Type-C)
Output Port # 1 Rated Voltage, Vdc	5.0
Output Port # 1 End-of-Discharge Voltage, Vdc	4.5
Output Port # 1 Rated Current, A	1.0
Output Port # 1 Rated Capacity, mAh	1650(Wreless)
Output Port # 2 Rated Voltage, Vdc	5.0
Output Port # 2 End-of-Discharge Voltage, Vdc	4.5
Output Port # 2 Rated Current, A	2.1
Output Port # 2 Rated Capacity, mAh	2300(USB)
Manufacturer's Maximum Recommended Ambient, °C	0~45°C for Charging; 0~50°C for Discharging

INTERNAL BATTERY CHARGING PARAMETERS RECOMMENDED BY MANUFACTURER:

Standard Charging Current, A	Standard Charging Voltage, Vdc	Maximum Charging Current, A	Maximum Charging Voltage, Vdc	Cell Mfg.	Cell Model Number
2.0	4.2	2.0	4.2	USC056 (MH49375)	GPC606090P

GENERAL:

Test results relate only to the items tested.

All tests except tests for UL2738 are conducted at Guangdong UTL Electronic Technology Co Ltd, located in Lianding Testing Building, No.18 Center Road of Yayuan Industrial Zone, Nancheng District, Dongguan, Guangdong, China under the UL WTDP program.

Models SP0328, CPP-4785, 32190, TITAN, T1039 are identical to each other except for model designation. The following tests were conducted on Model SP0328 which represents aforementioned models.

Test Conducted	UL 2054 Section Reference / **[X]** (UL/CSA 60950-1 Section Reference)	Compliant Results? [Y][N][N/A]	Comments
Short Circuit Test - At Room Temperature;(UL 2056): Excessive Discharging Rate For Any Battery (UL 60950-1/CSA C22.2 No. 60950-1-07/	8.1; 4.3.8	Y	--
Short Circuit Test (At 55°C)(UL 2056):	8.1	Y	--
Abnormal Charging Tests: (Secondary) (UL 2056) Overcharging Of A Rechargeable Battery (UL 60950-1/CSA C22.2 No. 60950-1-07	8.1-8.4; 4.3.8	Y	--
Abusive Overcharge Test (UL 2056):	8.1-8.3, 8.5	Y	--
Limited Power Source Test (UL 2056);(UL 60950-1/CSA C22.2 No. 60950-1-07	8.1,8.9; 2.5	Y	--
Battery Pack Component Temperature Test, Battery Pack Surface Temperature Test (UL 2056) Lithium Ion System (UL 2056) Heating Test (UL 60950-1/CSA C22.2 No. 60950-1-07) Energy Hazard Measurements (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1,8.6-8.8 8.1 4.5 2.1.1.5	Y	--
250 N Steady Force Test: (UL 2056) Steady Force Tests 250 N (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 4.2.4	Y	--
Mold Stress Relief Test: (UL 2056) Stress Relief (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 4.2.7	Y	--
Drop Impact Test: (UL 2056) Drop (UL 60950-1/CSA C22.2 No. 60950-1-07)	8.1 4.2.6	Y	--
Power Input Test (UL 2056):	9	Y	--
Overload Of Output Ports Test (UL 2056):	10	Y	--
Capacity Verification Test (UL 2056):	12, 13.2	Y	--

The test methods and results of the above tests have been reviewed and found in accordance with the requirements (unless noted otherwise in the table above) in the Issue 2 of UL 2056, Outline of Investigation for Safety of Power Banks, issue dated November 3, 2015.

The test methods and results of the above tests also have been reviewed and found in accordance with the requirements (unless noted otherwise in the table above) in the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment-Safety-Part1: General Requirements, CAN/CSA-C22.2 No. 60950-1-07, Second Edition, issue dated October 14, 2014, and UL 60950-1, Second Edition, including revisions through revision date October 14, 2014.

Additional following tests were conducted on Model SP0328, tests were conducted in UL.

Test Conducted	UL 2738 Section Reference	Compliant Results? [Y][N][N/A]	Comments
INDUCTION POWER TRANSMITTER MAXIMUM POWER TRANSFER TEST – NORMAL OPERATION	8	Y	-
INDUCTION POWER TRANSMITTER MAXIMUM POWER TRANSFER TEST – COMPONENT FAULT TEST	9	Y	-

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in standard for Induction Power Transmitters and Receivers for use with Low Energy Products, UL2738, First Edition, issue dated April 28, 2011, with revisions through and including October 1, 2013.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with the applicable requirements in the U.S. Standard for Outline of Investigation for Safety of Power Banks, UL 2056, Second Edition, including revisions through revision date November 03, 2015 and Standard for Safety of Information Technology Equipment – Safety - Part 1: General Requirements, CAN/CSA-C22.2 No. 60950-1-07, and UL 60950-1, Second Edition, including revisions through revision date October 14, 2014, and standard for Induction Power Transmitters and Receivers for use with Low Energy Products, UL2738, First Edition, issue dated April 28, 2011, with revisions through and including October 1, 2013, and, therefore, such products are judged eligible to bear UL’s Mark as described on the Conclusion Page of this Report. Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. UL shall not otherwise be responsible to anyone for the use of or reliance upon the contents of this Report.

CONCLUSION

Samples of the product covered by this Report have been found to comply with the requirements covering the category and the product is found to comply with UL's applicable requirements. The description and test result in this Report are only applicable to the sample(s) investigated by UL and does not signify UL certification or that the product(s) described are covered under UL's Follow-Up Service Program. When covered under UL's Follow-Up Service Program, the manufacturer is authorized to use the UL Listing on such products which comply with UL's Follow-Up Service Procedure and any other applicable requirements of UL LLC. The Listing Mark of UL LLC on the product, or the UL symbol on the product and the Listing Mark on the smallest unit container in which the product is packaged, is the only method to identify products investigated by UL to published requirements and manufactured under UL's Listing and Follow-Up Service.

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