

GlobTek, Inc. www.globtek.com 186 Veterans Drive, Northvale, NJ 07647 Tel. (201) 784-1000 Fax (201) 784-0111	Drawing Title: Lithium Ion Charger for BL3600F4634462S4PH6G battery.	
	Model No. GTC90600-1C2S	
	Part No./Ordering No. GTC90601-1C2S1800AMP	Rev A

In Addition to GlobTek Inc.'s renewed ISO9001:2015 - Quality Management System Certification, GlobTek Inc. is now certified to:

ISO13485:2016 - Medical Devices Quality Management System Certification  
ISO14001:2015 - Environmental Management System Certification

ISO Certificates are available online at <https://www.globtek.com/iso-certificates/>

The acceptance of this specification and use of the product described in this document indicates the acceptance and binding of the customer to Globtek TERMS AND CONDITIONS (attached to the end of this document), which supersede all other agreements, terms, and conditions (<https://en.globtek.com/terms-and-conditions/>).

The purchaser of this product (Customer) agrees that it is their sole responsibility to determine suitability/fitness of the product described in this specification for their application and to take precautions for protection against any hazards attendant to the handling and use of the product.

Footnote:

GlobTek Inc. will not be liable for the safety and performance of these power supplies/battery packs if unauthorized access and repair occurs. End user should consult applicable UL, CSA or EN standards for proper installation instruction.

Limitation of Use:

GlobTek products are intended for use with commercial, medical, and/or industrial equipment only. GlobTek product are not authorized for use as mission critical components in life support hazardous environment, nuclear or aircraft applications without prior written approval from the CEO of GlobTek Inc.

Contents of this document are subject to change without prior notice.

### Customer Approval of Specification:

Please approve, sign and send back to GlobTek so we can complete order processing.  
A delay in receipt of this form will delay delivery schedule.

Company Name: _____	Customer P/N: _____
Quote Number: _____	Date: _____
Authorized Representative Name: _____	Authorized Representative Signature: _____

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## REVISION HISTORY

REV	DESCRIPTION	SUB	DATE	APPROVED
A	Initial release	QA	10/21/2022	QA

### POWER SUPPLY INFORMATION

TYPE	Vehicle/Car DC/DC Converter
TECHNOLOGY	Li-Ion Battery Charger
CASE COLOR	GlobTek Black
NAMEPLATE RATED INPUT	12Vdc, 4.0A
INPUT CONFIG	Terminals
WATTS	30.12
VOLTS OUT	8.4, 5.0
CURRENT OUT (Amps)	1.8, 3.0
BLADE/CORD INCLUDED	N/A Not Applicable
INGRESS PROTECTION	Indoor Use
GROUNDING CONFIGURATION	(F1) Class II / Double Insulated
EFFICIENCY LEVEL	
OUTPUT CONFIGURATION	N/A mm, N/A/ Cond, N/A, None, Ferrite: None, N/A, GT Cord # C0745
CONNECTOR PIN OUT	Per customer requirement, no pin out marked on the label
LABEL SPECS	Standard GT,L-1186
SPECIAL BARCODE LABEL MATERIAL	No
PACK SPEC	PACKAGING FOR GTC9060*-1C2S1800AMP
USER MANUAL	

**PROPRIETARY INFORMATION**

PROPRIETARY OF GLOBTEK, INC. ANY REPRODUCTION, DISCLOSURE OR USE OF THIS DRAWING, IN WHOLE OR IN PART, IS HEREBY PROHIBITED EXCEPT AS SPECIFIED IN

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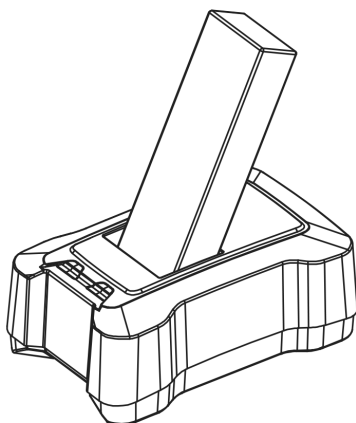
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Notes/Modifications/Customizations (notes in this section supersede the values shown in the standard spec)

DIMENSIONS ARE IN MM UNLESS SPECIFIED OTHERWISE

Outline drawing:



Matching Battery Pack:

Product part number: BL3600F4433482S4PH6G

Datasheet: <https://globtek.secure.force.com/spec/pdf/2392903/d2810706>

DigiKey Link:

[https://www.digikey.com/en/products?mpart=1939-BL3600F4433482S4PH6G-ND&v=1939&utm\\_source=1939&utm\\_medium=supplier&utm\\_campaign](https://www.digikey.com/en/products?mpart=1939-BL3600F4433482S4PH6G-ND&v=1939&utm_source=1939&utm_medium=supplier&utm_campaign)

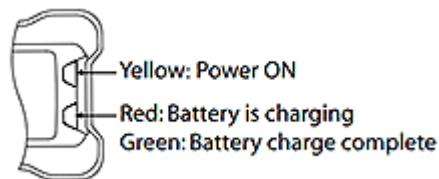
This charger 5.5mm x 2.5mm barrel plug is designed for 10.5-11mm barrel length.

Recommended cord for use in vehicle is p/n [X051766F0LCP](#)

Recommended to use with GlobTek power supply [RR9KE5000LCPCIMR6B](#) (or similar)

<https://globtek.secure.force.com/spec/?id=01ta0000006wvNu>

DigiKey Link: <https://www.digikey.com/en/products/detail/globtek-inc/RR9KE5000LCPCIMR6B/8597938>



1. Pre-Charge: Solid Red
2. Bulk Charge: Solid Red
3. Charge Complete: Solid Green
4. No battery or Fault: Green and Red LED off

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**DUAL OUTPUT UNIT**

Input: 12V  $\underline{\underline{=}}$  4A

Output 1: 8.4V  $\underline{\underline{=}}$  1.8A

Output 2: 5V  $\underline{\underline{=}}$  3A

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## ELECTRICAL SPECIFICATIONS

### A) ELECTRICAL SPECIFICATIONS

Input Voltage: Nameplate rated: 12Vdc

Input Current: < 6A Max

01. Pre-Charge Current: 10% of bulk charge current (typical)

02. Bulk Charge Current: see table for nominal value,  $\pm 10\%$  max variance

03. Full Charge Voltage: 1 cell: 4.2Vdc; 2 cell: 8.4Vdc, 3 cell: 12.6Vdc,  $\pm 1\%$  Max Variance

04. Charge Termination Current: 10% of bulk charge current (typical)

05. Pre-Charge to Bulk Charge Battery Transition Voltage: 1 cell: 2.86Vdc to 3.15Vdc, 2 cell: 5.72Vdc to 6.30Vdc; 3 cell: 8.58Vdc to 9.45Vdc Charger will be in pre-charge mode when the battery voltage is below the transition voltage.

06. Battery Charging Ambient Temperature: 0°C to 35°C

07. Back-Up Charge Termination Timer: 3 hours standard. Timer may be set to 3 to 12 hours range for batteries with high Ahr capacity by GT engineering. Charger will terminate charging when timer expired. Please advise Sales dept of you battery Ahr capacity.

08. LED Charge Status Indicator

a. Pre-Charge: Solid Amber

b. Bulk Charge: Solid Amber

c. Charge Complete: Solid Green

d. No battery or Fault: Green and Amber LED off

### B) ENERGY EFFICIENCY PERFORMANCE

01. CEC Compliant, to Battery Charger Requirements, with up to 10Ahr battery

02. DOE Compliant, to Battery Charger Requirements, with up to 10Ahr battery

### C) PROTECTION MODES\*

01. Over Voltage Protection: 1 cell: 4.6Vdc - 5.0Vdc, 2 cell: 9.2Vdc - 10.0Vdc; 3 cell: 13.8Vdc - 15.0Vdc Charger will terminate charging when over voltage occurs

02. Short Circuit Protection: Charger will not commence charging when BAT+ and BAT- are shorted

03. Over Temperature Protection: Charger will terminate charging if battery temperature reached  $45^{\circ}\text{C} \pm 3^{\circ}\text{C}$ . Charger will autorecover when temperature drops to about  $30^{\circ}\text{C} \pm 3^{\circ}\text{C}$ . For this feature, 10Kohm thermistor (NTC, 103AT) is required to be installed inside the battery pack. For battery packs without the thermistor, over temperature protection feature is not available and a 10K Ohm resistor is installed inside the charger to bypass the over temperature protection circuit.

04. Reverse Battery Protection: Battery should be mechanically protected from being installed reversed

05. Defective Battery Protection: If battery voltage will not rise above the pre-charge to bulk charge transition voltage (2.86Vdc to 3.15Vdc) within 30 minutes from the time pre-charging begins, the battery is considered defective and the charger will terminate charging.

\*When fault condition occurs, the battery has to be removed from the charger and reinstalled after at least 3 seconds to reset the protection. Charging will commence after battery reinstallation only when the fault is cleared.

### D) SAFETY

1. IEC 60950-1, IEC 60601-1, IEC 60335-1, IEC 61558-1.

2. Dielectric Withstand Voltage: 5656 Vdc from primary to secondary

3. Earth Leakage Current: N/A for Class II units, there is no PE Ground pin, so Earth Leakage current is not measured

#### PROPRIETARY INFORMATION

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4. Touch Current: Maximum allowed values: 100uA NC(Normal condition) 500uA SFC(single fault condition)

E) OTHER:

01. MTBF: 300,000 Hours @ 25°C ambient temperature
02. Operating Temperature: 0°C to 35°C ambient temperature
03. Humidity: 0% to 90% relative humidity
04. Storage Temperature: -10°C to 70°C
05. Cooling: Convection

F) ENCLOSURE

01. Housing: High impact plastic, 94V0 polycarbonate, non-vented
02. Size: 53.47\*117.53\*36.6 +/-1.0 mm
03. Markings: Label and/or Pad Printed and/or Molded in the case
04. GREEN LED to indicate (see above electrical specifications)

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TO ADDRESS SYSTEM-LEVEL EMI CONCERNS, FERRITE CHOKES/BEADS MAY BE ADDED/REVISED UPON REQUEST. A SAMPLE KIT OF GLOBTEK'S STANDARD FERRITES IS AVAILABLE UNDER GLOBTEK P/N: EMI-MITIGATION-KIT1

FOR ADDITIONAL INFORMATION, PLEASE READ OUR WHITE PAPER AT:

<https://en.globtek.com/technical-articles/ferrite-kit-radiated-emi-suppression-kit-for-globtek-power-supplies-cable-assemblies>

INGRESS PROTECTION: Indoor Use

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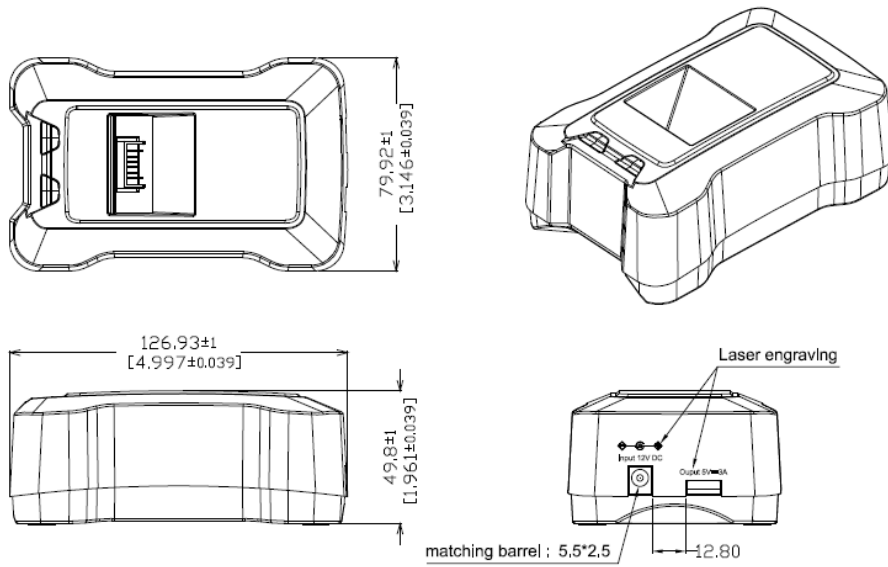
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### Mechanical drawing



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DERATING CURVE



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Drawing Title: Lithium Ion Charger for BL3600F4634462S4PH6G battery.

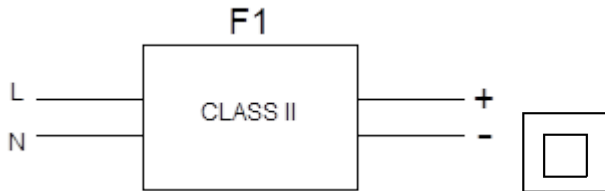
Model No. GTC90600-1C2S

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Rev A

## INPUT CONFIGURATION

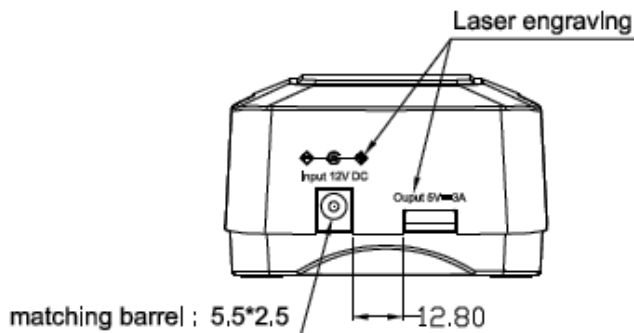
(F1) Class II / Double Insulated



[Alternate grounding configurations](#) available upon request.

Blades/Cord Included:N/A:Not Applicable

5.5 mm x 2.5 mm DC Power Jack Socket Female





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**OUTPUT CONNECTOR HOOK UP**

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FOR ADDITIONAL INFORMATION, PLEASE READ OUR WHITE PAPER AT:

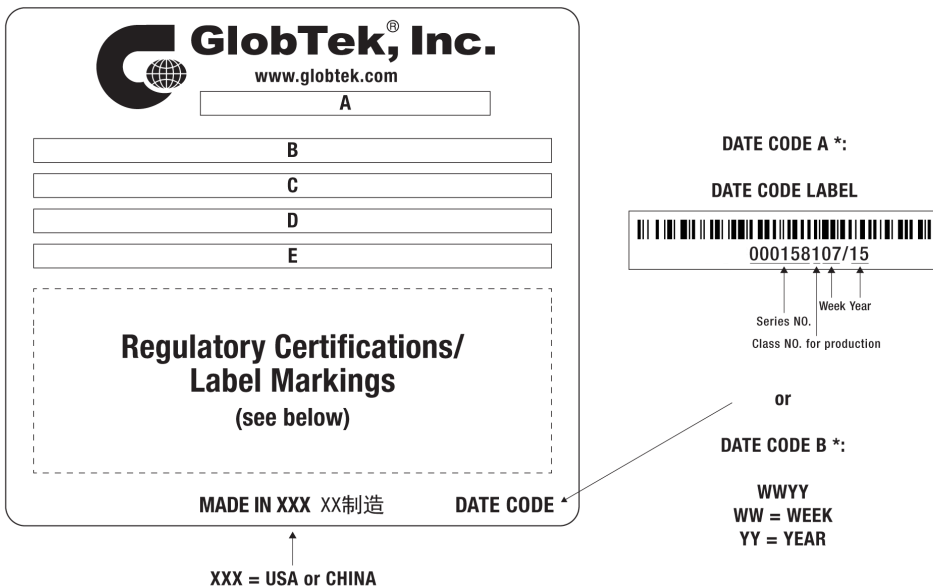
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LABEL:L-1186

LABEL P/N	Standard GT
MATERIAL	Flat Thermal Transfer, Imprintable, Polyester Label and/or Pad Printed and/or Molded, and/or Laser Engraved in the case
BACKGROUND COLOR	Black if housing is Black, White or Silver if housing is White or Gray.
TEXT COLOR	White or Silver if label is Black Background for Black housing. Black if label is White or Silver background and Housing is White or Gray.
LABEL WIDTH (mm)	45.0
LABEL HEIGHT (mm)	50.0
SPECIAL BARCODE LABEL MATERIAL	No

Below is the minimum information which will appear on the label. NOTE: in the logo area additional/actual positioning of symbols and text is subjected to change as per agency updates/requirements or additional model approvals become available.  
Regulatory certifications/label markings may be in logo area on the label or molded into the case housing outside the label area.  
Information will be shown via label and/or pad printed and/or molded and/or laser engraved in the case. \* Date code markings at GlobTek option



- A=
- B=P/N: (料号) GTC90601-1C2S1800AMP
- C=Model (型号) GTC90600-1C2S
- D=Input (输入)12Vdc, 4.0A
- E=Output (输出)8.4, 5.0 V 1.8, 3.0 A, 30.12W

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#### AGENCY ONLINE DOCUMENTS

CE EC-Declaration for Medical	<a href="#">Contact GlobTek for more information</a>
CE EC-Declaration for Industrial/Commercial/ITE	<a href="#">Contact GlobTek for more information</a>
CE EC-Declaration for Household	<a href="#">Contact GlobTek for more information</a>
UKCA-Declaration for Medical	<a href="#">Contact GlobTek for more information</a>
UKCA-Declaration for Industrial/Commercial/ITE	<a href="#">Contact GlobTek for more information</a>
UKCA-Declaration for Household	<a href="#">Contact GlobTek for more information</a>
Morocco SDoC Declaration	<a href="https://globtek.secure.force.com/models/Morocco_SDoC_Declaration?id=a000c00000Pzo8SEAR">https://globtek.secure.force.com/models/Morocco_SDoC_Declaration?id=a000c00000Pzo8SEAR</a>
RoHS/RoHS3 Declaration	<a href="https://www.globtek.com/pdf/rohs_cert/01t3a000005gbpKAAQ">https://www.globtek.com/pdf/rohs_cert/01t3a000005gbpKAAQ</a>
REACH Declaration	<a href="https://www.globtek.com/pdf/iso_certificates/REACH.pdf">https://www.globtek.com/pdf/iso_certificates/REACH.pdf</a>
Conflict Minerals Declaration	<a href="https://www.globtek.com/pdf/conflict-minerals.pdf">https://www.globtek.com/pdf/conflict-minerals.pdf</a>
Prop 65 Statement	<a href="https://en.globtek.com/prop-65-statement.pdf">https://en.globtek.com/prop-65-statement.pdf</a>

IPXY rating is based on 3rd party testing and customers should check suitability and test system level IPXY rating before ordering.

### Regulatory Certifications/Label Markings

Below follows a link to the latest regulatory certifications and marks for this specific product. National standards as well as certification schemes are constantly changing and so is the set of certification marks and symbols applicable to this product. Various standards, marks and symbols, and certificates are subject to change at any time without notice.

Additional standards or unique country certifications are available upon request. Please contact Globtek to request a quotation.

LATEST PRODUCT/MODEL CERTIFICATIONS: <https://www.globtek.com/datasheet/w70382>

#### AGENCY ONLINE DOCUMENTS



(F1) Class II / Double Insulated

Per customer requirement, no pin out marked on the label



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### INSTRUCTIONS TO THE OEM SYSTEMS ENGINEER

It is the responsibility of the OEM systems engineer to provide the end system user instructions and warnings for the use of this product in the end system.

If an input cord is required for this product, AC Mains voltage should be provided to the power supply by a power supply cord approved to the national standards of the country in which it will be used.

This product is not designed to be repaired. No serviceable parts inside. A blown internal fuse is an indication of catastrophic failure of circuit component(s). If a Failure Analysis is required for a failed power supply/battery charger, please return the damaged unit to GlobTek for an accurate determination of the root cause of the failure.

EMC Compliance of the complete OEM product, including the GlobTek power supply/battery charger needs to be verified by the OEM systems engineer.

### INSTRUCTION SHEET

N/A

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