

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (Information Technology Equipment - Safety - Part 1: General Requirements)																																
Certification Type:	Listing																																
CCN:	QQGQ, QQGQ7 (Power Supplies for Information Technology Equipment Including Electrical Business Equipment)																																
Product:	Switching Power Supplies																																
Model:	1089 Family: GT-21089-0903-A.B-CD GT-21089-1305-A.B-CD GT-21089-1506-A.B-CD GT-21089-1509-A.B-CD GT-21089-1512-A.B-CD GT-21089-1815-A.B-CD GT-21089-1818-A.B-CD GT-21089-1824-A.B-CD The models listed here are the standard models which the custom versions are based on. Custom units are obtained using the optional "A.B" modifier. The "CD" modifier describes type of input connection. See Model Differences for details.																																
Rating:	Input (all models, both families): 100-240 V ac, 50-60 Hz, 0.5 A max Output: <table><tr><td>1089 Model</td><td>Vdc</td><td>A</td></tr><tr><td>GT-21089-0903-A.B-CD</td><td>3.3</td><td>2.6</td></tr><tr><td>GT-21089-1305-A.B-CD</td><td>5.0</td><td>2.6</td></tr><tr><td>GT-21089-1506-A.B-CD</td><td>6.0</td><td>2.5</td></tr><tr><td>GT-21089-1509-A.B-CD</td><td>9.0</td><td>1.7</td></tr><tr><td>GT-21089-1509-A.B-CD</td><td>9.0</td><td>1.67</td></tr><tr><td>GT-21089-1512-A.B-CD</td><td>12.0</td><td>1.25</td></tr><tr><td>GT-21089-1815-A.B-CD</td><td>15.0</td><td>1.2</td></tr><tr><td>GT-21089-1818-A.B-CD</td><td>18.0</td><td>1.0</td></tr><tr><td>GT-21089-1824-A.B-CD</td><td>24.0</td><td>0.75</td></tr></table> See Model Differences for further details.			1089 Model	Vdc	A	GT-21089-0903-A.B-CD	3.3	2.6	GT-21089-1305-A.B-CD	5.0	2.6	GT-21089-1506-A.B-CD	6.0	2.5	GT-21089-1509-A.B-CD	9.0	1.7	GT-21089-1509-A.B-CD	9.0	1.67	GT-21089-1512-A.B-CD	12.0	1.25	GT-21089-1815-A.B-CD	15.0	1.2	GT-21089-1818-A.B-CD	18.0	1.0	GT-21089-1824-A.B-CD	24.0	0.75
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Applicant Name and Address:	GLOBTEK (HONG KONG) LTD UNIT 1402, BENSON TOWER 74 HUNG TO RD KWUN TONG KOWLOON HONG KONG																																

Issue Date: 2011-12-14
2014-01-28

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Report Reference #

E341351-A2-UL

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.

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

Prepared by: Brian Wong

Reviewed by: Alex Liu

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 -
 - i. 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 Information Technology equipment.

Model Differences

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

The 1089 Family models are represented by the following nomenclature,

GT-21089-YYZZ-A.B-CD

where:

GT-2 designates versions with UL 60950-1, 2nd Edition, ITE safety approval;

1089 is the family designation;

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

-A.B 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.)

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

Technical Considerations

- Equipment mobility : movable
- Connection to the mains : pluggable A
- Operating condition : continuous
- Access location : operator accessible
- Over voltage category (OVC) : OVC II
- Mains supply tolerance (%) or absolute mains supply values : +10%, -10%
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A

- Class of equipment : Class II (optionally provided with Functional Earth)
- Considered current rating of protective device as part of the building installation (A) : 20 A
- Pollution degree (PD) : PD 2
- IP protection class : IP X0
- Altitude of operation (m) : less than 2000 meters
- Altitude of test laboratory (m) : less than 2000 meters
- Mass of equipment (kg) : 0.18
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 30°C
- The means of connection to the mains supply is: Detachable power cord, Pluggable A
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: Appliance inlet

Additional Information

Revision: SR8227620-T001

Transfer File from the File E336418, Vol. X1, E336418-A1 into the File E341351, Vol. X2, E341351-A2.

Revision 13CA34528:

1. Add alternate component

a. X Capacitor (CX1) Type CTX by Cheng Tung,

b. Appliance Inlet Type TU-301 by TECX-Unions, Type DB-14 by Zhejiang LECI Electronics Co., Ltd., Type DB-8 by ZHEJIANG LECI ELECTRONICS CO LTD and Type CDJ-8 by DELIKANG ELECTRONICS

c. Briding Capacitor (CY1) Type KX by Murata, Type SB/SE by Success, Type JN by Jya-Nay, Type CD by SONGTIAN ENTERPRISE CO LTD and Type CT7 by HAOHUA ELECTRONIC CO.

d. Fuse (F1) Type ICP by Walter

e. Optical isolator (U1) Type EL817 by Everlight, Type BPC-817 by Bright and Type LTV-817 by Lite-on.

f. Insulation system designated GTX-130-TM by GLOBTEK INC and designated ZT-130 by ZhongTong

2. Upgrading standard to UL60950-1, 2nd Edition, dated 2011-12-19 and CSA C22.2 No. 60950-1-07, 2nd Edition, dated 2011-12-19.

Revision 13CA34516

1. Add alternate model with output 9 V, 1.67 A

Additional Standards

The product fulfills the requirements of: N/A

Markings and instructions

Clause Title	Marking or Instruction Details
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Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
None	--	--	--	--	--	--

Earthing Continuity Test Exemptions - This test is not required for the following models:

None

Electric Strength Test Exemptions - This test is not required for the following models:

None

Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:

None

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
None	--	--	--	--	--

1.5.1	TABLE: list of critical components					Pass
Object/part or Description	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Supplement ID
X Capacitor (CX1) (Optional)	Pilcor	PCX2	Max. 0.22uf, min. 275V, Min. X2	FOKY2, or FOWX2	UL/cUL R/C	
X Capacitor (CX1) – Alternate (Optional)	Ultra Tech	HQX	Max. 0.22uf, min. 275V, Min. X2	FOKY2, or FOWX2	UL/cUL R/C	
X Capacitor (CX1) – Alternate (Optional)	Dain	MPX	Max. 0.22uf, min. 275V, Min. X2	FOKY2, or FOWX2	UL/cUL R/C	
X Capacitor (CX1) – Alternate (Optional)	Europtronic	MPX	Max. 0.22uf, min. 275V, Min. X2	FOKY2, or FOWX2	UL/cUL R/C	
X Capacitor (CX1) – Alternate (Optional)	Cheng Tung	CTX	Max. 0.22uf, min. 275V, Min. X2	FOKY2, or FOWX2	UL/cUL R/C	
X Capacitor (CX1) – Alternate (Optional)	Jiangsu Xinghua Huayu Electronics Co., Ltd.	MPX	Max. 0.22uf, min. 275V, Min.X2	FOKY2, or FOWX2	UL/cUL R/C (E311166)	
X Capacitor (CX1) – Alternate (Optional)	Sinhua Electronics (Huzhou) Co. Ltd.	MPX	Max. 0.22uf, min. 275V, Min.X2	FOKY2, or FOWX2	UL/cUL R/C (E237560)	
X Capacitor (CX1) – Alternate (Optional)	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	MPX	Max. 0.22uf, min. 275V, Min.X2	FOKY2, or FOWX2	UL/cUL R/C (E208107)	
Appliance Inlet – “-T3” models only	In-Always	0711	Min. 10A, min. 250V	AXUT2	UL R/C	
Appliance Inlet – Alternate – “-T3” models only	Rich Bay	R-301SN, R-301	10A, 250V	AXUT2	UL R/C	
Appliance Inlet –	Sun Fair	S-03	10A, 250V	AXUT2	UL R/C	

Alternate – “-T3” models only						
Appliance Inlet – Alternate – “-T3” models only	TECX-Unions	TU-301-S, TU-301-SP	10A, 250V	AXUT2	UL R/C	
Appliance Inlet – Alternate – “-T3” models only	Zhejiang LECI Electronics Co., Ltd.	DB-14	10A, 250V	AXUT2	UL R/C	
Appliance Inlet – Alternate – “-T3” models only	RONG FENG	SS-120	Min.10A, Min.250V	AXUT2	UL R/C (E102641)	
Appliance Inlet – Alternate – “-T3” models only	DLK	CDJ-3K	Min.10A, Min.250V	AXUT2	UL R/C (E217394)	
Appliance Inlet – Alternate - “-T3/T2” models only	Various	Various	Min. 10A, Min. 250V	AXUT2	UL R/C	
Appliance Inlet – Alternate - “-T2” models only	Rong Feng	RF-180	10A, 250V	AXUT2	UL R/C	
Appliance Inlet – Alternate - “-T2” models only	Tecx-Unions	SO-222 series	10A, 250V	AXUT2	UL R/C	
Appliance Inlet – Alternate - “-T2” models only	Sun Fair	S-01	10A, 250V	AXUT2	UL R/C	
Appliance Inlet – Alternate - “-T2” models only	Rich Bay	R-201SN90	10A, 250V	AXUT2	UL R/C	
Appliance Inlet – Alternate - “-T2” models only	ZHEJIANG LECI ELECTRONICS CO LTD	DB-8	10A, 250V	AXUT2	UL E302229	
Appliance Inlet – Alternate - “-T2” models only	DELIKANG ELECTRONICS	CDJ-8	10A, 250V	AXUT2	UL E217394	
Bulk Capacitor (C9)	--	--	Max. 68 uF, Min. 400V, 105(C	--	--	

Capacitor, bridging (CY1) (Optional)	TDK	CD	4700pf (max), min. 250V, Y1	FOKY2, or FOWX2	UL/cUL R/C	
Capacitor, bridging (CY1) - Alternate (Optional)	Walsin	AH	4700pf (max), min. 250V, Y1	FOKY2, or FOWX2	--	
Capacitor, bridging (CY1) - Alternate (Optional)	Welson	WD	4700pf (max), min. 250V, Y1	FOKY2, or FOWX2	--	
Capacitor, bridging (CY1) - Alternate (Optional)	Chyun Fuh	CE	4700pf (max), min. 250V, Y1	FOKY2, or FOWX2	UL/cUL R/C	
Capacitor, bridging (CY1) - Alternate (Optional)	Samsung	SEM	4700pf (max), min. 250V, Y1	FOKY2, or FOWX2	UL/cUL R/C	
Capacitor, bridging (CY1) - Alternate (Optional)	Murata	KX	4700pf (max), min. 250V, Y1	FOKY2, or FOWX2	UL/cUL R/C	
Capacitor, bridging (CY1) - Alternate (Optional)	Success	SB, SE	4700pf (max), 250V, Y1	FOKY2, or FOWX2	UL/cUL R/C	
Capacitor, bridging (CY1) - Alternate (Optional)	Jya-Nay	JN	4700pf (max), 250V, Y1	FOKY2, or FOWX2	UL/cUL R/C	
Capacitor, bridging (CY1) - Alternate (Optional)	SONGTIAN ENTERPRISE CO LTD	CD	4700pf (max), 250V, Y1	FOKY2, or FOWX2	UL/cUL R/C	
Capacitor, bridging (CY1) - Alternate (Optional)	HAOHUA ELECTRONIC CO	CT7	4700pf (max), 250V, Y1	FOKY2, or FOWX2	UL/cUL R/C	
Capacitor, bridging (CY1) - Alternate (Optional)	JERRO ELECTRONICS CORP	JX	4700pf (max), Min.250V, Y1	FOKY2, or FOWX2	UL/CuI (E333001)	
Capacitor, bridging (CY1) - Alternate (Optional)	HONGZHI	Y	4700pf (max), Min.250V, Y1	FOKY2, or FOWX2	UL/cUL (E192572)	

Enclosure	Teijin Chemicals	LN-1250G	Rated V-0, 115 deg C. 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	R/C UL	
Enclosure – Alternate	SABIC	SE100	Same as above except rated V-1, 80 deg C.	QMFZ2	UL	
Enclosure – Alternate	Chi Mei	PA-769	Same as above except rated V-0, 60 deg C.	QMFZ2	UL	
Fuse (F1)	Littlefuse	228	250V, 1A	JDYX2	UL/cUL R/C	
Fuse (F1) - Alternate	Wickman	195	250V, 1A	JDYX2	UL/cUL R/C	
Fuse (F1) - Alternate	Walter	TAP	250V, 1A	JDYX2	UL/cUL R/C	
Fuse (F1) – Alternate	Walter	ICP	250V, 1A	JDYX	UL/cUL	
Fuse (F1) - Alternate	Ever Island Electric Co Ltd & Walter Electric	2010	250V, T1AL	JDYX2	UL/cUL	
Fuse (F1) – Alternate	Conquer Electronics Co.Ltd	MST	250V, T1AL	JDYX2	UL/cUL	
Fuse (F1) – Alternate	Various	Various	Listed. 250V, 1A	JDYX	UL/cUL	
Insulator – Silpad	--	--	Around D8; 0.5mm thick, covered by 1 layer of Mylar Insulating tape.	QMFZ2	UL/cUL R/C	
Insulator – Heat sink	--	Various	Min 0.4mm thick; L-shaped, measuring 26 by 51 mm overall (flat)	QMFZ2	UL/cUL R/C	
Optical isolator (U1)	Sharp	PC817	5000 Vac isolation; 0.4mm insulation thickness inside and	FPQU2	UL/cUL R/C	

			out (Reinforced)			
Optical isolator (U1) – Alternate	Lite-on	LTV-817	5000 Vac isolation; 0.4mm insulation thickness inside and out (Reinforced)	FPQU2	UL/cUL R/C	
Optical isolator (U1) – Alternate	Everlight	EL817	5000 Vac isolation	FPQU2	UL/cUL R/C	
Optical isolator (U1) – Alternate	Bright	BPC-817	5000 Vac isolation	FPQU2	UL/cUL R/C	
Optical isolator (U1) – Alternate	Cosmo	K1010; KP1010	5000 Vac isolation	FPQU2	UL/cUL R/C (E236324)	
Printed wiring board	Various	Various	Min V-1, 105°C	ZPMV2	UL	
Resistor, bleeding (R8, R9)	--	--	470K, min. 1/8W, carbon	--	--	
Output Strain Relief	Various	Various	Rated Min HB (See Diagrams Enclosure.)	QMFZ2	UL R/C	4-02
Transformer (T1)	--	See Diagrams Enclosure for details.	Employs R/C OBJY2 Class B insulation system. See Diagrams Enclosure for details.	--	--	4-03
Insulation System			Class B (130°C)	OBJY2	UL	
Insulation System – Alternate	GLOBTEK INC (E243347)	GTX-130-TM	Class B (130°C)	OBJY2	UL	
Insulation System – Alternate	BOAM (E252329)	BOAM-01	Class B (130°C)	OBJY2	UL	
Insulation System – Alternate	Zhong Tong (E315275)	ZT-130	Class B (130°C)	OBJY2	UL	
Wiring, internal – functional earth lead	--	--	VW-1; 105°C, min. 18 gauge. May or may not be provided with R/C tubing.	AVLV2	UL	
Heat Sink	--	--	Copper, L-shaped. Top dimensions 36 mm by 40 mm, 0.8 mm thick. Side dimensions 24mm by 25mm, 0.8 mm thick. Secured to printed wiring board by soldering. Rear edge covered in 1 layer, 8.0mm of	--	--	

			R/C OANZ2 Mylar tape on both top and bottom.			
Diode Bridge (D3-D6)	--	--	Rated min. 600V, min. 1.5 A.	--	--	
Transistor (U3)	--	--	Rated min. 500V, 2A min. Secured to heatsink by metal screw.	--	--	
Output Cord	--	--	22 AWG min., VW-1, 80 degrees C, 300 V or better	AVLV2	UL R/C, cUL R/C	
Output cord – Alternate	--	--	No.22AWG min. VW-1, 80 degrees C, 300 V or better	ZJCZ	UL/cUL	
Switch (Optional for Output Cord)	Openwise	Series 303fb-12, -22,-23	250 V, 2 A, V-2	WNWV2	UL R/C, cUL R/C	
Alternate Switch (Optional for Output Cord)	Teilbar	Series 303	250 V, 2 A 120 V, 3 A, V-2	WNWV2	UL R/C, cUL R/C	
Alternate Switch (Optional for Output Cord)	Various	Various	250 V, 2 A, 120 V, 3 A, V-2	WNWV2	UL R/C, cUL R/C	

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