

# STL1033-001

## Charge Control with Safety and Termination

Electrical Spec REV D

### Functional Description:

The STL1033-001 provides both safety and battery management functions for 1-cell Lithium Ion battery packs. In addition to preventing overvoltage during charge mode, undervoltage during discharge mode, and overcurrent during discharge mode, the STL1033-001 actively regulates charge current and voltage to ensure optimal battery charging.

### Board Specifications

Board Dimensions:	See Drawing# 03-42584-01
Composition:	FR-4, double-sided, 1 oz copper
Connector:	Hirose A4B-3S-2C connector, A3B-2630SCC terminal
Assembly:	PCBA solder operation utilizes no-clean flux. No secondary cleaning operation performed.
Testing:	Testing performed per IPS-02584-001

### Temperature

Operating Temperature:	-20 to 60 °C
Storage Temperature:	-40 to 125 °C

### Electrical Specifications at Ta = 25 °C (per cell)

Parameter	Conditions	Min	Typical	Max	Units
Supply voltage	No Load	4.75	5.7	6.2	V
Overdischarge detection voltage		2.3	2.4	2.5	V
Sleep-mode recovery voltage *			1.5		V
Overcharge detection voltage		4.245	4.295	4.345	V
Regulated charge voltage		4.10	4.15	4.26	V
Regulated charge current		250	290	322	mA
Maximum discharge current	Continuous (4V cell voltage)	3.0			A
Maximum discharge current	10 ms pulse, 1% Duty Cycle			10.0	A
Quiescent Current	Vcell < 2.3Vdc		50uA		uA
Quiescent Current	Vcell > 2.3Vdc		200uA		uA

\* STL1033-001 will still attempt recovery below this voltage.

#### Disclaimer:

ICC will not be held responsible when used outside of the recommended parameters / applications.

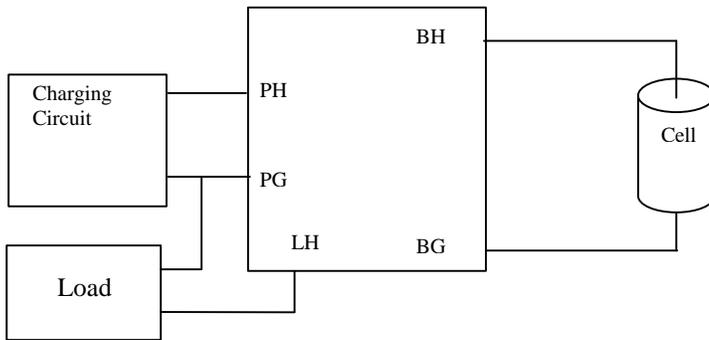
Avoid excessive heat when soldering to the PCB.

Product is tested 100% at the factory. As with all good manufacturing practices, we also recommend 100% testing in the end product.

Questions should be directed to ICC Technical Staff

312-829-2525

## Connection Diagram



## PAD Designations

BH+	Cell (+)
BG-	Cell (-)
PH+	Charger (+) (red wire)
PG-	Charger/Load (-) (black wire)
LH+	Load (+) (blue wire or alt per drawing 03-42584-01)

## STL1033-001 Features

- **Charge voltage and current regulation-allows use of unregulated power supplies to charge Li-Ion battery**
- **Built-in Safety Circuit functions to protect battery:**
  - Overvoltage during Charge Mode
  - Undervoltage during Discharge Mode
  - Overcurrent during Discharge Mode
- **Independent charge and discharge terminals allow for simultaneous battery charging and powering of load .**
- **Small circuit footprint can be used with majority of prismatic and cylindrical Li-Ion batteries**

## Typical Applications

- 1-cell Lithium Ion battery packs
- Video cameras
- Misc. portable products

### Disclaimer:

ICC will not be held responsible when used outside of the recommended parameters / applications.

Avoid excessive heat when soldering to the PCB.

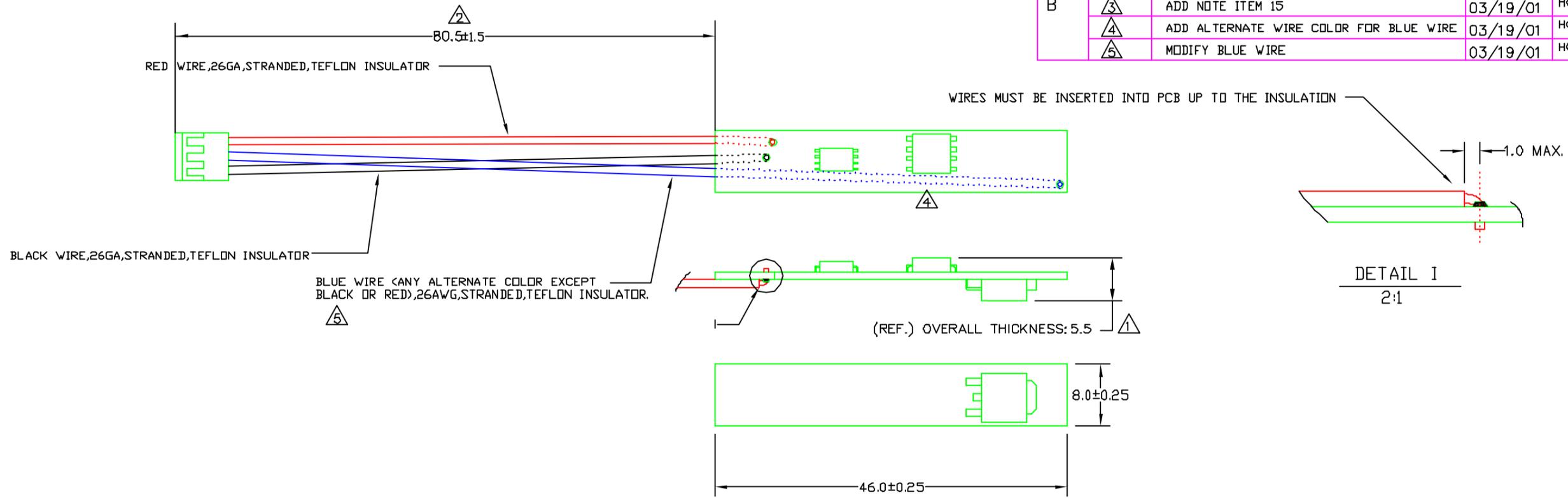
Product is tested 100% at the factory. As with all good manufacturing practices, we also recommend 100% testing in the end product.

Questions should be directed to ICC Technical Staff

312-829-2525

**PART NUMBER**  
03-42584-001

REV	ZONE	DESCRIPTION	DATE	BY	CHK	APP
A	ALL	RELEASE FOR PRODUCTION	02/09/01	HG	KE	
B	①	ADD REFERENCE DIMENTION 5.5MM	03/19/01	HG	KE	
	②	CHANGE DIM 80.0±1.5 TO 80.5±1.5	03/19/01	HG	KE	
	③	ADD NOTE ITEM 15	03/19/01	HG	KE	
	④	ADD ALTERNATE WIRE COLOR FOR BLUE WIRE	03/19/01	HG	KE	
	⑤	MODIFY BLUE WIRE	03/19/01	HG	KE	



- 11/.100 % PCB SAFETY&FUNCTIONAL TESTING REFERENCE,ICC DOCUMENT IPS-02584-001.  
 12/.PRODUCTION LOTS MUST BE TRACKED.  
 13/.PROPER ID ON OUTER CARTON&INDIVIDUAL PACKING INSIDE OUTER CARTON.  
 14/.PACKING LIST MUST BE PROVIDED EITH EACH SHIPMENT.  
 ③ 15/.OPERATING TEMPERATURE RANGE: -20℃ ~60℃ .

**NOTES:**

- 1/. MAIN BOARD IS COP LAM FR-4 I-OZ 1.0mmTHK 2-S 94V-0 SIZE 46X8MM.
- 2/.DETAILS TEST REQUIREMENT PLEASE SEE IPS DOCUMENT.
- 3/.DETAILS MATERIAL REQUIREMENT PLEASE SEE BILL OF MATERIAL.
- 4/.THE PCBA MUST BE ADHERENCE THE IPC 610 CLASS II STANDARD.
- 5/.CONNECTOR CRIMP SPEC MEASURED&DOCUMENTED FOR EACH LOT.
- 6/.100% FINAL INSPECTION OF CONNECTOR PIN OUT,ORLENTATION&NON-DESTRUCTIVE HAND PULL TEST.
- 7/.EACH AWG #26 WIRE 1KG PULL TEST TO CONFIRM LOCKING&CRIMP STRENGTH.
- 8/.C OF C ON WIRE, CONNECTOR SPEC AND PCB TESTING MUST ACCOMPANY EVERY SHIPMENT.
- 9/.PROPER ESD PACKAGING AND HANDLING OF PCB.
- 10/.100% PCB TESTING FOR SHORTS,OPENS&CORRECT PROPER COMPONENTS PLACEMENT.

**CONFIDENTIAL**

THIS DOCUMENT IS THE PROPERTY OF INTERNATIONAL COMPONENTS CORP., INC. AND SHALL NOT BE DISCLOSED WITHOUT INTERNATIONAL COMPONENTS CORPORATION'S WRITTEN CONSENT.

SCALE	DO NOT SCALE DRAWING	SUPERSEDES
QTY	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN MILLIMETERS	DATED
USED ON	DECIMAL .000 = +/- .025MM .00 = +/- .13MM .0 = +/- .25MM ANGULAR +/- 1/2 DEG <D = MINUS DRAFT >D = PLUS DRAFT SURFACE FINISH SPECIFICATION $\sqrt{\text{ARE}}$ IN MICROMETERS 1UM = 1/10 MM <sup>3</sup>	WALL THICKNESS = ..... DRAFT = .....PER SIDE FILLET ..... R. EDGE ..... R. FLATNESS ..... T.I.R. CONCENTRICITY ..... T.I.R. T.S.C. - THEORETICAL SHARP CORNER
	MAT'L SPEC/FINISH	SEE NOTES
DESCRIPTIONS	STL1033-001 BATTERY SAFETY UNIT W/CHARGE REGULATION/TERMINATION	2584
DR: HG	DATE 02/09/01	CH. DATE APP. DATE
SIZE A3	DWG.NO 03-42584-001	SHEET 1 OF 1

**FABRICATORS INTERNATIONAL LIMITED**

8080 KONO PLAZA  
 UNIT 1001-1015  
 NEW COMMENCE CENTRAL  
 78 ON 50th STREET  
 SALT LAKE CITY, UTAH 84119  
 801.464.4000