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# **UL TEST REPORT AND PROCEDURE**

Standard: ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10)(Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and **Essential Performance)** CAN/CSA-C22.2 No. 60601-1 (2008) (Medical Electrical Equipment -Part 1: General Requirements for Basic Safety and Essential Performance) **Certification Type:** Component Recognition CCN: QQHM2, QQHM8 (Power Supplies, Medical and Dental) **Product:** Power Supply Model: 1089 Family: GTM21089-0903-X.X-CDY GTM21089-1305-X.X-CDY GTM21089-1506-X.X-CDY GTM21089-1509-X.X-CDY GTM21089-1512-X.X-CDY GTM21089-1815-X.X-CDY GTM21089-1818-X.X-CDY GTM21089-1824-X.X-CDY GTM21089-1848-W2 1096 Family: GTM21096-1003-X.X-CDY GTM21096-1505-X.X-CDY GTM21096-1506-X.X-CDY GTM21096-1509-X.X-CDY GTM21096-1512-X.X-CDY GTM21096-1815-X.X-CDY GTM21096-1818-X.X-CDY GTM21096-1824-X.X-CDY The models listed here are the standard models which the custom versions are based on. Custom units are obtained using the optional "-X.X" modifier. The "CD" modifier describes type of input connection. Y = Blank or A, Blank is for 2 MOOP construction, A for 2 MOPP construction. See Model Differences for details. Rating: Input (all models, both families): 100-240 V ac, 50-60 Hz, 0.5 A or 0.5A max or 0.25-0.5A Output: 1089 Model Max. Vdc Max.A GTM21089-0903-X.X-CDY 3.3 2.6 GTM21089-1305-X.X-CDY 2.6 5.0 GTM21089-1506-X.X-CDY 6.0 2.5 GTM21089-1509-X.X-CDY 9.0 1.7 1.25 GTM21089-1512-X.X-CDY 12.0

GTM21089-1848-W2

GTM21089-1815-X.X-CDY

GTM21089-1818-X.X-CDY

GTM21089-1824-X.X-CDY

15.0

18.0

24.0

33.0 0.54

1.2

1.0

0.75

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	1096 Model Max.Vdc Max.A GTM21096-1003-X.X-CDY 3.3 2.6 GTM21096-1505-X.X-CDY 5.0 2.6 GTM21096-1506-X.X-CDY 6.0 2.5 GTM21096-1509-X.X-CDY 9.0 1.7 GTM21096-1512-X.X-CDY 12.0 1.25 GTM21096-1815-X.X-CDY 15.0 1.2 GTM21096-1818-X.X-CDY 18.0 1.0 GTM21096-1824-X.X-CDY 24.0 0.75 See Model Differences for further details.	
Applicant Name and Address:	GLOBTEK (HONG KONG) LTD UNIT 1402, BENSON TOWER 74 HUNG TO RD KWUN TONG KOWLOON HONG KONG	

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

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Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Jelly Li / Clare He Reviewed by: Sammi Liang

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### **Supporting Documentation**

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
  - Part AC details important information which may be applicable to products covered by this Procedure.
     Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
  - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
  - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

## **Product Description**

The product covered by this report is a unit intended to provide power to and intended for use with Medical Electrical equipment.

#### **Model Differences**

Differences within the families are limited to minor component changes to determine output voltage and current.

The 1096 Family is identical to the 1089 Family except for the following:

- 1) The 1089 Family is provided w/ an enclosure; the 1096 Family is open-frame.
- 2) The 1096 Family is provided with Molex connectors for input and output connections.

The 1089 Family models are represented by the following nomenclature:

GTM21089-WWVV-X.X-CDY

where:

GTM2 designates versions with UL 60601-1 Medical safety approval;

1089 is the family designation;

WWVV output parameter designations as seen in the standard model list for both families;

- -X.X designates the optional deviation, subtracted from standard output voltage in 0.1 volt increments;
- C designates physical configuration W = wall plug-in model, T = desktop model;
- D designates the input plug configuration 2 = Class II type (2-prong), 3 = Class I type (3-prong) (See Note 1.)
- Y = Blank or A, Blank is for 2MOOP construction, A is optional for 2MOPP construction.

For model GTM21089-1848-W2. W = wall plug-in model, 2 = Class II type (2-prong).

Note 1 - Despite the Class I type appliance inlet, these units remain classified as Class II with Function Earth only.

The 1096 family models are represented by the following nomenclature:

GTM21096-WWVV-X.X-CDY

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### where:

GTM2 designates versions with UL 60601-1 Medical safety approval:

1096 is the family designation;

WWVV output parameter designations as seen in the standard model list for both families;

-X.X designates the optional deviation, subtracted from standard output voltage in 0.1 volt increments;

CD designates physical configuration and input plug configuration - F = open-frame, Class I input connector, FW = open-frame, Class II input connector (See Note 2).

Y = Blank or A, Blank is for 2 MOOP construction, A is optional for 2 MOPP construction.

Note 2 - Class I and Class II Input connectors are identical except that the Earth pin is removed on the Class II units.

### **Technical Considerations**

- Classification of installation and use: 1089 Family Portable; 1096 Family For building-in
- Device type (component/sub-assembly/ equipment/ system) : Component
- Intended use (Including type of patient, application location): Recognized power adaptor, shall be determine in end use application.
- Mode of operation : Continuous
- Supply connection: 1089 Family Appliance coupler/Direct Plug-in; 1096 Family To be determined
  in the end-product
- Accessories and detachable parts included : None
- Other options include : None
- The product was investigated to the following additional standards:: ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10) (Medical Electrical Equipment Part 1: General Requirements for Basic Safety and Essential Performance) Edition 1 Revision Date 2012/01/01, CAN/CSA-C22.2 No. 60601-1 (2008) (Medical Electrical Equipment Part 1: General Requirements for Basic Safety and Essential Performance) Edition 2 Revision Date 2011/06/01, IEC 60601-1-11, Edition 1, Issue Date 2010/04/01, ANSI/AAMI HA60601-1-11:2011, MEDICAL ELECTRICAL EQUIPMENT Part 1-11: General requirements for basic safety and essential performance Collateral Standard: Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment (For Class II Desktop type of GTM21089 Series only)
- The product was not investigated to the following standards or clauses:: Clause 14, Programmable Electronic Systems, Electromagnetic Compatibility (IEC 601-1-2) Biocompatibility (ISO 10993-1)
- The degree of protection against harmful ingress of water is:: IP42 for GTM21089 Series Desktop Type only, not evaluated by UL. Ordinary for other models
- The mode of operation is:: Continuous
- The product is suitable for use in the presence of a flammable anesthetics mixture with air or oxygen or with nitrous oxide:: No
- The product is Classified only to the following hazards: for 1089 Family Casualty, Fire, Shock; for 1096 Family - Fire, Shock
- Software is relied upon for meeting safety requirements related to mechanical, fire and shock: No

### **Engineering Conditions of Acceptability**

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

• For 1096 Family only - A suitable fire and electrical enclosure shall be provided in the end-product. Further, connection and disconnection to and from MAINS shall be determined in the end-product.

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• For 1089 Family only - A Listed detachable Power Supply cord provided with a "Hospital Only" or "Hospital Grade" attachment plug shall be employed in the end-use application in North America.

- This equipment was tested on a 20 A branch circuit. If used on a branch circuit greater than this, additional testing may be necessary.
- The model(s) GTM21089-WWVV-X.X-CD and model GTM21089-1848-W2 provide the following MOOP (means of operator protection): The power supply was evaluated as 2 MOOP between primary and secondary. See insulation diagram for details.
- This equipment has not been evaluated for field wiring.
- This equipment was evaluated for operating altitude up to 3000m above sea level.
- The maximum working voltage measured between primary and secondary, for model GTM21089-1848-W2 is 262V rms, 544 Vpk; for other model is 280 V rms; 496 Vpk. The dielectric strength tests in the end product shall be based on these values.
- The suitability for this equipment to be used in patient care equipment needs to be evaluated in end-product investigation.
- Cleaning, sterilization or disinfection should be considered in the end use application.
- Transformer T1 incorporates a Class B(130 Degree C) insulation system. The Power Supply was evaluated for a maximum ambient temperature of 40 degree C.
- This power supply has been judged on the basis of the required creepage and clearances in the First Edition of the Standard for Medical Electrical Equipment, ANSI/AAMI ES 60601-1(2005 + C1:09 + A2:10) and CAN/CSA-C22.2 No. 60601-1(2008), Sub clause 8.9.
- This power supply has been evaluated as continuous operation, ordinary Equipment and has not been evaluated for use in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide. An additional evaluation shall be made if the power supply is intended for use in other than these conditioin.
- Legibility of markings test shall be considered in end application.
- Product was power supplies intend to be used with meidical device in end application, the evaluation for allowable touch duration / accessible temperature limit / test corner shall be considered in end application.
- The Class II Desktop type of GTM21089 Series Power Supplies have been investigated using IEC 60601-1-11, ANSI/AAMI HA60601-1-11:2011, the end product which is used for HOME HEALTHCARE ENVIRONMENT should also been certificated as IEC 60601-1-11, ANSI/AAMI HA60601-1-11:2011 and should fulfill the instruction and marking requirement. For example, the power adaptor should keep away from Children or Patient to prevent strangulation and asphyxiation.
- The model(s) GTM21089-WWVV-X.X-CDA provide the following MOPP (means of patient protection): The power supply was evaluated as 2 MOPP between primary and secondary. See insulation diagram for details.
- The model GTM21089-1848-W2 is Considered as less than 1s, longer touch time shall be considered in the end product.

#### **Additional Information**

UL project 4786160712

- Adding additional investigation for Class II Power supply of IEC 60601-1-11 MEDICAL ELECTRICAL EQUIPMENT - PART 1-11: GENERAL REQUIREMENTS FOR BASIC SAFETY AND ESSENTIAL PERFORMANCE - COLLATERAL STANDARD: REQUIREMENTS FOR MEDICAL ELECTRICAL EQUIPMENT AND MEDICAL ELECTRICAL SYSTEMS USED IN THE HOME HEALTHCARE ENVIRONMENT - Edition 1 - Issue Date 2010/04/01

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## UL project 4786161797

1. Add alternate model(s) GTM21089-WWVV-X.X-CDA and GTM21096-WWVV-X.X-CDA with 2 MOPP insulations provided between primary and secondary.

2. Alternate fuses model(s) MST (from CONQUER ELECTRONICS CO LTD) and 2010 (from EVER ISLAND ELECTRIC CO LTD & WALTER ELECTRIC).

### UL Project 4787508193

1. Add alternate model GTM21089-1848-W2 with 2MOOP insulations provided between primary and secondary.

### **Additional Standards**

The product fulfills the requirements of: The product fulfills the requirements of: ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance) - Edition 1 - Revision Date 2012/01/01 CAN/CSA-C22.2 No. 60601-1 (2008) (Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance) Edition 2 - Revision Date 2011/06/01 IEC 60601-1-11 MEDICAL ELECTRICAL EQUIPMENT - PART 1-11: GENERAL REQUIREMENTS FOR BASIC SAFETY AND ESSENTIAL PERFORMANCE - COLLATERAL STANDARD: REQUIREMENTS FOR MEDICAL ELECTRICAL EQUIPMENT AND MEDICAL ELECTRICAL SYSTEMS USED IN THE HOME HEALTHCARE ENVIRONMENT - Edition 1 - Issue Date 2010/04/01 (For Class II Desktop type of GTM21089 Series only), ANSI/AAMI HA60601-1-11:2011, MEDICAL ELECTRICAL EQUIPMENT - Part 1-11, (For Class II Desktop type of GTM21089 Series only),

Markings and instructi	ons
Clause Title	Marking or Instruction Details
Company identification	Classified or Recognized company's name, Trade name, Trademark or File
Model	Model number
Supply Connection	Voltage range, ac/dc, phases if more than single phase
Supply Frequency	Rated frequency range in hertz
Class II equipment	
Alternating current	
Direct current	===
Power Input	Amps, VA, or Watts
Output	Rated output voltage, power, frequency.
IP Rating	IP42 is required for GTM21089-WWVV- A.B-T2Y series (IEC60601-1-11 standard) only (Not evaluated by UL.)
Special Instructions to	UL Representative
Class I product don't have	ve Class II equipment symbol.

For markings of output: only rated output voltage, current is applicable.

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Production-Line Testing Requirements								
<u>Test Exemptions</u> - The fol	lowing models are exempt f	rom the indicated test						
Model	Grounding Continuity	Dielectric Voltage Withstand	Patient Circuit Dielectric Voltage Withstand					
GTM21096-YYZZ-A.B- Exempt Not exempt Exempt								
GTM21089-WWVV-X.X- CDY	Exempt	Not exempt	Exempt					
GTM21089-1848-W2	Exempt	Not exempt	Exempt					
	est Exemptions - The follo							
	Comp	onent						
	-	-						
Sample and Test Specifics for Follow-Up Tests at UL								
The following tests shall be conducted in accordance with the Generic Inspection Instructions								
Plastic Enclosure or Part	Test	Sample(s)	Test Specifics					

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# **TABLE: List of Critical Components**

Object/part or	Manufacturer/	type/model	technical data	CCN	Marks of
Description	trademark				Conformity
X Capacitor (CX1) - (optional) (Alternate)	ULTRA TECH XIPHI ENTERPRISE CO LTD	HQX	Max.0.22uF, Min.250V, Class X1 or X2	FOWX2, 8	UL, cUL (E183780)
X Capacitor (CX1) - (optional) (Alternate)	DAIN ELECTRONICS CO LTD	MPX	Max.0.22uF, Min.250V, Class X1 or X2	FOWX2, 8	UL, cUL (E147776)
X Capacitor (CX1) - (optional) (Alternate)	CHENG TUNG INDUSTRIAL CO LTD	СТХ	Max.0.22uF, Min.250V, Class X1 or X2	FOWX2, 8	UL, cUL (E193049)
X Capacitor (CX1) - (optional) (Alternate)	JIANGSU XINGHUA HUAYU ELECTRONICS CO LTD	MPX	Max.0.22uF, Min.250V, Class X1 or X2	FOWX2, 8	UL, cUL (E311166)
X Capacitor (CX1) - (optional) (Alternate)	SINHUA ELECTRONICS (HUZHOU) CO LTD	MPX	Max.0.22uF, Min.250V, Class X1 or X2	FOWX2, 8	UL, cUL (E237560)
X Capacitor (CX1) - (optional) (Alternate)	SHANTOU HIGH- NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	MPX	Max.0.22uF, Min.250V, Class X1 or X2	FOWX2, 8	UL, cUL (E208107)
Appliance Inlet - "-T3" models only - 1089 Only	INALWAYS CORP	0711	Min 10A, 250Vac	AXUT2, 8	UL, cUL (E94191)
Appliance Inlet - Alternate - "-T3" models only - 1089 Only	RICH BAY CO LTD	R-301SN R-301	Min 10A, 250Vac	AXUT2, 8	UL, cUL (E184638)
Appliance Inlet - Alternate - "-T3" models only - 1089 Only	SUN FAIR ELECTRIC WIRE & CABLE (HK) CO LTD	S-03	Min 10A, 250Vac	AXUT2, 8	UL, cUL (E226643)
Appliance Inlet - Alternate - "-T3" models	TECX-UNIONS TECHNOLOGY	TU-301-S, TU- 301-SP	Min 10A, 250Vac	AXUT2, 8	UL, cUL (E220004)

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Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
only - 1089 Only	CORP				
Appliance Inlet - Alternate - "-T3" models only - 1089 Only	SHENZHEN DELIKANG ELECTRONICS TECHNOLOGY CO LTD	CDJ-3K	Min 10A, 250Vac	AXUT2, 8	UL, cUL (E217394)
Appliance Inlet - Alternate - "-T3" models only - 1089 Only	RONG FENG INDUSTRIAL CO LTD	SS-120	Min 10A, 250Vac	AXUT2, 8	UL, cUL (E102641)
Appliance Inlet - Alternate - "-T3" models only - 1089 Only	ZHEJIANG LECI ELECTRONICS CO LTD	DB-14	Min 10A, 250Vac	AXUT2, 8	UL, cUL (E302229)
Bulk Capacitor (C9)	Various	Various	Max.68uF, Min.400V, 105 degC.		
Capacitor, bridging (CY1, CY2) - (optional) CY2 is for 2MOPP version	TDK-EPC CORPORATION	CD	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E37861)
Capacitor, bridging (CY1, CY2) - (optional) (Alternate) CY2 is for 2MOPP version	WALSIN TECHNOLOGY CORP	AH Series	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E146544)
Capacitor, bridging (CY1, CY2) - (optional) (Alternate) CY2 is for 2MOPP version	MURATA MFG CO LTD	КХ	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E37921)
Capacitor, bridging (CY1, CY2) - (optional) (Alternate) CY2 is for 2MOPP version	SUCCESS ELECTRONICS CO LTD	SE SB	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E114280)

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Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
Capacitor, bridging (CY1, CY2) - (optional) (Alternate) CY2 is for 2MOPP version	JYA-NAY CO LTD	JN	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E201384)
Capacitor, bridging (CY1, CY2) - (optional) (Alternate) CY2 is for 2MOPP version	HAOHUA ELECTRONIC CO	СТ7	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E233106)
Capacitor, bridging (CY1, CY2) - (optional) (Alternate) CY2 is for 2MOPP version	KUNSHAN WANSHENG ELECTRONICS CO LTD	СТ7	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E249006)
Capacitor, bridging (CY1, CY2) - (optional) (Alternate) CY2 is for 2MOPP version	SHANTOU HIGH- NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	CD	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E208107)
Capacitor, bridging (CY1, CY2) - (optional) (Alternate) CY2 is for 2MOPP version	JERRO ELECTRONICS CORP	JX	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E333001)
Capacitor, bridging (CY1,CY2) - (optional) CY2 is for 2MOPP version (Alternate)	WELSON INDUSTRIAL CO LTD	WD	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E104572)
Capacitor, bridging (CY1,CY2) -	HONGZHI ENTERPRISES LTD	HEL	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E192572)

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Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
(optional) CY2 is for 2MOPP version (Alternate)					
Capacitor, bridging (CY1,CY2) - (optional) CY2 is for 2MOPP version (Alternate)	JYH CHUNG ELECTRONICS CO LTD	JD	Max.4700pF, Min.250Vac, Class Y1	FOWX2, 8	UL, cUL (E187963)
Enclosure - 1089 Only	TEIJIN CHEMICALS PLASTIC COMPOUNDS SHANGHAI LTD	LN-1250G	Rated V-0. Overall wall plug-in measures 74 by 49 by 40.5 mm. Desktop measures 86.5 by 47 by 32 mm. All minimum 2.3 mm thick. Constructed of two parts secured together by ultrasonic welding.	QMFZ2, 8	UL, cUL (E244324)
Enclosure - Alternate - 1089 Only	SABIC INNOVATIVE PLASTICS B V	SE100	Rated V-0. Overall wall plug-in measures 74 by 49 by 40.5 mm. Desktop measures 86.5 by 47 by 32 mm. All minimum 2.3 mm thick. Constructed of two parts secured together by ultrasonic welding.	QMFZ2, 8	UL, cUL (E45329)
Enclosure – Alternate - 1089 Only	CHI MEI CORPORATION	PA-769	Rated V-0. Overall wall plug-in measures 74 by 49 by 40.5 mm. Desktop measures 86.5 by 47 by 32 mm. All minimum 2.3 mm thick. Constructed of two parts secured together by ultrasonic welding.	QMFZ2, 8	UL, cUL (E56070)
Fuse (F1, F2) - (Alternate)	WALTER ELECTRONIC CO LTD	2010	Rated 250Vac, T1.0A. 130 A interrupting rating.	JDYX2, 8	UL, cUL (E56092)
Fuse (F1, F2) - (Alternate)	CONQUER ELECTRONICS CO LTD	MST	Rated 250Vac, T1.0A. 130 A interrupting rating.	JDYX2, 8	UL, cUL (E82636)
Fuse (F1, F2) - (Alternate)	Various	Various	Rated 250Vac, T1A. No micro fuse.	JDYX, 7	UL, cUL
Insulating Tape (around D8/H1)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ CT WF	2 layers, min. 1 turn, min. 20mm wide.	OANZ2	UL (E165111)
Insulating Tape (around	JINGJIANG JINGYI	JY25-A	2 layers, min. 1 turn, min. 20mm wide	OANZ2	UL

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Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
D8/H1) (Alternate)	ADHESIVE PRODUCT CO				(E246950)
	LTD				
Insulating Tape (around D8/H1) (Alternate)	SYMBIO INC	35660Y	2 layers, min. 1 turn, min. 20mm wide	OANZ2	UL (E50292)
Insulating Tape (around D8/H1) (Alternate)	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX	2 layers, min. 1 turn, min. 20mm wide	OANZ2	UL (E246820)
Insulating Tape (around D8/H1) (Alternate)	3M COMPANY  ELECTRICAL  MARKETS DIV  (EMD)	1350-1	2 layers, min. 1 turn, min. 20mm wide	OANZ2	UL (E17385)
Insulator - Silpad	DONGGUAN NANJU POLYMER MATERIAL CO LTD	NJ-352H-70	Around D8; 0.4mm thick min.	QMFZ2, 8	UL, cUL (E346848)
Insulator - Silpad	PIONEER MATERIAL PRECISION TECH	PMP-P-100	Around D8; 0.4mm thick min.	QMFZ2, 8	UL, cUL E153203
Insulator – Heat sink	FORMEX, DIV OF ILLINOIS TOOL WORKS INC, FORMERLY	Formex-18	Min 0.4mm thick; L-shaped, measuring 27 by 51 mm or 27 by 41 mm overall (flat)	QMFZ2, 8	UL, cUL (E121855)
Insulator – Heat sink Alternate	MIANYANG LONGHUA FILM CO LTD	PP-(i)(j)	Min 0.4mm thick; L-shaped, measuring 27 by 51 mm or 27 by 41 mm overall (flat)	QMFZ2	UL, cUL
Optical isolator (U1)	SHARP CORP ELECTRONIC COMPONENTS AND DEVICES DIV	PC817	5000 Vac isolation; 0.4mm insulation thickness inside and out (Reinforced)	FPQU2, 8	UL, cUL (E64380)
Optical isolator (U1)	LITE-ON	LTV-817	5000 Vac isolation; 0.4mm insulation thickness	FPQU2, 8	UL, cUL

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Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
Alternate	TECHNOLOGY CORP		inside and out (Reinforced)		(E113898)
Optical isolator (U1) Alternate	EVERLIGHT ELECTRONICS CO LTD	EL817	5000 Vac isolation; 0.4mm insulation thickness inside and out (Reinforced)	FPQU2, 8	UL, cUL (E214129)
Optical isolator (U1) Alternate	COSMO ELECTRONICS CORP	K1010; KP1010	5000 Vac isolation; 0.4mm insulation thickness inside and out (Reinforced)	FPQU2, 8	UL, cUL (E169586)
Optical isolator (U1) Alternate	BRIGHT LED ELECTRONICS CORP	BPC- 817; BPC- 817M; BPC- 817S	5000 Vac isolation; 0.4mm insulation thickness inside and out (Reinforced)	FPQU2, 8	UL, cUL (E236324)
Printed wiring board	Various	Various	Min.V-1, 105 degC	ZPMV2, 8	UL, cUL
Resistor, bleeding (R8, R9)	Various	Various	Max.470K, min.1/8W, carbon		
Transformer (T1)	SHAN DONG BOAM ELECTRIC CO LTD	04B150/04B129 (3.3-6V) 04B145(6.1- 11.9V) 04B146(12-17.9V) 04B147(18-23.9V) 04B121(24-33V)	Employs R/C OBJY2 Class B insulation system. See Diagrams Enclosure 4-01 and 4-05 for details.		(Tested in power supply.)
Insulation System	SHAN DONG BOAM ELECTRIC CO LTD	BOAM-01	Class B (130 degC).	OBJY2, 8	UL, cUL (E252329)
-Primary winding used in T1	Various	Various	Polyurethane with or without overcoat Polyamide, 130 deg C min. MW -75 or MW28 Type.	OBMW2	UL
-Secondary winding used in T1	FURUKAWA ELECTRIC CO LTD	TEX-E	Rated 130 degC, Triple insulated wire	OBJT2	UL (E206440)
-Bobbin used in T1	SUMITOMO BAKELITE CO LTD	PM-9820	Phenolic, rated V-0, 150 degC	QMFZ2, 8	UL, cUL (E41429)
-Insulation Tape used in T1	JINGJIANG YAHUA PRESSURE SENSITIVE	PZ, CT	Rated 130 deg C	OANZ2	UL (E165111)

Issue Date: 2013-12-27 Page 14 of 20 Report Reference # E341350-A32-UL

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
	GLUE CO LTD				
-Varnish used in T1	NOROO PAINT & COATINGS CO LTD	DVB-2085(C) DVB-2085(1)	Rated 130 degC	OBOR2	UL (E93947)
-Tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL TFT	Rated 150V, 200 degC	YDPU2	UL (E156256)
Transformer (T1) - (Alternate)	GlobTek/ ZhongTong	04B150/04B129 (3.3-6V) 04B145(6.1- 11.9V) 04B146(12-17.9V) 04B147(18-23.9V) 04B121(24-33V)	Employs R/C OBJY2 Class B insulation system. See Diagrams Enclosure 4-02 and 4-05 for details.		(Tested in power supply.)
Insulation System	GLOBTEK INC	GTX-130-TM	Class B, Table IV, VII, VIII (130 deg C)	OBJY2	UL (E243347)
Insulation System (Alternate)	WUXI ZHONGTONG ELECTRONICS CO LTD	ZT-130	Class B, Table IV, VII, VIII (130 deg C)	OBJY2	UL (E315275)
-Primary winding used in T1	Various	Various	Polyurethane with or without overcoat Polyamide, 130 degC min. MW -75 or MW28 Type.	OBMW2	UL
-Secondary winding used in T1	GREAT LEOFLON INDUSTRIAL CO LTD	TRWB	Rated 130 deg C Triple insulated wire, 600V peak voltage. Table IV, VII.	OBJT2	UL (E211989)
-Secondary winding used in T1 (Alternate)	TOTOKU ELECTRIC CO LTD	TIW-2	Rated 130 degC, Triple insulated wire, 250Vrms. Table VII	OBJT2	UL (E166483)
-Secondary winding used in T1 (Alternate)	E&B TECHNOLOGY CO LTD	E&B-XXXB	Rated 130 deg C Triple insulated wire, 1.0 kV peak voltage. Table VIII	OBJT2	UL (E315265)
-Bobbin used in T1	SUMITOMO BAKELITE CO LTD	PM-9820	Phenolic, rated V-0, 150 deg C. Table IV, VII, VIII	QMFZ2	UL (E41429)

Issue Date: 2013-12-27 Page 15 of 20 Report Reference # E341350-A32-UL

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
-Bobbin used in T1 (Alternate)	CHANG CHUN PLASTICS CO LTD	T375J T375HF	Phenolic, rated V-0, 150 deg C. For T375J Table IV, VII, VIII, for T375HF Table VII, VIII	QMFZ2	UL (E59481)
-Insulation Tape used in T1	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ CT WF	Rated 130 deg C. Table IV.	OANZ2	UL (E165111)
-Insulation Tape used in T1 (Alternate)	JINGJIANG JINGYI ADHESIVE PRODUCT CO	JY25-A	Rated 130 deg C. Table IV, VII, VIII	OANZ2	UL (E246950)
-Insulation Tape used in T1 (Alternate)	SYMBIO INC	35660Y	Rated 130 degC. Table IV, VII, VIII	OANZ2	UL (E50292)
-Insulation Tape used in T1 (Alternate)	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-XX	Rated 130 degC. Table IV, VII, VIII	OANZ2	UL (E246820)
-Varnish used in T1	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	T-4260(a)	Rated 130 degC. Table IV, VII, VIII	OBOR2	UL (E228349)
-Tube	NanTong Baishiling Plastic Electronics Co., Ltd	TFL-201 TFT-201	Rated 150V, 200 degC. Table VII	YDPU2	UL R/C
-Tube (Alternate)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	WF	Rated 600V, 200 degC. Table IV, VII, VIII	YDPU2, 8	UL, cUL (E203950)
- Tube (Alternate)	CHANGYUAN ELECTRONICS (SHENZHEN) CO LTD	CB-TT-L CB-TT-S CB-TT-T	VW-1. Rated Min.150V,Min. 200 Vdc. Table VII	YDPU2, 8	UL, cUL (E180908)
- Tube (Alternate)	GREAT HOLDING	TFL	Rated 150V, 200 deg C	YDPU2, 8	UL, cUL

Issue Date: 2013-12-27 Page 16 of 20 Report Reference # E341350-A32-UL

Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
	INDUSTRIAL CO LTD	TFT			(E156256)
Transformer (T1)		04B150/04B129 (3.3-6V) 04B145(6.1- 11.9V) 04B146(12-17.9V) 04B147(18-23.9V) 04B121(24-33V)	Employs R/C OBJY2 Class B insulation system. See Diagrams Enclosure 4-03 and 4-05 for details.		(Tested in power supply.)
-Insulation System		DASH 2 B-19	Class B, Tale II (130 deg C)	OBJY2	UL (E183163)
-Primary winding used in T1	Various	Various	Polyurethane with or without overcoat Polyamide, 130 deg C min. MW -75 or MW28 Type.	OBMW2	UL R/C
-Secondary winding used in T1	FURUKAWA ELECTRIC CO LTD	TEX-E	Rated 130 deg C Triple insulated wire	OBJT2	UL (E206440)
-Bobbin used in T1	CHANGCHUN PLASTICS CO LTD	T375J	Phenolic, rated V-0, 150 deg C	QMFZ2, 8	UL, cUL (E59481)
-Insulation Tape used in T1	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350-1	Rated 130 deg C	OANZ2	UL (E17385)
-Varnish used in T1	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	468-2FC	Rated 130 deg C	OBOR2	UL (E75225)
-Tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL	Rated 150V, 200 deg C	YDPU2	UL (E156256)
Wiring, internal – functional earth lead - 1089 with 3-prong construciton only	Various	Various	VW-1; 105 deg C, 18 gauge; shrink tubing around wire is necessary for compliance	AVLV2, 8	UL, cUL

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Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
Tube on function earth lead	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	BLE TD		YDPU2	UL, cUL (E203950)
Tube on function earth lead (Alternate)	SHENZHEN WOLIDA TRADING CO LTD	RSFR-H	Min. 0.4mm, min.125 deg C,min.300V	YDPU2	UL, cUL (E329530)
Output Cord	Various	Various	No. 22 AWG min., VW-1, Min.80 deg C, 300V, one end soldered to pwb and the other end molded with connector barrel type.	AVLV2, ZJCZ	UL, cUL
Heat Sink					
Diode Bridge (D3 to D6)	Various	Various	Rated min.600V, min.1.5A.		
Transistor (U3)	Various	Various	Rated min.500V, 2A min. Secured to heatsink by metal screw.		
Input connector - 1096 Only	MOLEX INCORPORATED	09-65-2038	Rated min 250V, min 1A; 3 pin version for Class I units, 3rd pin cut for Class 2 units, material rated V-2	ECBT2, 8	UL, cUL (E29179)
Input connector - 1096 Only	nput connector - 1096 WELI SHENG M3-I39601 Rated min 250V, Min.7A; 3 pin version for Class I		ECBT2, 8	UL, cUL (E149293)	
Switch (Optional for 21089 Output Cord)	Various	Various	Min.250 V, Min.2 A; Min.120 V, Min.3 A. Rated Min.V-2	WNWV2	UL, cUL
Line Choke (LF1)	Various	Various	Rating 130 degC.		
- Bobbin	CHANGCHUN PLASTICS CO LTD	T375J T375HF	Rated min.94V-1, and min.130 degC.	QMFZ2, 8	UL, cUL (E59481)
-Bobbin (alternate)	SUMITOMO BAKELITE CO LTD	PM-9820	Rated min. 94V-1, and min.130 degC.	QMFZ2	ÜL (E41429)
- Wire	Various	Various	Rated 130 degC	OBMW2, 8	ÙL, cUL

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Object/part or Description	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
Label (Provided if not using engraving or silkscreen or laser printing))	DONGGUAN XIANGQUAN PRINTING CO LTD	XQ03	Rated min. 80 degC. Suitable for use on the plastic enclosure	PGDQ2	UL (MH27594)
Label (Provided if not using engraving or Silkscreen or laser printing)) (alternate)	DONGGUAN XIANGQUAN PRINTING CO LTD	XQ004-B	Rated min 80 degC. Suitable for use on the plastic enclosure	PGJI2	UL (MH47303)
Label (Provided if not using engraving or silkscreen or laser printing)) (alternate)	FAN JA PAPER PRINTING CO LTD	FJ-03-3 FJ-07 FJ-03-1	Rated min 80 degC. Suitable for use on the plastic enclosure	PGDQ2, 8	UL,cUL (MH19546)
Label (Provided if not using engraving or silkscreen or laser printing)) (alternate)	E-LIN ADHESIVE LABEL CO LTD	EL-15	Rated min 80 degC. Suitable for use on the plastic enclosure	PGDQ2, 8	UL,cUL (MH45549)
Label (Provided if not using engraving or silkscreen or laser printing)) (alternate)	DONGGUAN SHANGMAO PRINTING CO LTD	C-004 C-019	Rated min 80 degC. Suitable for use on the plastic enclosure	PGDQ2, 8	UL,cUL (MH17427)
Label (Provided if not using engraving or silkscreen or laser printing)) (alternate)	SUZHOU HAIRONG PACKING PRODUCTION CO LTD	HR-01 HR-04	Rated min 80 deg C Suitable for use on the plastic enclosure	PGDQ2, 8	UL,cUL (MH48692)
Label (Provided if not using engraving or silkscreen or laser printing)) (alternate)	SHENZHEN CORWIN PRINTING CO LTD	CW-01	Rated min 80 deg C Suitable for use on the plastic enclosure	PGDQ2, 8	UL,cUL (MH47077)
Label (Provided if not using engraving or silkscreen or laser printing)) (alternate)	YUEN CHANG SPECIAL PRINTING (SHENZHEN) CO LTD	JL-02 JL-08	Rated min 80 deg C Suitable for use on the plastic enclosure	PGJI2, 8	UL, cUL (MH29752)

Issue Date: 2013-12-27 Page 19 of 20 Report Reference # E341350-A32-UL

Issue Date: 2013-12-27 Page 20 of 20 Report Reference # E341350-A32-UL

2016-10-27

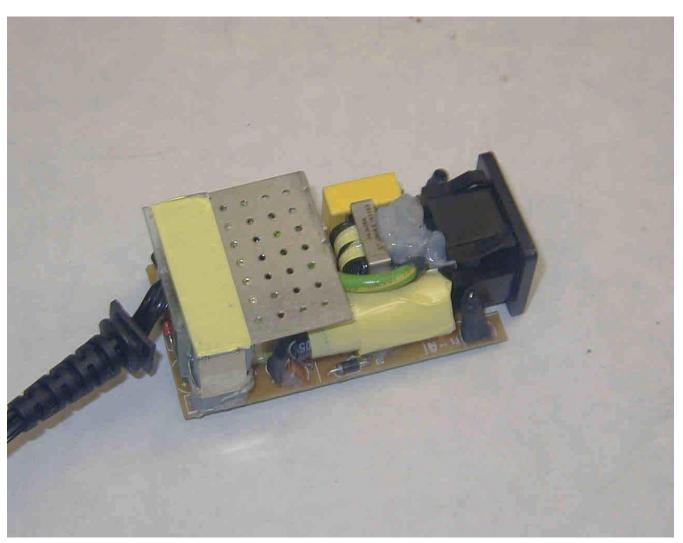
# **Enclosures**

<u>Type</u>	Supplement Id	Description	
Collateral	11-01	TRF IEC60601-1-11	
Photographs	3-01	1089 Desktop, Enclosure	
Photographs	3-02	1089 Desktop, internal, top	
Photographs	3-03	1086 Desktop, internal, bottom	
Photographs	3-04	1089 Wall Plug-in, Enclosure	
Photographs	3-05	1089 Wall Plug-in, internal, top	
Photographs	3-06	1089 Wall Plug-in, internal, bottom	
Photographs	3-07	1096 Open-frame (all) Models, top	
Photographs	3-08	1096 Open-frame (all) Models, bottom	
Diagrams	4-01	Output Strain Relief Spec	
Diagrams	4-02	Transformer Construction Diagram_BOAM	
Diagrams	4-03	Transformer Construction Diagram_Globtek	
Diagrams	4-04	Transformer Construction Diagram_	
Diagrams	4-05	Transformer spec(Model GTM21089-1848-W2)	
Schematics + PWB	5-01	1089 Desktop Models	
Schematics + PWB	5-02	1089 Wall Plug-in Models	
Schematics + PWB	5-03	1096 Open-Frame (all) Models	
Schematics + PWB	5-04	1089 Desktop Models (MOPP Version)	
Schematics + PWB	5-05	PCB layout(Model GTM21089-1848-W2)	
Manuals	6-01	Manual(Model GTM21089-1848-W2)	
Miscellaneous	7-01	1089 Family Label	
Miscellaneous	7-02	1096 Family Label	

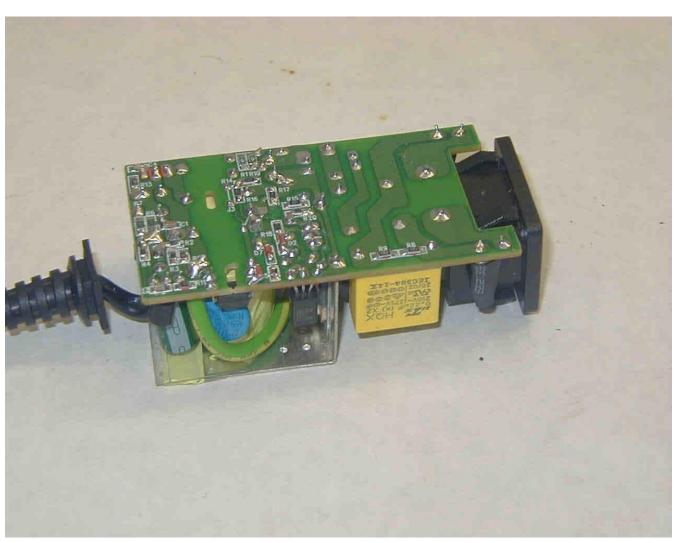
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File E341350 Vol. X2 Sec. A32 PHO-02 Issued: 2013-12-27



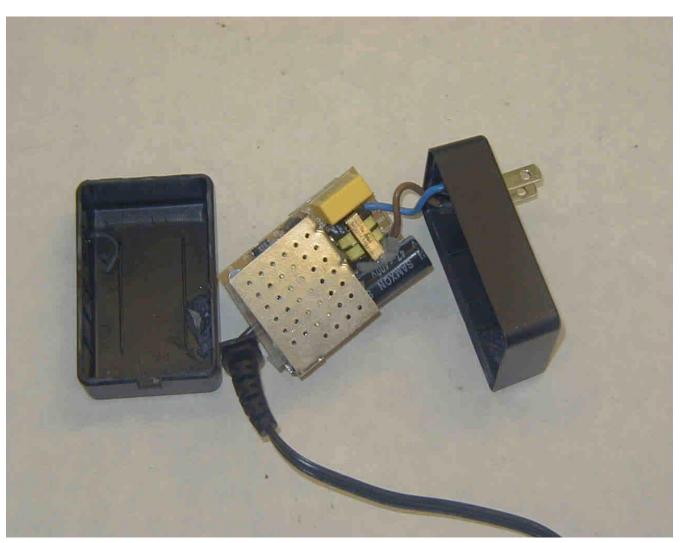
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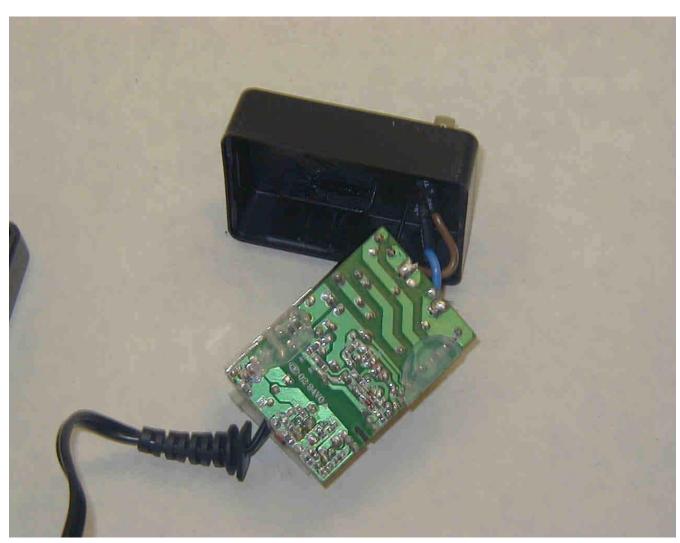
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File E341350 Vol. X2 Sec. A32 PHO-05 Issued: 2013-12-27



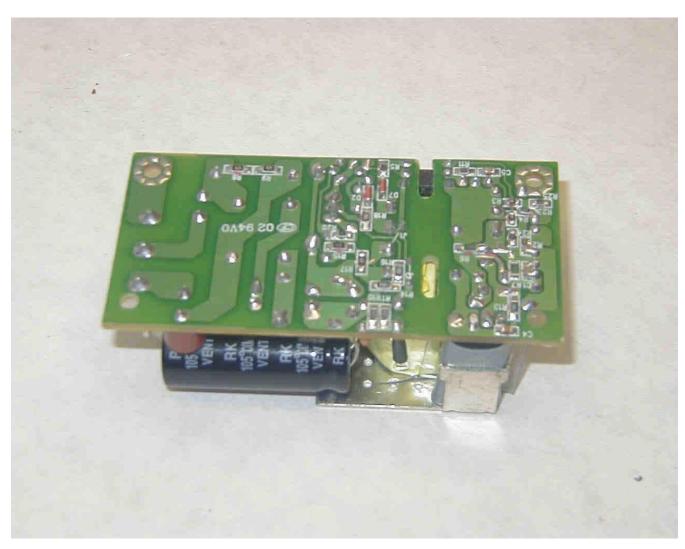
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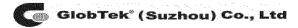
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File E341350 Vol. X2 Sec. A32 PHO-08 Issued: 2013-12-27



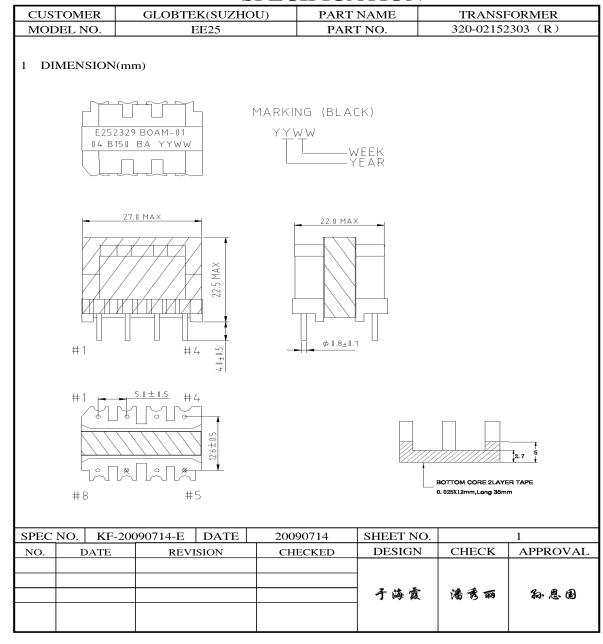
File E341350 Vol. X2 Sec. A32 DIA-01 Issued: 2013-12-27



医疗、资讯、车载、特种电源

零件承认书							
Material Approval							
制造商:	制造商:						
Manufacturer							
供应商:	山东宝岩电气有限公司						
Supplier	SHAN DONG BOAM CO.,LTD						
供应商料号:	320-02152303 (R)						
Supplier P/N	320-02132303 (R)						
名称:	TRANSFORMER						
Part Name	IRANSFORMER						
品名/规格:	GTM21089-1305-W2						
SPEC	G1M21089-1303-W2						
GlobTek料号:	220 02152202 (B)						
GlobTek P/N	320-02152303 (R)						
Edition No:	E 2013.12.11						
版本	E 2013.12.11						

作成:	确认:	承认:
Made by	Check	Approval
于海霞	潘秀丽	孙恩国
PS承认章:	RD承认章:	QC承认章:
Approval Stamp	Approval Stamp	Approval Stamp

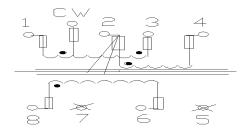


## SHANDONG BOAM ELECTRIC CO.,LTD

# **SPECIFICATION**

CUSTOMER	GLOBTEK(SUZHOU)	PART NAME	TRANSFORMER
MODEL NO.	EE25	PART NO.	320-02152303 (R)

## 2 EQUIVALENT CIRCUIT (BOTTOM VIEW)



- \* THE "●" MARKS ARE START POINT
- \* -5,7PIN

SPEC	NO.	KF-2009	0714-E	DATE	20090714	SHEET NO.		2
NO.		DATE	REVI	SION	CHECKED	DESIGN	CHECK	APPROVAL
						子海霞	潘秀丽	孙恩国

SHANDONG BOAM ELECTRIC CO

CUSTOMER	GLOBTEK(SUZHOU)	PART NAME	TRANSFORMER
MODEL NO.	EE25	PART NO.	320-02152303 (R)

## 3 ELECTRICAL CHARACTERISTICS

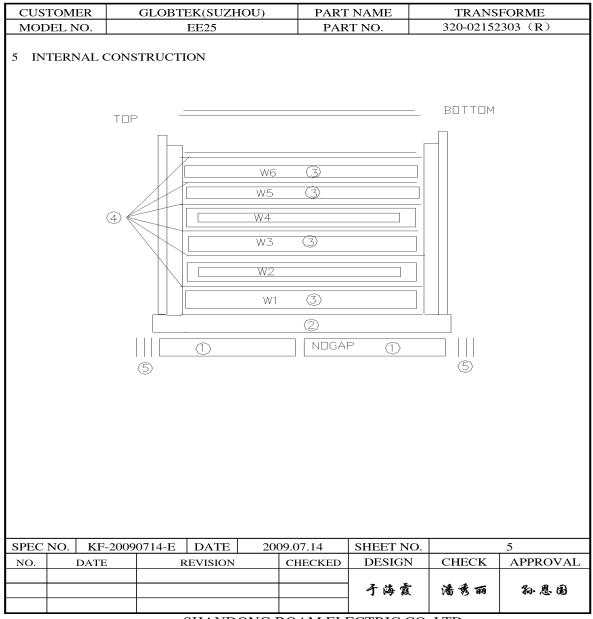
NO.	ITEM	TERMINAL	SPECIFICATION	REMARKS
1	INDUCTANCE	3-1	$1.85 \mathrm{mH} \pm 10\%$	HIOKI 3531 Z HITESTER
2	LEAKAGE INDUCTANCE	3-1 SHORTED PIN2,4,6,8	180uH MAX	(1KHz,0.3V)
3	DIELECTRIC WITHSTAND	PCOIL—SCOIL	AC 3KV 1SECOND	HPT-50100Z PUNCTURE TESTER:
3	VOLTAGE	COIL—CORE	AC 1.5KV 1 SECOND	5mA

SPEC	NO.	KF-2009	0714-E	DATE	20090714	SHEET NO.		3
NO.	I	DATE	REV	ISION	CHECKED	DESIGN	CHECK	APPROVAL
						子海霞	潘秀丽	和恩图

SHANDONG BOAM ELECTRIC CO.,LTD

CUSTOMER	GLOI	DBTEK(SUZHOU) PART		NAME TRANSFORMER		SFORMER
MODEL NO.		EE25	PART	NO.	320-021	52303 (R)
4. WINDING SP	ECIFICAT	ION	•	•		
NO PIN NO. ( S:START	S-F) , F:FINISH	WIRE		TURNS	WINDIN	G METHOD
<u> </u>		I		<del> </del>		
W1 3	-CW	2UEW Φ0.3	0	60	SOLENOI	D WINDING
	INSULATIO	N: POLYESTER TAPE	POLYESTER TAPE t= 0.025mm, w=11.n			
W2	2-	COPPER + TAPE 0.	0.8			
	INSULATIO	N: POLYESTER TAPE				
W3	8-6	TEX-E 0.65*2	TEX-E 0.65*2			D WINDING
	INSULATION	N: POLYESTER TAPE	t= 0.025mm,	w=11mm, 1 Ts		
W4	2-	COPPER + TAPE 0.	05*10mm	0.8		
	INSULATION	I: POLYESTER TAPE	t= 0.025mm, v	v=11 mm, 1 Ts	1	
W5 C	2W-1	2UEW Φ0.30				WINDING
	INSULATION	L N: POLYESTER TAPE	t= 0.025mm,	60   w=11mm, 1 Ts		
W6	2-4	2-4 2UEW Φ0.16 6 SPACED WINDING				INDING
	INSULATION	N: POLYESTER TAPE	t= 0.025mm,	w=11mm, 2 Ts		
CW welded together, Tubing, Fixing tape t=0.025mm, w=11mm,2Ts  CORE FIXING :POLYESTER TAPE t= 0.025mm, w=6.0mm, 2 Ts  Out side: POLYESTER TAPE t= 0.025mm, w= 20.0 mm 2Ts						
SPEC NO. KF	-20090714-E	DATE 2009.	07.14	SHEET NO	Э.	4
NO. DATI	3	REVISION C	HECKED	DESIGN	CHECI	C APPROVAL
				子海霞	潘秀百	有 私思图

SHANDONG BOAM ELECTRIC CO.,LTD



SHANDONG BOAM ELECTRIC CO.,LTD

CUSTOMER	GLOBTEK(SUZHOU)	PART NAME	TRANSFORMER
MODEL NO.	EE25	PART NO.	320-02152303 (R)

### 6. LIST OF MATERIALS

NO.	COMPONENT	MATERIALS	MANUFACTURES	REMARKS
1-01	CORE	EE2519 TP4	TDG HOLDING CO.,LTD OR EQUIV	
2-01	BOBBIN	PM9820 EE2519,8PIN	Sumitomo Bakelite CO.,LTD	E41429
3-01		2UEW Φ0.16	JIANGSU DARTONG M&E CO.,LTD	E237377
3-02 A	WIRE	2UEW Φ0.30	SHANDONG SAINT ELECTRIC CO .,LTD	E194410
3-03		ТЕХ-Е Ф0.65	TEX-E Φ0.65 FURUKAWA ELECTRIC CO.,LTD	
4-01 A	INSULATION TAPE	POLYESTER TAPE PZ-281 0.025×11mm 0.025×20mm	JINGJIANG YAHUA PRESSURESENSITIVE	E165111
	CORE FIXING TAPE	POLYESTER TAPE PZ-281 0.025×6mm	GLUE CO.,LTD	
5-01	COPPER TAPE	0.05×10mm	TAE HWA INDUSTRIAL CO	
6-01	VARNISH	DVB-2085(C)	NOROO PAINT&COATINGS CO.,LTD	E93947
7-01	TUBE	PTFE TFL	Great Holding Industrial co.,ltd	E156256

SPEC NO. KF-2009		0714-E DATE	2009.07.14		SHEET NO.	7	
NO.	DATE	REVISION		CHECKED	DESIGN	CHECK	APPROVAL
					子海霞	潘秀丽	孙恩围

SHANDONG BOAM ELECTRIC CO.,LTD

# GlobTek SPECIFICATION

Company Name	GlobTek(Suzhou)			
Power supply Part no: Transformer Part no:	GTM21089-1305 (04 B150) OSP-320-02152303(R)	<b>Rev:</b> 1.2		
Description:	High Frequency Transformer			
Issued Date:	2013-12-09			
				_
	Approval sheet an	d Sign here		
Signature:				$\dashv$
				4
Comments:				$\dashv$
		Please	return on copy after appro	 oval
	GlobTek(Suz	hou)		
		,		
Building 4, No 7	6 JinLing East Road,Suzhou ,Indus	trial Park, Suzhou,Ji	angSu,215021 China	
	Tel: +86 512 6279			
	mail: Lillian.li@glo	btek.cn		

制定 2013 年 12 月 09 日 环球特科(苏州)有限公司

Made 2013Y12 M 09 D

			记录 n History		
变更日期	变更版本	变更内容	制作	审核	承认
Date	Rev. No.	CONTENTS		Checked	Approved
2013-5-23	Rev 1.1	New edition	Lillian Li		
2013-12-09	Rev 1.2	底部磁芯包两层 12m	nm 胶带 Lillian Li		

制作

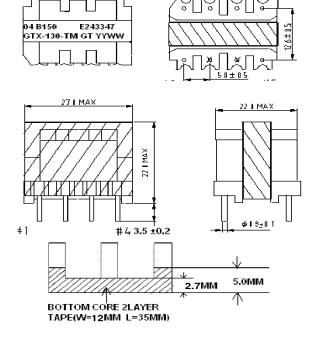
GlobTek(Suzhou) Co. Ltd. Prepared by

承认

Approved by

Lillian Li

### 产品编号 OSP-320-02152303(R) Article No. 产品外尺寸观图: 1. Mechanical Dimension:



## 注意事项 / Remarks:

1. PIN 脚长度 3.5+/-0.2 mm

PIN length: 3.5+/-0.2 mm

变压器表面没有锡珠或其他异物附着。

The transformer does not have solder balls or other dirt.

尺寸如图

All the dimension must be following the drawing.

4. 均匀绕线。

The winding must be distribuited in the whole surface of the bobbin.

制定 2013年 12月 09日 Made 2013Y12 M 09 D	环球特科(苏州)有限公司 GlobTek(Suzhou) Co. Ltd.	制作 Prepared by	Lillian Li	承认 Approved by	
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产品编号 Article No. OSP-320-02152303(R)
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## 2. Electrical Test

Electrical Parameter	Winding	Nominal Value	Max	Min	Test condition
	3-1		2.05mH	1.65mH	1kHz/0.3V
Inductance					
	3-1 shorted2,4,6,8		180uH		1kHz/0.3V
Leakage inductance					
	P-S	3.0kv AC			1S、5mA
HV Test	Coil -Core	1.5kv AC			1S、5mA
Turns Ratio					

制定 2013年 12月 09日 Made 2013Y12 M 09 D	环球特科(苏州)有限公司 GlobTek(Suzhou) Co. Ltd.	制作 Prepared by	Lillian Li	承认 Approved by	
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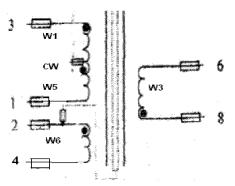
OSP-320-02152303(R)

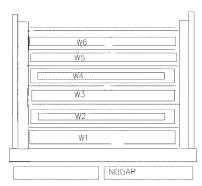
## 3. 绕线规格:

### Winding Information:

顺序 Order	PIN 脚 PIN No.	铜线 Copper wire	圈数 Turns	线槽 Slot	方向 Direction	备注 Remarks	
W1	3-CW	2UEW 0.3mm Class B	60				
		1turns W=11mm, T=0.025mm Ins	ulation ta	pe			
W2	2	Coper foil 10mmX0.05mm (Center)	8.0				
	1turns W=11mm, T=0.025mm Insulation tape						
W3	8-6	TRWB 0.65*2mm	9				
	1turns W=11mm, T=0.025mm Insulation tape						
W4	W4 2 Coper foil 10mmX0.05mm (Center)						
		1turns W=11mm, T=0.025mm Ins	ulation ta	ре			
W5	CW-1	2UEW 0.3mm Class B	60				
		1turns W=11mm, T=0.025mm Ins	ulation ta	ре			
W6	W6 2-4 2UEW 0.16mm Class B						
	2turns W=11mm, T=0.025mm Insulation tape						
		2turns W=6mm, T=0.025mm Core	e fixing ta	ре			
	Out side 2turns W=20mm, T=0.025mm Insulation tape						

CW 焊接在一起,套套管,用 W=11mm 的胶带包两圈





## 注意事项(Note):

切去 PIN 5.7 Cut PIN 5.7

制定 2013年12月09日 Made 2013Y12 M 09 D	环球特科(苏州)有限公司 GlobTek(Suzhou) Co. Ltd.	制作 Prepared by	Lillian Li	承认 Approved by	
Made 2013Y12 M 09 D	GlobTek(Suzhou) Co. Ltd.	Prepared by		· · .	

产品编号 OSP-320-02152303(R) Article No.

## 4. 使用材料:

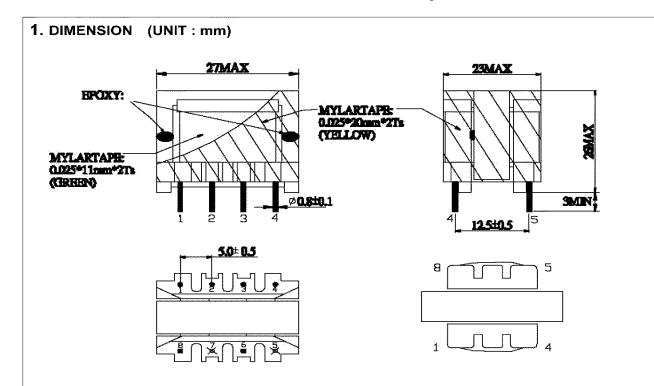
### Material list:

	viaterial list.	+	公 土 刊 口	/II = +	
	材料名称	材料规格	参考型号	供应商	UL
$\vdash$	Part Name	Material Description	Reference	Supplier	
1	磁芯 Core	EE25/20 FAP4	FAP4	富爱特	
2	骨架 Bobbin	EE-25(8P) H-2506	T375J	CHANGCHUN PLASTICS	E59481
3	铜线 Copper Wire	Ø 0.15mm Grade 1 Class B (130°)	<b>2UEW\130</b> ℃	DAYANG	E158909
4	铜线 Copper Wire	Ø 0.30mm Grade 1 Class B (130°)	<b>2UEW\130</b> ℃	DAYANG	E158909
5	三层绝缘线 (Copper Wire)	Ф <b>0. 65mm</b>	TRW(B)-065	GREAT LEOFLON INDUSTRIAL COLTD	E211989
6	铜箔 (Copper foil)	0.05t*10mm	(非自沾)	英速特(YINGSUTE)	
7	绝缘胶带 Yellow insulation Tap	6mm width,0.025mm thickness	CT-280	YAHUA	E165111
8	绝缘胶带 Yellow insulation Tap	11mm Width,0.025mm thickness	CT-280	YAHUA	E165111
9	绝缘胶带 Yellow insulation Tap	12mm width,0.025mm thickness	CT-280	YAHUA	E165111
10	绝缘胶带 Yellow insulation Tap	20mm width,0.025mm thickness	CT-280	YAHUA	E165111
11	铁氟龙套管 TEFLON TUBE	Ф0.30mm clear 30L	WF	WOER	E203950
12	铁氟龙套管 TEFLON TUBE	Ф1.5mm clear WF15L	WF	WOER	E203950
13	锡 Tin	Tin (without Pb)	Sn99.3Cu0.7		
14	助焊剂 Flux	Flux	KSY 608D		
15	标签 Label	PVT Label 20*5mm 04 B150 GTX-130-TM	94V-0		
	ss + /+ m L+wi +m/hr A				

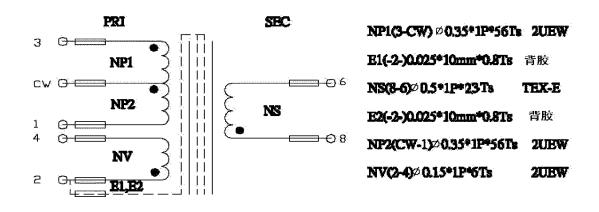
所有使用材料都符合 ROHS 2.0 标准。

All the materials used here according to ROHS 2.0.

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## 2. SHCEMATIC



			TITLE		
DESIGN	CHECK	APPRO.	POWER XMFR UNIT		mm
				DATE	2009-01-10
				PAGE	2/7

CJ2670

Pri-Sec

Sec-Core

3. EL	3. ELECTRICAL CHARACTERISTICS						
NO	ITEM	TERMINAL	SPECIFICATION	REMARKS			
3-1	INDUCTANCE	3 1	1.6mH±10%				
3-2	LEAKAGE INDUCTANCE	3 1 SHORTED pin2,4,6,8	150uH Max.	GainKaiTa3250 @1KHz,0.3Vrms			

AC3.75KV/10mA/60SEC

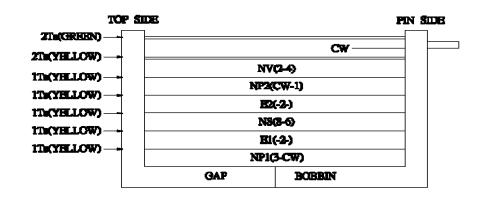
AC 3.75KV/10mA/60SEC

### 4. WINDING SPEC

3-3 HI-POT TESTING

NO	TERM	1INAL	TURNS	WIRE	STRANDS	INSULATION	INSULATION
NO	S	F	TOKNS	WIKE	STRANDS	MATERIAL	LAYERS
NP1	3	CW	56	2UEW Φ 0.35	1	PET 0.025	1
EI	2		0.8	COPPER FOIL	1	PET 0.025	1
			0.0	0.025*10	1.	1 1 1 0.023	ı
NS	8	6	23	TEX-E φ 0.5	2	PET 0.025	1
E2	2.		0.8	COPPER FOIL	1	PET 0.025	1
102			0.0	0.025*10	1.	1 L1 0.025	1
NP2	CW	1	56	2UEW Φ 0.35	1	PET 0.025	1
NV	2	4	6	2UEW Φ 0.15	1	PET 0.025	2

### 5. WINDING STRUCTURE



			TITLE		
DESIGN	CHECK	APPRO.	POWER XMFR	UNIT	mm
				DATE	2009-01-10
				PAGE	3/7

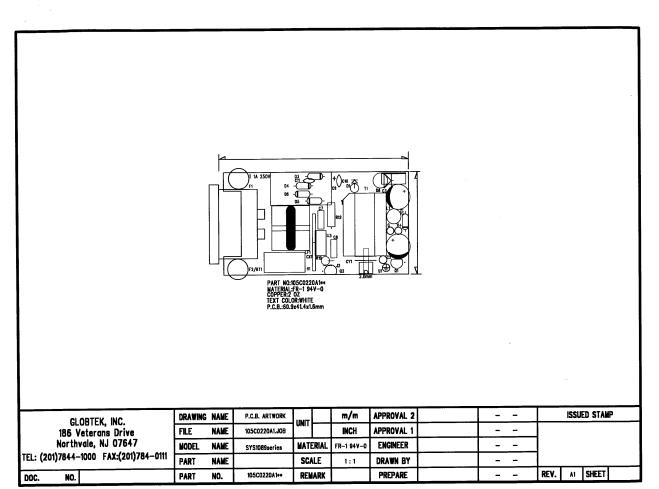
## 6. MATERIAL LIST.

NO.	NAME	SPEC	MANUFACTURER	NOTE
1.	BOBBIN	Т375Ј	CHANGCHUN	E59481
2.	CORE	EE25 TP4A,PC44,JR2KBF1	TDG,TDK,SPINEL	
3.	WIRE	2UEW	WUXI JUFENG	E206882
4.	TAPE	CT-281	YAHUA	E178516
5.	VARNISH	1032 ET-90A	QUALIPOLY CHEMICAL TAIHU INSULATING MATERIAL	E213437 E228349
6.	TIW	TEX-E	FURUKAWA	E206440

# \*DATA SHEET

TESTING II	NST	GainKaiTa	a3250 TEMF		TEMP/HUMIDITY		/60℃	
QUANTIT	Υ	5EA	<b>\</b>	DATA	DATA OF MEAS		.01.10	
	ITEM			l	NDUCTANC	E		
PIN NO		S.T.D	#1	#2	#3	#4	#5	
L(3-1)	1.0	6mH ±10%	1.62	1.62	1.69	1.66	1.65	
				LEAK	AGE INDUC	TANCE		
PIN NO		S.T.D	#1	#2	#3	#4	#5	
L <sub>K</sub> (3-1)	1:	50uH Max.	113	110	113	114	116	
		DIELECTRIC	WITHSTAN	IDING VOL	TAGE			
				#2	#3	#4	#5	
Pri-Sec:AC 3.75KV/10mA/60SEC		ОК	ОК	ок	ОК	ОК		
Sec-Core: AC	Sec-Core: AC 3.75KV/10mA/60SEC			ОК	ок	ОК	ОК	

			TITLE	LINIT		
DESIGN	CHECK	APPRO.	POWER XMFR	UNIT	mm	
				DATE	2009-01-10	
				PAGE	4/7	



105c0220a1.pcb - Wed Oct 08 13:34:05 2003



61.00 DRAWING NAME P.C.B. ARTWORK APPROVAL 2 m/m ISSUED STAMP GLOBTEK, INC. UNIT 186 Veterans Drive Northvale, NJ 07647 105C020A1.JOB FILE NAME INCH APPROVAL 1 - -MODEL NAME FR-1 94V-0 SYS1089series MATERIAL ENGINEER TEL: (201)7844-1000 FAX:(201)784-0111 PART NAME SCALE DRAWN BY

105c020a1.pcb - Wed Oct 08 13:20:30 2003

PART

NO.

105C020A1\*\*

REMARK

PREPARE

DOC.

NO.

GTM21089 - Wall Mouri

REV. A1 SHEET

-84.6mm P3 ⊕

APPROVAL 2

APPROVAL 1 ENGINEER

DRAWN BY

PREPARE

m/m

INCH

1:1

MATERIAL FR-1 84V-0

SCALE

REMARK

105a0230a1.pcb - Wed Oct 08 13:13:28 2003

R15477035

GLOBTEK, INC. 186 Veterans Drive Northvale, NJ 07647

TEL: (201)7844-1000 FAX:(201)784-0111

NO.

DOC.

DRAWING NAME

FILE NAME

NAME

NAME

NO.

MODEL

PART

PART

P.C.B. ARTWORK

105A0230A1.J0B

105A0230A1↔

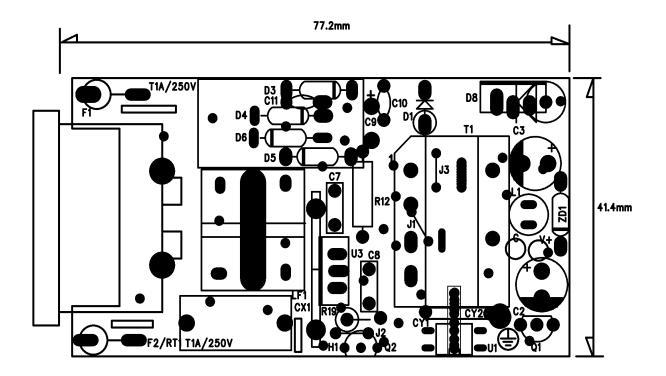
GT(m)21096

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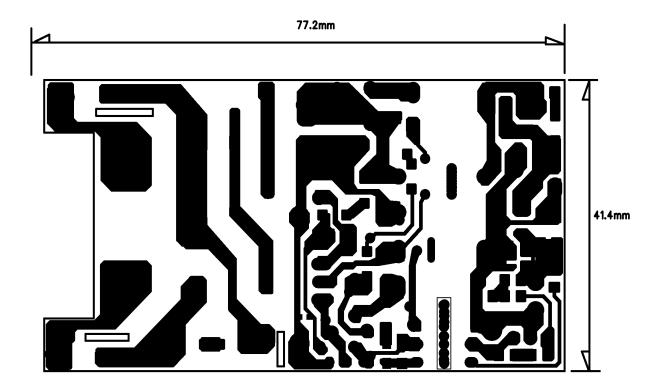
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REV. A1 SHEET

ISSUED STAMP



105C0220A2-SYS1089-UL.p - Fri May 30 14:47:38 2014

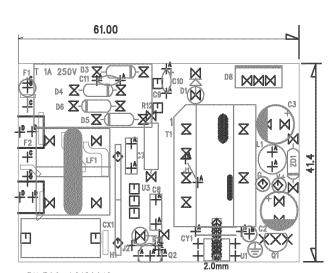


105C0220A2-SYS1089-UL.p - Fri May 30 14:50:19 2014



105C0220A2-SYS1089-UL.p - Fri May 30 14:57:12 2014

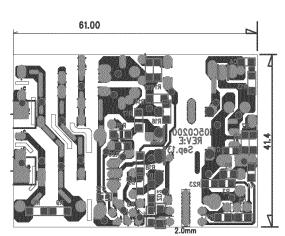
CAM Products 2000(TM):



PN:500-02120012 MATERIAL:FR-1 94V-0 COPPER:10Z TEXT COLOR:WHITE P.C.B.:60.9x41.4x1.6mm

SIZE	QTY	SYM	PLATED	TOL
0.9	4	+	YES	+/-0.0
0.8	3	X	YES	+/-0.0
1.1176	7	Ш	YES	+/-0.0
2.032	25	<b>♦</b>	YES	+/-0.0
1.2	14	X	YES	+/-0.0
1.1938	19	M	YES	+/-0.0
0.889	19	+	YES	+/-0.0
1.8034	1	<u> </u>	YES	+/-0.0
1	6	+	YES	+/-0.0
1.6	4	+D	YES	+/-0.0
0.6	1	<u> </u>	YES	+/-0.0

CAM Products 2000(TM):



PN:500-02120012 MATERIAL:FR-1 94V-0 COPPER:10Z TEXT COLOR:WHITE P.C.B.:60.9x41.4x1.6mm

SIZE	QTY	SYM	PLATED	TOL
0.9	4	+	YES	+/-0.0
0.8	3	X	YES	+/-0.0
1.1176	7		YES	+/-0.0
2.032	25	♦	YES	+/-0.0
1.2	14	X	YES	+/-0.0
1.1938	19	M	YES	+/-0.0
0.889	19	+	YES	+/-0.0
1.8034	1	<del>- B</del>	YES	+/-0.0
1	6	+ <del>c</del>	YES	+/-0.0
1.6	4	+P	YES	+/-0.0
0.6	1	丰	YES	+/-0.0

ROPRIETARY INFORMATION:		REVISION							
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PROHIBITED EXCEPT AS SPECIFIED IN WRITING BY GLOBTER, INC.	В	ADD CH. ROHS, REMOVE UL APPROV., UPDATE MODEL #, RFS. 10899, MS	04/24/07	HM					
		CHANGE O/P CORD LENGTH, RFS. 11063, MS	05/11/07	HM					
	D	CORRECT O/P CORD TO 18 AWG, RFS, 11140, MS	05/24/07	HM					
l <b>/</b> \text{\tin}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tint{\text{\tin}\text{\texi{\text{\ti}}\\ \ti}\\\ \ti}}\\ \tintity}\\ \tinttitex{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tin}\}\tittt{\text{\text{\texi}\titt{\text{\texi}\tittit{\text{\texi}\tilit{\texittt{\tex{\tii}\tinttitex{\tiint{\tinttit{\texi{\texi}\til\tiin	E	CORRECT MODEL #, RFS. 12632, MS	12/13/07	HM					

All models under this series are Certified to be in compliance with all the applicable requirements of UL60601-1 2nd Edition, CSA 22.2 No.601.1-M90 and EN 60601-1:A2. Globtek's Medical power supplies are designed to be used in applications that do not connect the output to Patient Circuits directly. The power supply can be used in systems with patient applied parts only when appropriate system level isolation is provided by the end user.

### **ELECTRICAL SPECIFICATIONS:** 1. INPUT

INPUT VOLTAGE:

INPUT CURRENT: INPUT FREQUENCY:
OUTPUT

OUTPUT VOLTAGE:

OUTPUT CURRENT: RATED OUTPUT POWER: OUTPUT REGULATION: LINE VOLTAGE REGULATION: HIGH FREQ. OUTPUT RIPPLE: TURN-ON/TURN-OFF OVERSHOOT: TURN-ON DELAY: HOLD-UP TIME: INRUSH CURRENT: SWITCHING FREQUENCY: EFFICIENCY:

### PROTECTION OVER-VOLTAGE:

INPUT PROTECTION: SAFETY

TYPE OF PROTECTION AGAINST ELECTRIC SHOCK: DEGREE OF PROTECTION

AGAINST ELECTRIC SHOCK: DEGREE OF PROTECTION

AGAINST INGRESS OF WATER:

DEGREE OF SAFETY OF APPLICATION

IN THE PRESENCE OF FLAMMABLE ANESTHETIC: MODE OF OPERATION:

DIELECTRIC WITHSTAND VOLTAGE:

EARTH LEAKAGE CURRENT:

APPROVALS
MEDICAL UNITS:

EMI:

CE MARK:

OTHERS

OPERATING TEMPERATURE:

HUMIDITY: STORAGE TEMPERATURE:

ROHS:

90Vac TO 264Vac <0.5Arms AT 90Vac INPUT 47HZ - 63HZ

33 VDC, NO LOAD TO FULL LOAD, NO MINIMUM LOAD REQUIRED

0.54 A 18.0 WATTS, MAXIMUM

18.0 WAI 13, MAAIMUM +/- 10 % MEASURED AT THE OUTPUT CONNECTOR +/- 1% TYPICAL MEASURED AT FULL LOAD 1% OF OUTPUT VOLTAGE, PEAK TO PEAK, TYPICAL 5% MAXIMUM, 1mS TYPICAL RECOVERY TIME FOR 25% STEP LOAD 1 SECOND, TYPICAL 10mS TYPICAL AT NOMINAL INPUT VOLTAGE AND FULL LOAD

30A TYPICAL AT 115Vac INPUT AND 40A TYPICAL AT 230Vac INPUT 100KHZ TYPICAL, VARIES WITH LINE AND LOAD 75% TYPICAL AT NOMINAL INPUT AND FULL LOAD

VOLTAGE LIMITED BY CROWBAR METHOD

MOMENTARY SHORT CIRCUIT PROTECTED, OUTPUT WILL AUTORECOVER UPON REMOVAL OF SHORT

INPUT LINE AND NEUTRAL FUSING

CLASS II (2 PIN NEMA 1-15P)

NOT CLASSIFIED (NO APPLIED PART)

IPXO (ORDINARY)

NOT EVALUATED CONTINUOUS

5656Vdc FROM PRIMARY TO SECONDARY < 300uA at 264Vac INPUT VOLTAGE

TUV TO EN60601 AND cTUVus, TO UL 2601-1, TO CAN/CSA-C22.2 No. 601.1-M90,

CLASS II; CE FOR EMC, PSE TO J60950

COMPLIES WITH EN55022 CLASS B AND FCC PART 15 CLASS B, VCCI WHEN TESTED WITH RESITIVE

LOAD, BOTH CONDUCTED AND RADIATED EMI

TESTED TO COMPLY WITH EN61000-3-2 EN610003-3 AND EN50082-1

INCLUDING EN61000-4-2 (SYSTEM LEVEL), EN61000-4-3, EN61000-4-4,

EN61000-4-5, EN61000-4-6, EN61000-4-11 LEVEL 4.

200,000 HOURS AT 25C AMBIENT TEMPERATURE
NOMINAL LINE AND FULL LOAD PER MIL-217 STANDARD
0°C TO 40°C AMBIENT TEMPERATURE
0% TO 90% RELATIVE HUMIDITY
-10°C TO 80°C
COMPLIES WITH EU 2002/95/EC AND CHINA SJ/T 11363-2006

Foot Note: Globtek Inc. will not be liable for the	DASH NO.	PART NO	REV. DESCRIPTION NOTES					NOTES	
safety and performance of these power supplies if unauthorized access and repair occurs. End user should consult applicable					TABULATION BLOCK				
UL, CSA or EN standards for proper installation instructions			TO. DECIJ		ICES: NGULAR +/- I'	<b>G</b> Gloi	bTek, Inc.	186 Veterans Dr. North Tel. 201-784-1000 Fa	
Limitation of Use: Globlek product are not authorized for use			.xxx +/005				101. 201-784-1000 Fa	X 201./84.0111	
an industrial substant summands to the title over	INIT.BY: MS	DATE: 12/19/06	.xx +	ETERS A 0.3 013	HA I'	DWG TITLE:		ATT, 33VDC @ 0.54A, SINC UNIVERSAL INPUT, MEDICAL	
approval from the CEO of Globtek Inc.	DRAWN: NF	DATE: 12/19/06	FSCN G, Y	No.:	SIZE A	MODEL NO:	GTM21089-1848-W2		REV. E
Contents of this document are subject to change without prior notice	APRVD : HM	DATE: 12/19/06	SCA	LE: NO	NE	PART NO:	WR91Y540LCP-	Y-MED(R)	SHEET 1 OF 4



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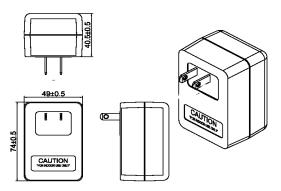
### 2. ENCLOSURE / INPUT CONNECTOR CONFIGURATION:

DIMENSIONS ARE IN MM UNLESS SPECIFIED OTHERWISE

UPPER HOUSING: HIGH IMPACT PLASTIC, 94V0 POLYCARBONATE, NON-VENTED, COLOR BLACK LOWER HOUSING: HIGH IMPACT PLASTIC 94V0 POLYCARBONATE, NON-VENTED, COLOR BLACK

### WALL PLUG-IN CLASS II (-W2):

SIZE:  $74 \times 49 \times 40.5 \pm 0.5$  mm



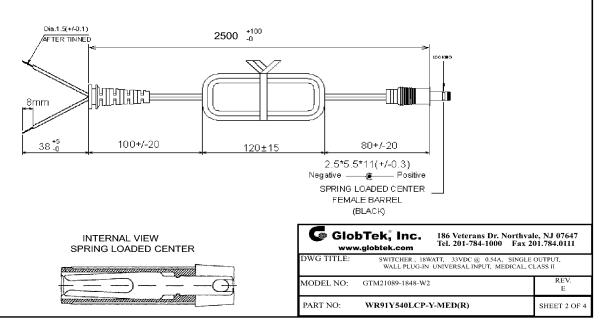
### INPUT PLUG:

CONFIGURATION: NEMA 1-15 WITH 2 BLADES

2 CONDUCTOR, 18 AWG STRANDED WIRE, FLAT UL SPT-1 CORD TYPE, COLOR BLACK, LENGTH (L) OF CORD: 2500 +100,-0 mm. CORD IS MEASURED FROM THE HOUSING TO THE END OF OVERMOLD OF THE CONNECTOR. CABLE IS TO BE MARKED WITH WIRE GAUGE, AND ALL APPLICABLE RATING AND SAFETY APPROVALS.

### 4. OUTPUT CONNECTOR:

STANDARD, STRAIGHT FEMALE BARREL 5.5 x 2.5 x 11 MM (SPRING LOADED WITH LOCKING NOTCH) CENTER POSITIVE



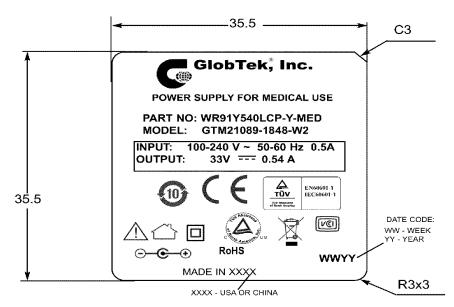
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### 5. LABEL:

MATERIAL: .007 (0.18) THICK FLAT THERMAL TRANSFER, IMPRINTABLE, BLACK POLYESTER SHEET WITH WHITE NOMENCLATURE. MANUFACTURER: STEVEN LABEL, MATERIAL I.D. NO.3302-33, UL FILE NO. MH12821(N), UL MATERIAL DESIGNATION FILE NO. GHW332RL. OPTIONAL LABEL MATERIAL CAN BE SUBSTITUTED PROVIDING MATERIAL IS UL LISTED AND COMPLIES WITH APPLICABLE SAFETY REQUIREMENTS.

Sec. A32



ACTUAL POSITIONING OF SYMBOLS AND TEXT IS SUBJECT TO CHANGE AT TIME OF MANUFACTURE

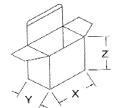


XXXX → JAPAN IMPORTER'S NAME



### 6. INDIVIDUAL PACKING BOX:

MATERIAL: CORRUGATED FIBERBOARD, F-FLUTE 0.8 (2.0) THICK, DOUBLE WALL CONSTRUCTION. EXTERNAL FINISH: WHITE, COATED WITH GLOSS FINISH (AQUEOUS OR VARNISH) STYLE: TUCK SIDES WITH LOCKING TABS ON BOTH SIDES OF BOX. NO PRINTING ON THE OUTSIDE OF BOX.



X = 90 mm

54 mm

Z = 110 mm

PCS/CARTON = 56 CARTON G.W. = 13.3 kg

	bTek <sup>®</sup> , Inc. w.globtek.com	186 Veterans Dr. Northval Tel. 201-784-1000 Fax 20	
DWG TITLE:		VATT, 33VDC @ 0.54A, SINGLE ( UNIVERSAL INPUT, MEDICAL, CI	
MODEL NO:	GTM21089-1848-W2		REV. E
PART NO:	WR91Y540LCP-	Y-MED(R)	SHEET 3 OF 4

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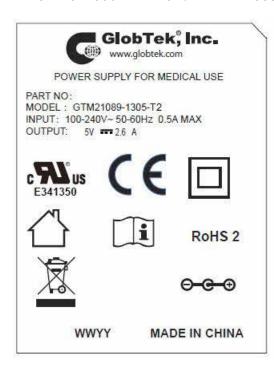
### China RoHS SELF DISCLOSURE TABLE

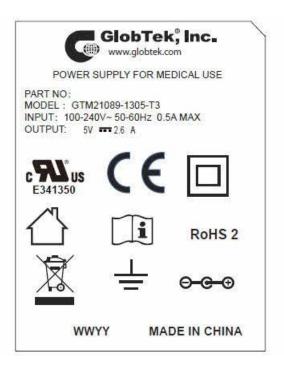
有毒有害物质或元素名称及含量标准形式									
Name and concentration of hazardous substance or element in product									
T M A News of new	居	毒有害物质	或元素 Ha	zardous subs	stance or el	ement			
零件名 Name of part	给 Pb	汞 Hg	镅·Cd	六价络 Cr(VI)	多溴联本 PBB	多溴二苯醚 PBDE			
输出线材料 DC CABLE	х	0	0	0	0	0			
输入插座 AC SOCKET	х	0	0	0	0	0			
二极管 SMD ZENER	х	0	0	0	0	0			

- Q: 表示该有毒有害物质在这部件中所有同质材料中的含量均在SJ/T 11363-2006规定的限量要求以下。
- O: refers to the concentration of this hazard substance in the all homogenous materials in this part is below the concentration limit as stipulated in the standard SJ/T 11363-2006.
- X. 表示该有毒有害物质至少在这部件中的某一间质材料中的含量超出 SJ/T 11363-2006规定的限量要求。
- Xi refers to the concentration of this hazard substance at least in a homogenous material is higher than the concentration limit as stipulated in the standard SJ/T 11363-2006.

_	bTek, Inc.	186 Veterans Dr. N Tel. 201-784-1000	orthvale, NJ 07647 Fax 201.784.0111
DWG TITLE:		VATT, 33VDC @ 0.54A, UNIVERSAL INPUT, MEI	
MODEL NO:	GTM21089-1848-W2	!	REV. E
PART NO:	WR91Y540LCP-	Y-MED(R)	SHEET 4 OF

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