File E301933
Project 07CA43517

January 09, 2008

REPORT

On

COMPONENT - DIRECT PLUG-IN AND CORD CONNECTED CLASS 2 POWER UNITS

Ever Shining Optotech Co., Ltd.
Taoyuan Hsien Taiwan

DESCRIPTION

PRODUCT COVERED:

USR, CNR Components - Class 2 Power Units, Models LD-CU3503AF, LD-CU7006AF, LD-CU3536AF, LD-CU7021AF, LD-VU2512AF, LD-VU5012AF, LD-VU8312AF, LD-VU1224AF, LD-VU2524AF, LD-VU4124AF, LD-CU3503-02, LD-CU7006-02, LD-CU3536-02, LD-CU7021-02, LD-VU2512-02, LD-VU5012-02, LD-VU8312-02, LD-VU1224-02, LD-VU2524-02, LD-VU4124-02, LD-VU2512-01, LD-VU5012-01, LD-VU1224-01, LD-VU2524-01, LD-CU3512-01, LD-CU7012-01.

ELECTRICAL RATINGS:

Model	Input, ac			Output, dc		
	V (#)	A	Hz	V	mA	Maximum power, Watt
LD-CU3503AF	100-240	0.085	50/60	12	350	3.5
LD-CU7006AF	100-240	0.185	50/60	12	700	6.5
LD-CU3536AF	100-240	0.22	50/60	36	350	8
LD-CU7021AF	100-240	0.22	50/60	21	700	9
LD-VU2512AF	100-240	0.085	50/60	12	250	3
LD-VU5012AF	100-240	0.22	50/60	12	500	6
LD-VU8312AF	100-240	0.22	50/60	12	830	10
LD-VU1224AF	100-240	0.085	50/60	24	130	3
LD-VU2524AF	100-240	0.22	50/60	24	250	6
LD-VU4124AF	100-240	0.22	50/60	24	410	10
LD-CU3503-02	100-240	0.085	50/60	12	350	3.5
LD-CU7006-02	100-240	0.185	50/60	12	700	6.5
LD-CU3536-02	100-240	0.22	50/60	36	350	8
LD-CU7021-02	100-240	0.22	50/60	21	700	9
LD-VU2512-02	100-240	0.085	50/60	12	250	3
LD-VU5012-02	100-240	0.22	50/60	12	500	6
LD-VU8312-02	100-240	0.22	50/60	12	830	10
LD-VU1224-02	100-240	0.085	50/60	24	130	3
LD-VU2524-02	100-240	0.22	50/60	24	250	6
LD-VU4124-02	100-240	0.22	50/60	24	410	10
LD-CU3512-01	100-240	0.085	50/60	12	350	3.5
LD-CU7012-01	100-240	0.185	50/60	12	700	6.5
LD-VU2512-01	100-240	0.085	50/60	12	250	3
LD-VU5012-01	100-240	0.22	50/60	12	500	6
LD-VU1224-01	100-240	0.085	50/60	24	130	3
LD-VU2524-01	100-240	0.22	50/60	24	250	6

Note (#) – The input voltage rating may be marked with any single voltage within the range specified.

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

USR - Indicates investigation to the U.S. Standard for Class 2 Power Units, UL 1310, Fifth Edition.

CNR – Indicates investigation to the Canadian Standard for Power Supplies with Extra-Low-Voltage Class 2 Outputs, CAN/CSA-C22.2 No. 223-M91, Second Edition.

USE – For use in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability - When installed in the end-use equipment, consideration shall be given to the following:

1. These components have been judged on the basis of the required spacings in the Standard for Class 2 Power Units, UL 1310, Par 24.5 to Par 24.9, UL 840, Table 9.1 and the Canadian Standard for Power Supplies with Extra-Low-Voltage Class 2 Outputs, CAN/CSA-C22.2 No. 223-M91, Table 2 and Table 3.

2. These power supplies were intended for use in indoor use equipment only.

3. These transformers employ Class 105 (A) insulation.

4. These components shall be installed in compliance with the enclosure and mounting requirements of the ultimate application.

5. The input and output leads are minimum No. 20 AWG, rated 300 V, 80°C. The suitability of input and output connections shall be determined in each end use application. (For Models suffix with AF and 02 series only)

6. Use minimum No. 20 AWG, 80°C copper wire and 4.4 lb-in torque force when connecting to input and output terminal blocks. (For Models suffix with 01 series only)

7. The Strain Relief, Mold Stress Relief Distortion and Impact Tests have not been investigated. The flammability of enclosure material under investigation was rated V-2. The suitability of the enclosure as ultimate enclosure shall be determined in the end-use application.

8. The maximum temperature measured on enclosure surface was 69°C during the Temperature Test. The necessity of repeat Temperature Test shall be determined in each end use application.

9. The necessity of repeated Leakage Current Test shall be determined in each use application.

10. These power units are intended for factory installed only.

11. Models LD-CUXXXXAF, LD-CUXXXX-01 and LD-VUXXXX-02 are constant current output.

12. Models LD-VUXXXXAF, LD-VUXXXX-01 and LD-VUXXXX-02 are constant voltage output.

CONSTRUCTION DETAILS:

The units shall be constructed in accordance with the following items. See also, Sec. Gen., Construction Details.

General - In addition to the following paragraphs and descriptive indices, see also Sec. Gen.

Spacing – See Sec. Gen. for details.

Markings - See Sec. Gen., Markings.

MODEL DIFFERENCE:

Model LD-CU3503-02 is similar to Model LD-CU3503AF except for employ different enclosure.

Models LD-CU7006-02, LD-CU3536-02, LD-CU7021-02, LD-VU2512-02, LD-VU5012-02, LD-VU8312-02, LD-VU1224-02, LD-VU2524-02, LD-VU4124-02 are similar to Models LD-CU7006AF, LD-CU3536AF, LD-CU7021AF, LD-VU2512AF, LD-VU5012AF, LD-VU8312AF, LD-VU1224AF, LD-VU2524AF and LD-VU4124AF respectively except for employ different enclosure as Model LD-CU3503-02.

MODELS LD-CU3503AF AND LD-CU3503-02 - FIGS. 1 THRU 4

Enclosure - R/C (QMFZ2), Chimei-Asahi Corporation (E214362), Type PC-110+, all color, rated V-2, 105°C, overall measured 66 by 36 by 23 mm, minimum 1.5 mm thick. Provided with two openings for input and output leads, each measured 6.6 by 6.0 mm. See FIGS. 1 and 2 for details. (For Model LD-CU3503AF only)

Alternate – Same as above except for provided with one opening for input and output leads, measured 32 by 21 mm. Keep minimum 4.8 mm distance between input leads and output leads by potting compound. See FIG. 3 for details. (For Model LD-CU3503-02 only)

Potting Compound - R/C (QMFZ2), Dow Corning Corp. (E40195), Type SYLGARD 160, rated V-0, 105°C. Full filled with the unit.

Input Leads - R/C (AVLV2/8), minimum No. 20 AWG, rated minimum 300 V, 80°C.

Alternate – Listed (ZJCZ/7), flexible cord, minimum No. 20 AWG/2C, Type SPT-1 or SPT-2, rated minimum 300 V, 80°C.

Output Leads – R/C (AVLV2/8), minimum No. 20 AWG, rated minimum 300 V, 80°C. Sleeved with shrinkable insulating tubings, R/C (YDPU2), rated minimum 300 V, 125°C, VW-1.

Fuse (F1) - R/C (JDYX2), CSA Certified, Conquer Electronics Co., Ltd. (E82636), Type MET, rated 1 A, 250 V ac.

Varistor (RV) – R/C (XUHT2), CSA Certified, Joyin Co., Ltd. (E153360), Type JVR07N391K or JVR07N431K, rated 250 V ac.

Bridge Diode (RS1) – Rated minimum 1 A, 1000 V.

Inductor (L1) - Rated 0.1 mH, 1/2 W.

Capacitor (C1) – Electrolytic type with integral relief, rated 3.3 μF, minimum 400 V, 105°C.

Capacitor (C2) – Electrolytic type with integral relief, rated 3.3 μF, minimum 400 V, 105°C.

Capacitor (C3) – Electrolytic type with integral relief, rated 100 μF, minimum 50 V, 105°C.

Diode (D3) – Rated minimum 3 A, 200 V.

Zenner Diode (D4) – Rated minimum 12 V, 0.5 W.

Transistor (Q1) – Rated minimum 25 V, 1.5 A.

Control IC (IC1) – Power Integrations, Type TNY264.

Optical Isolator (IC2) – Primary-to-Secondary, R/C (FPQU2/8), Bright Led Electronics Corp. (E236324), Type BPC-817 (rated isolation voltage 5000 V ac)

Y-Capacitor (CY) – Primary-to-Secondary, R/C (FOWX2), CSA Certified, Jya-Nay Co., Ltd. (E201384), Type JN or JY or JR, rated maximum 1000 pF, 250 V.

Printed Wiring Board – R/C (ZPMV2), rated minimum V-0, 105°C. Dimensions 30 by 58 by 1.6 mm thick. See ILL. 1 for deatils.

Transformer (T1) – Part No. E3503. Constructed as follows.

A. Core – Ferrite, E-E type, overall 16 by 5 by 4.5 mm. Overall wrapped with two layers of Insulation tape, minimum 15 mm wide. Core is considered as primary.

B. Bobbin – Two flange bobbin, R/C (QMFZ2), Sumitomo Bakelite Co., Ltd. (E41429), Type PM-9820, black color, rated V-0, 150°C, minimum 0.51 mm thick.

C. Windings – Primary: Enameled copper magnet wire. Secondary: R/C (OBJT2), Furukawa Electric Co., Ltd. (E206440), Type TEX-E, rated 130°C, Layer wound. See below Table for winding information details.

Winding	Pin No.	Location	Wire, (mm)	No. of Turns
N1	4-1	Primary	0.27	102
N2	8-5	Secondary	0.45	22

D. Winding Insulation – See below Table for details.

Winding	Location	Material	Total Thickness of Insulation, mm
-	Primary Crossover Leads	Tubing	-
Core/N1	Primary/Primary	Bobbin	0.51
N1/N2	Primary/Secondary (#)	Insulation Tape	-

Note (#): Secondary winding provide with Multi-layer Insulated Winding Wire.

E. Insulation Tape – R/C (OANZ2), Symbio Inc. (E50292), Type 35660, rated 130°C, minimum 0.05 mm thick.

F. Tubing – R/C (YDPU2), CSA Certified, Zeus Industrial Products Inc. (E64007), Type TFE-TW-300, rated 300 V, 200°C, VW-1.

MODELS LD-CU7006AF, LD-CU3536AF, LD-CU7021AF, LD-VU2512AF, LD-VU5012AF, LD-VU8312AF, LD-VU1224AF, LD-VU2524AF AND LD-VU4124AF

General - Models LD-CU7006AF, LD-CU3536AF, LD-CU7021AF, LD-VU2512AF, LD-VU5012AF, LD-VU8312AF, LD-VU1224AF, LD-VU2524AF and LD-VU4124AF are similar to Model LD-CU3503AF except for noted as below.

Transformer Winding Information:

Model No.	Part No.	Core Size, mm	Primary Winding (N1)			Secondary Winding (N2)		
			Pin No.	Wire, mm	Turns	Pin No.	Wire, mm	Turns
LD-CU7006AF	E7006	16x15x4.5	4-1	0.3	100	8-5	0.6	12
LD-CU3536AF	E3570	19x16x5	4-1	0.3	84	8-5	0.6	20
LD-CU7021AF	E3570	19x16x5	4-1	0.3	84	8-5	0.6	20
LD-VU2512AF	EF-1602	16x15x4.5	2-1	0.27	102	6-4	0.6	10
LD-VU5012AF	UVV083-12V	19x16x5	4-1	0.25	85	5-8	0.7	8
LD-VU8312AF	UVV083-12V	19x16x5	4-1	0.25	85	5-8	0.7	8
LD-VU1224AF	E3503	16x15x4.5	4-1	0.27	102	8-5	0.45	22
LD-VU2524AF	UVV041-24V	19x16x5	4-1	0.25	81	5-8	0.7	15
LD-VU4124AF	UVV041-24V	19x16x5	4-1	0.25	81	5-8	0.7	15

Component Rating Information:

Model	Rated						
	C1	C2	C3	IC1	Q1	D3	D4
LD-CU7006AF	4.7 uF, 400 V	4.7 uF, 400 v	220 uF, 50 V	TNY267	25 V, 1.5 A	200 V, 3 A	12 V, 0.5 W
LD-CU3536AF	6.8 uF, 400 V	6.8 uF, 400 v	220 uF, 50 V	TNY268	25 V, 1.5 A	200 V, 3 A	36 V, 0.5 W
LD-CU7021AF	6.8 uF, 400 V	6.8 uF, 400 v	220 uF, 50	TNY268	25 V, 1.5 A	200 V, 3 A	20 V, 0.5 W
LD-VU2512AF	3.3 uF, 400 V	3.3 uF, 400 v	220 uF, 50 V	TNY264	11 V, 0.5 W	200 V, 2 A	Not Provided
LD-VU5012AF	4.7 uF, 400 V	4.7 uF, 400 v	100 uF, 50 V	TNY267	11 V, 0.5 W	200 V, 2 A	Not Provided
LD-VU8312AF	6.8 uF, 400 V	6.8 uF, 400 v	220 uF, 50 V	TNY268	11 V, 0.5 W	200 V, 3 A	Not Provided
LD-VU1224AF	3.3 uF, 400 V	3.3 uF, 400 v	220 uF, 50 V	TNY264	24 V, 0.5 W	200 V, 2 A	Not Provided
LD-VU2524AF	4.7 uF, 400 V	4.7 uF, 400 v	220 uF, 50 V	TNY267	24 V, 0.5 W	200 V, 2 A	Not Provided
LD-VU4124AF	6.8 uF, 400 V	6.8 uF, 400 v	220 uF, 50 V	TNY268	24 V, 0.5 W	200 V, 3 A	Not Provided

MODEL LD-CU3512-01 - FIGS. 4 and 5

Enclosure - R/C (QMFZ2), Chimei-Asahi Corporation (E214362), Type PC-110+, all color, rated V-2, 105°C, overall measured 42 by 40 by 21 mm, minimum 1.5 mm thick. Provided with four openings for securing input and output terminal blocks, two 9.5 by 4.9 mm and another two 8 by 4 mm.

Terminal Blocks – Two provided. R/C (XCFR2/8), Dinkle Enterprise Co., Ltd. (E102914), Type DT-126VP, rated 8 A, 300 V.

Fuse (F1) - R/C (JDYX2), CSA Certified, Conquer Electronics Co., Ltd. (E82636), Type PTU, rated 1 A, 250 V ac.

X-Capacitor (C1) – R/C (FOWX2/8), Cheng Tung Industrial Co., Ltd. (E193049), Type CTX, rated maximum 0.1 uF, 250 V.

Bridge Diode (BR1) – Rated minimum 1 A, 1000 V.

Inductor (L1) - Rated 0.1 mH, 1/2 W.

Varistor (C2) – R/C (XUHT2), CSA Certified, Joyin Co., Ltd. (E153360), Type JVR07N391K or JVR07N431K, rated 250 V ac.

Capacitor (C3) – Electrolytic type with integral relief, rated 4.7 μF, minimum 400 V, 105°C.

Capacitor (C5) – Electrolytic type with integral relief, rated 100 μF, minimum 25 V, 105°C.

Diode (D3) – Rated minimum 2 A, 200 V.

Zenner Diode (D4) – Rated minimum 12 V, 0.5 W.

Transistor (Q1) – Rated minimum 1.5 A, 25 V.

Control IC (IC1) – Power Integrations, Type TNY264.

Optical Isolator (IC2) – Primary-to-Secondary, R/C (FPQU2/8), Bright Led Electronics Corp. (E236324), Type BPC-817 (rated isolation voltage 5000 V ac)

Y-Capacitor (C4) – Primary-to-Secondary, R/C (FOWX2), CSA Certified, Jya-Nay Co., Ltd. (E201384), Type JN or JY or JR, rated maximum 1000 pF, 250 V.

Printed Wiring Board – R/C (ZPMV2), rated minimum V-0, 105°C. Dimensions 36 by 38 by 1.6 mm thick. See ILL. 2 for deatils.

Transformer (PT1) – Part. No EF-1601. Constructed as follows.

A. Core – Ferrite, E-E type, overall 16 by 5 by 4.5 mm. Overall wrapped with two layers of Insulation tape, minimum 15 mm wide. Core considered as primary.

B. Bobbin – Two flange bobbin, R/C (QMFZ2), Sumitomo Bakelite Co., Ltd. (E41429), Type PM-9820, black color, rated V-0, 150°C, minimum 0.51 mm thick.

C. Windings – Primary: Enameled copper magnet wire. Secondary: R/C (OBJT2), Furukawa Electric Co., Ltd. (E206440), Type TEX-E, rated 130°C, Layer wound. See below Table for winding information details.

Winding	Pin No.	Location	Wire, (mm)	No. of Turns
N1	2-1	Primary	0.27	102
N2	6-4	Secondary	0.4	22

D. Winding Insulation – See below Table for details.

Winding	Location	Material	Total Thickness of Insulation, mm
-	Primary Crossover Leads	Tubing	-
Core/N1	Primary/Primary	Bobbin	0.51
N1/N2	Primary/Secondary (#)	Insulation Tape	-

Note (#): Secondary winding provide with Multi-layer Insulated Winding Wire.

E. Insulation Tape – R/C (OANZ2), Symbio Inc. (E50292), Type 35660, rated 130°C, minimum 0.05 mm thick.

F. Tubing – R/C (YDPU2), CSA Certified, Zeus Industrial Products Inc. (E64007), Type TFE-TW-300, rated 300 V, 200°C, VW-1.

MODELS LD-CU7012-01, LD-VU2512-01, LD-VU5012-01, LD-VU1224-01 AND LD-VU2524-01

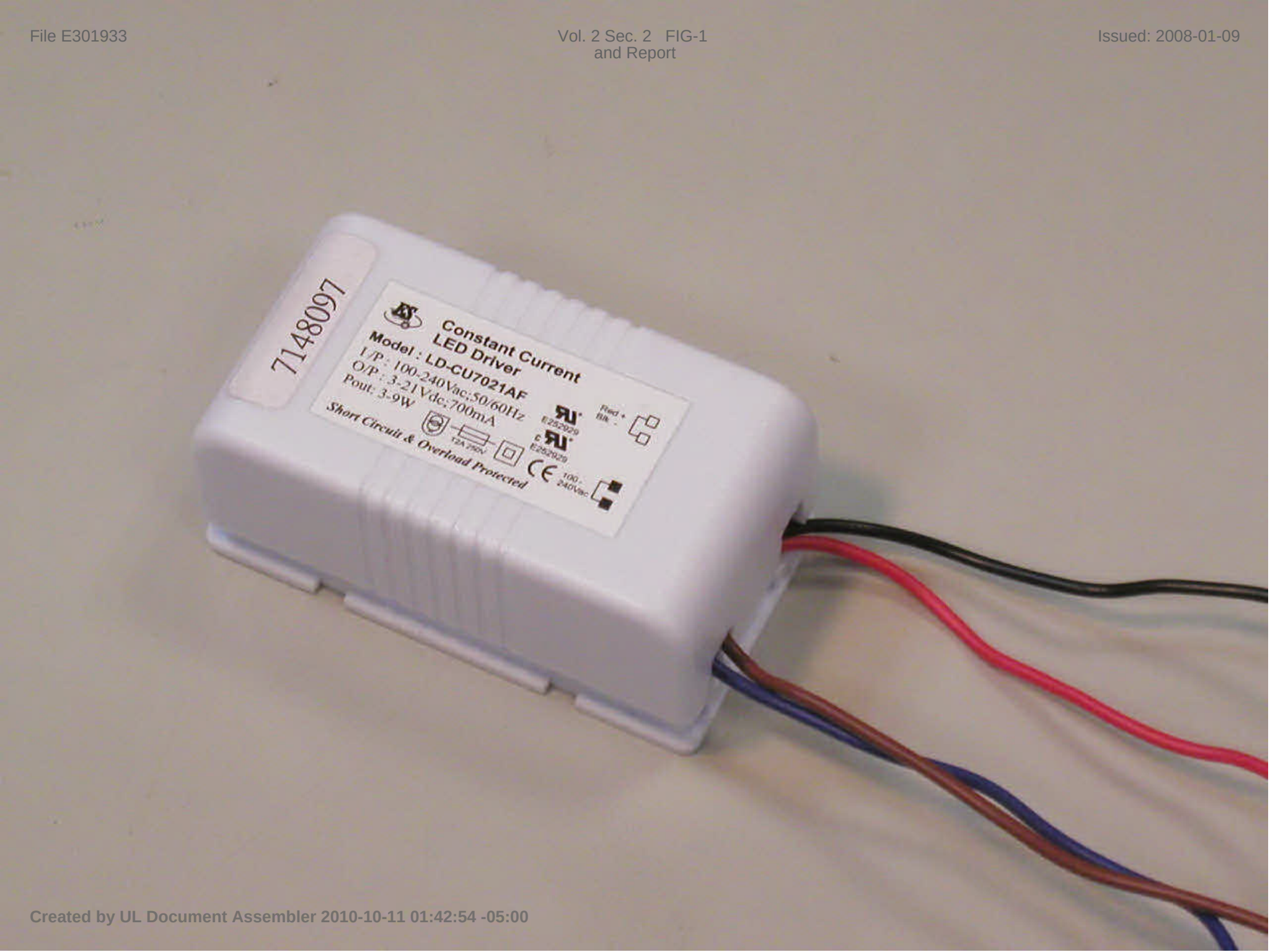
General - Models LD-CU7012-01, LD-VU2512-01, LD-VU5012-01, LD-VU1224-01 and LD-VU2524-01 are similar to Model LD-VU3512-01 except for noted as below.

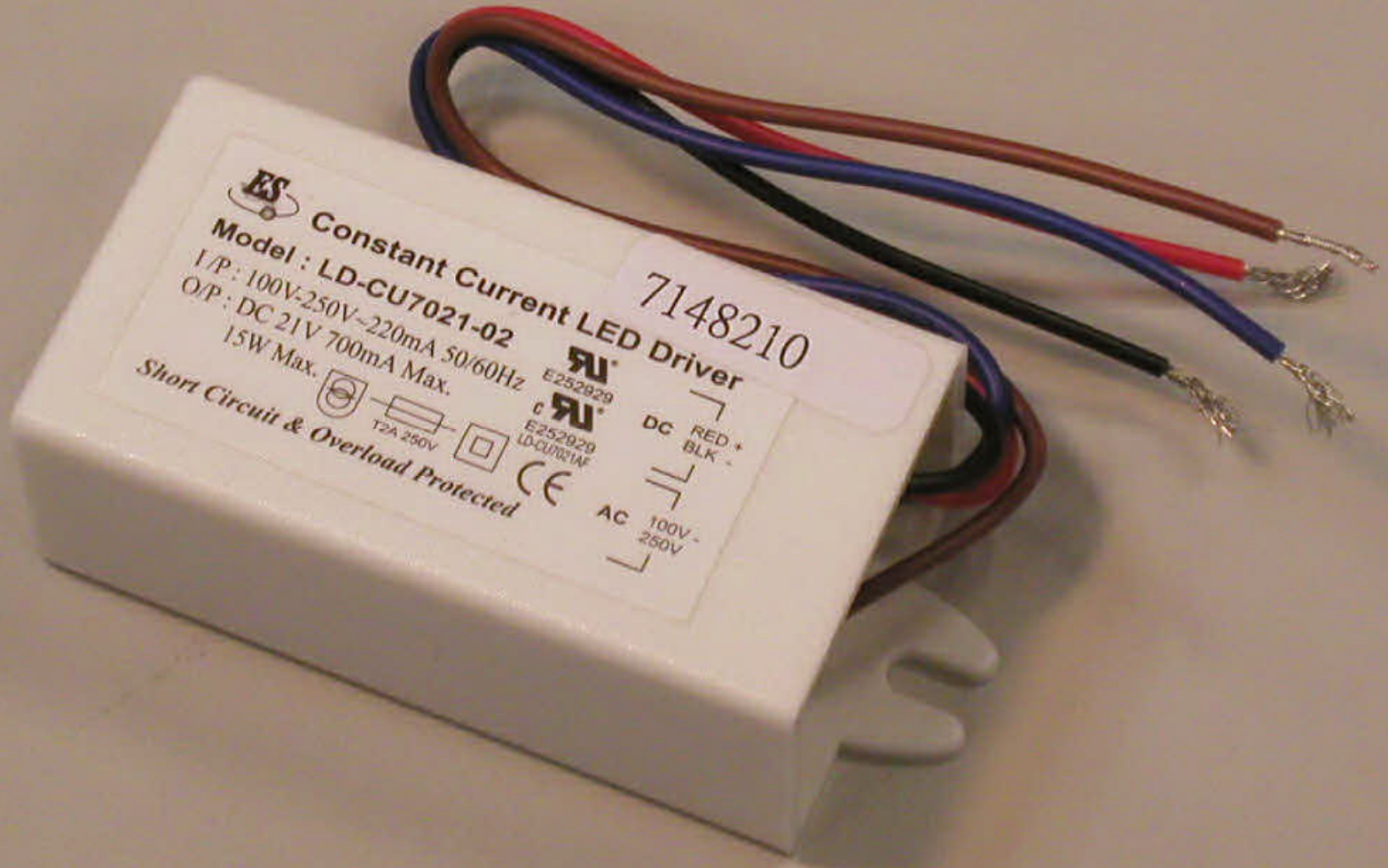
Transformer Winding Information:

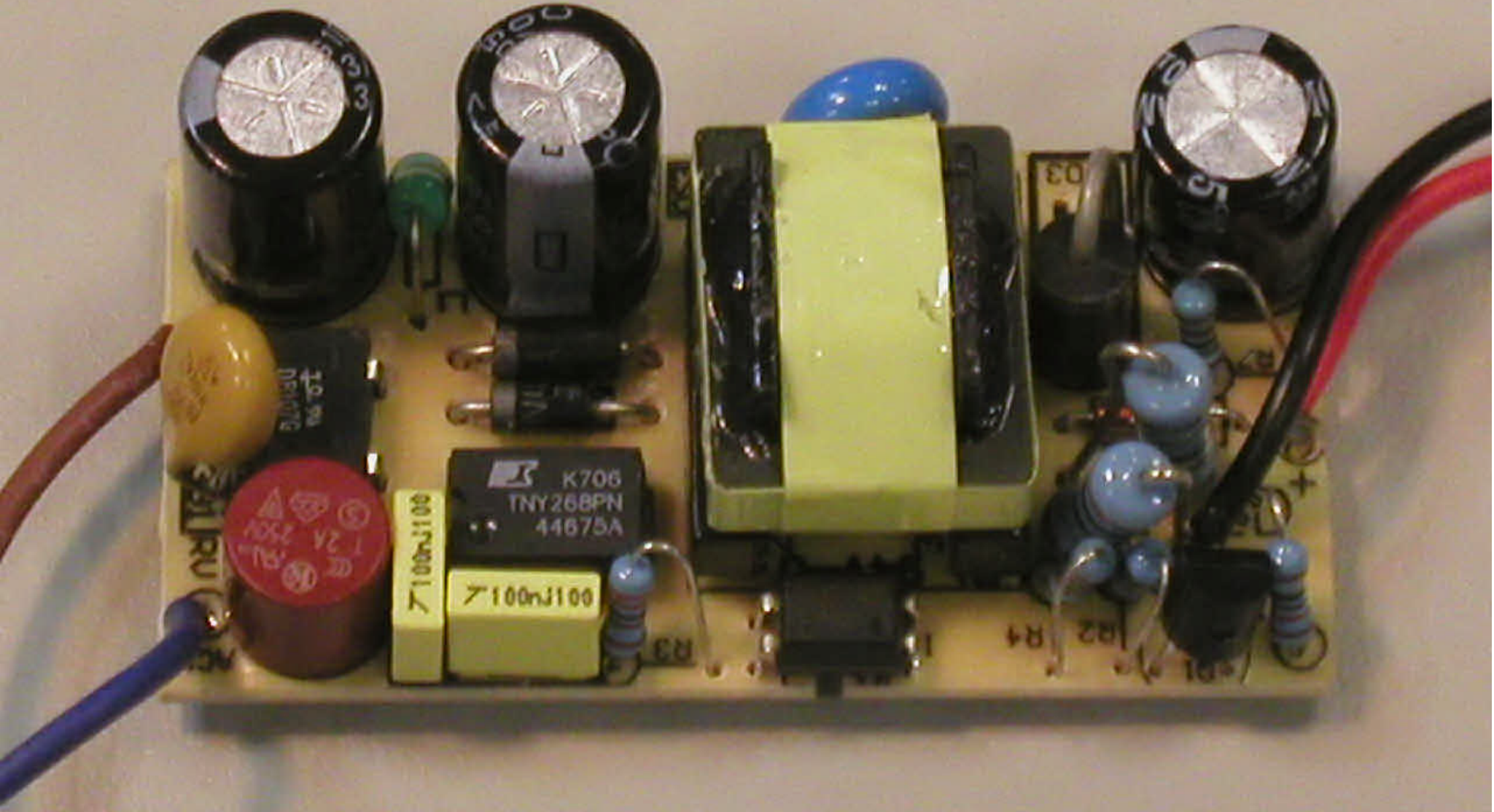
Model No.	Part No.	Core Size, mm	Primary Winding (N1)			Secondary Winding (N2)		
			Pin No.	Wire, mm	Turns	Pin No.	Wire, mm	Turns
LD-CU7012-01	EF-1602	16x15x4.5	2-1	0.27	102	6-4	0.6	10
LD-VU2512-01	EF-1602	16x15x4.5	2-1	0.27	102	6-4	0.6	10
LD-VU5012-01	EF-1602	16x15x4.5	2-1	0.27	102	6-4	0.6	10
LD-VU1224-01	EF-1601	16x15x4.5	2-1	0.27	102	6-4	0.4	22
LD-VU2524-01	EF-1601	16x15x4.5	2-1	0.27	102	6-4	0.4	22

Component Rating Information:

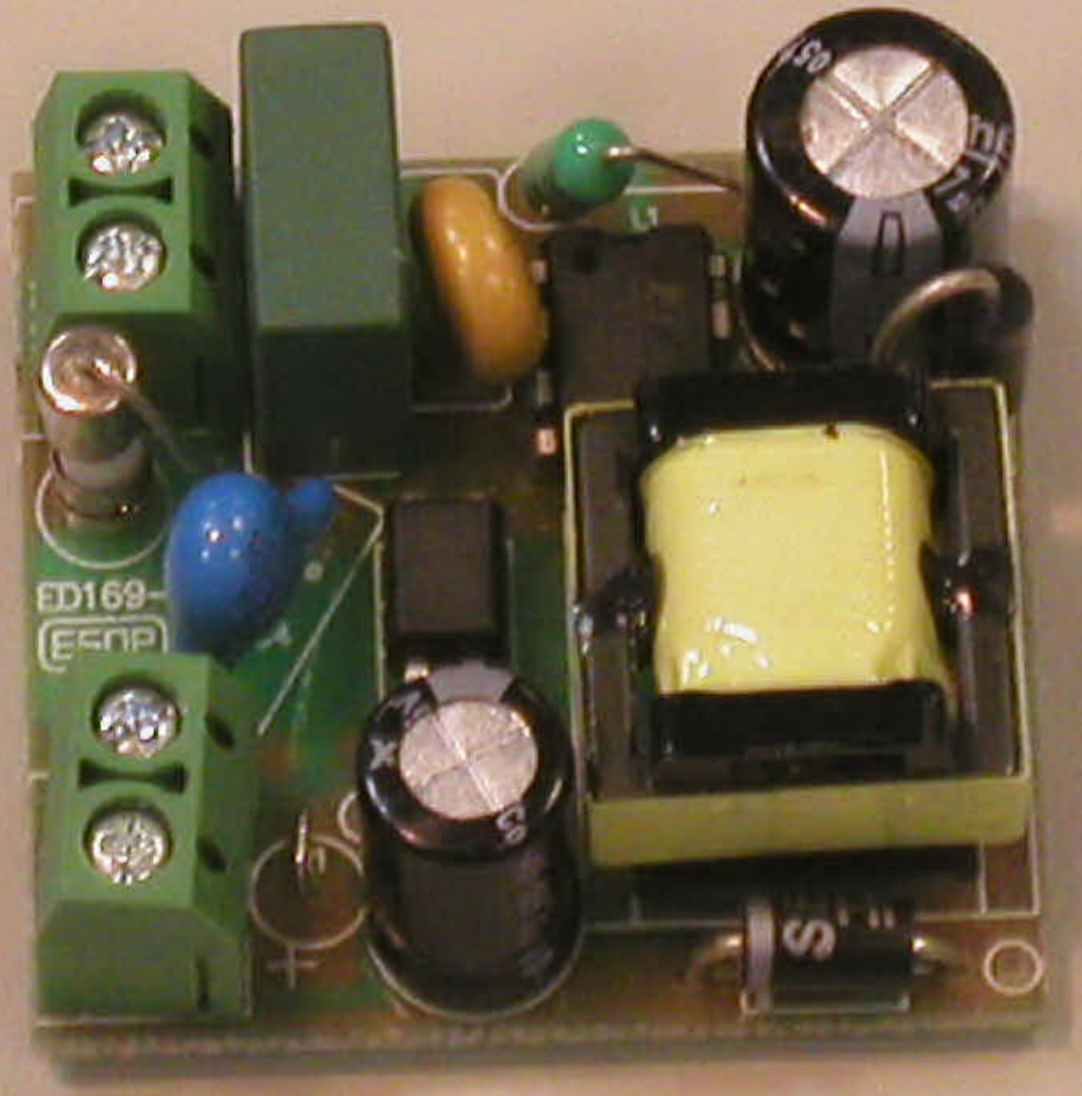
Model	Rated				
	IC1	C5	D4	R6	Q1
LD-CU7012-01	TNY267	100 uF, 25 V	12 V, 0.5 W	-	1.5 A, 25 V
LD-VU2512-01	TNY264	220 uF, 25 V	Not Provided	12 V, 0.5 W	Metal Jumper between Pin C and E
LD-VU5012-01	TNY267	220 uF, 25 V	Not Provided	12 V, 0.5 W	Metal Jumper between Pin C and E
LD-VU1224-01	TNY264	220 uF, 25 V	Not Provided	24 V, 0.5 W	Metal Jumper between Pin C and E
LD-VU2524-01	TNY267	220 uF, 25 V	Not Provided	24 V, 0.5 W	Metal Jumper between Pin C and E

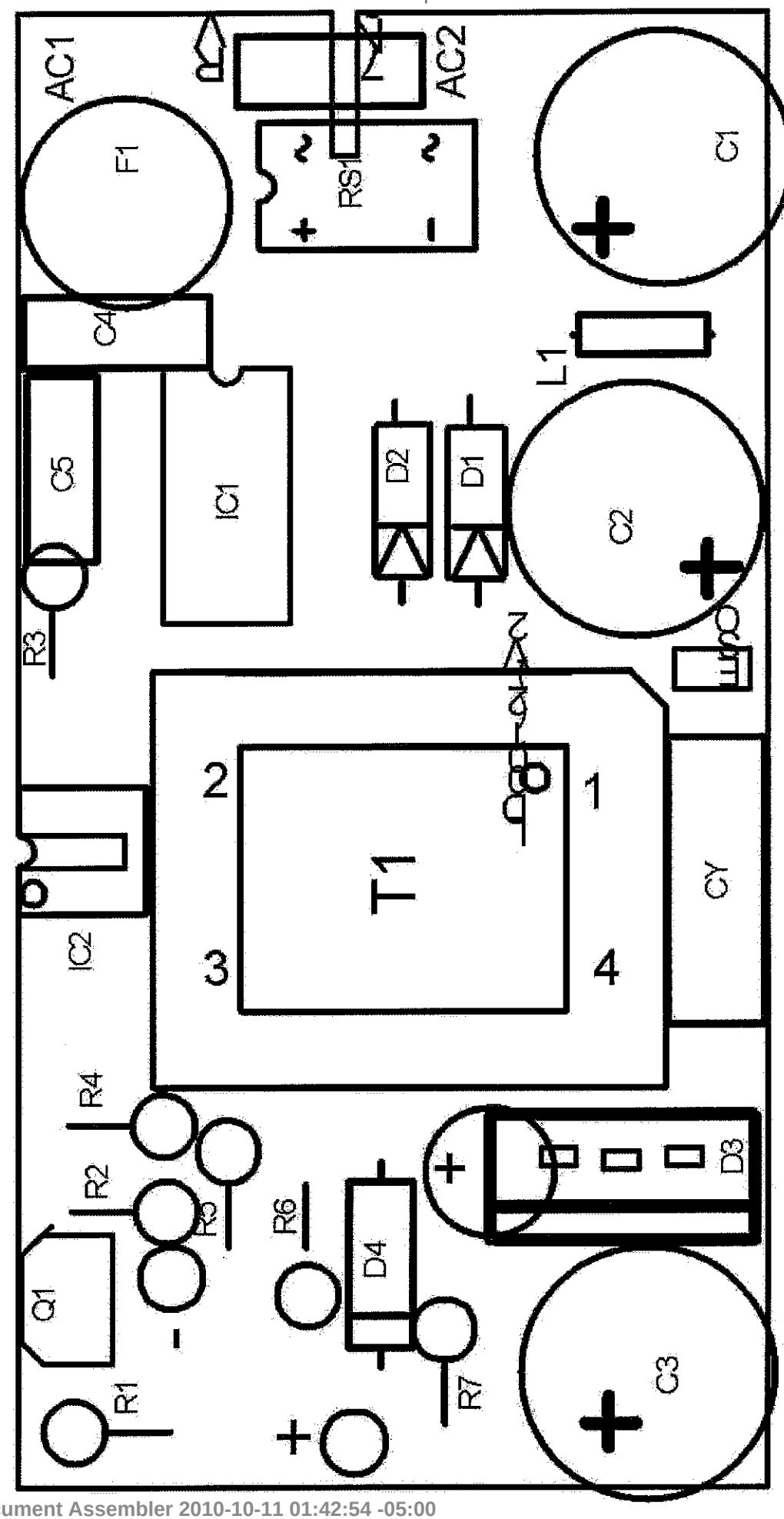

7148097
Constant Current
LED Driver
Model : LD-CU7021AF
I/P : 100-240Vac;50/60Hz
O/P : 3-21Vdc;700mA
Pout: 3-9W
Short Circuit & Overload Protected
E252029
E252029
Red +
Blk -
100 - 240Vac

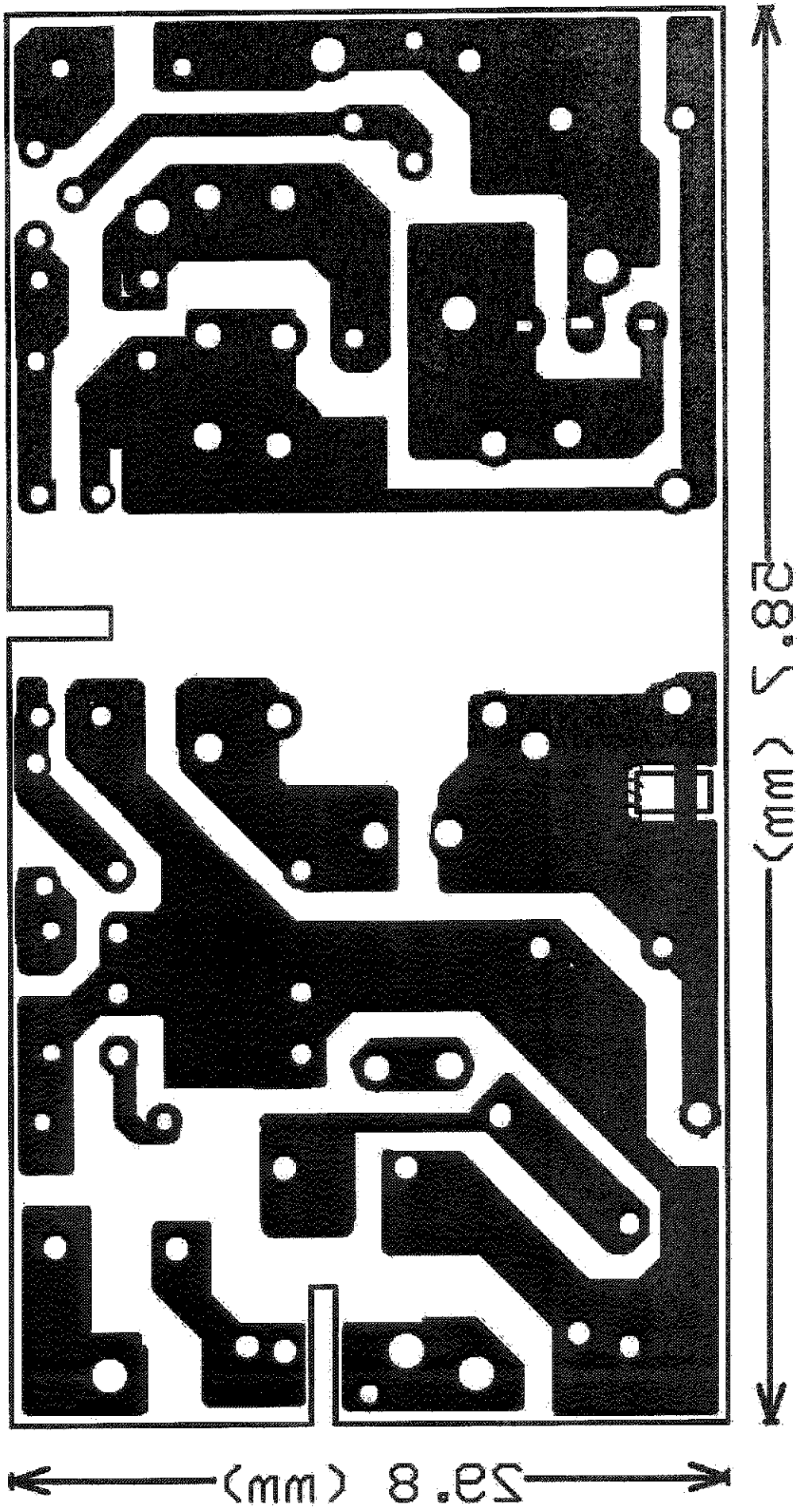

Constant Current LED Driver
7148210
Model : LD-CU7021-02
I/P : 100V-250V~220mA 50/60Hz
O/P : DC 21V 700mA Max.
15W Max.
T2A 250V
Short Circuit & Overload Protected
E252929
E252929
LD-CU7021AE
DC
RED +
BLK -
AC
100V ~
250V


K706
TNY268PN
44675A
100nJ100
100nJ100

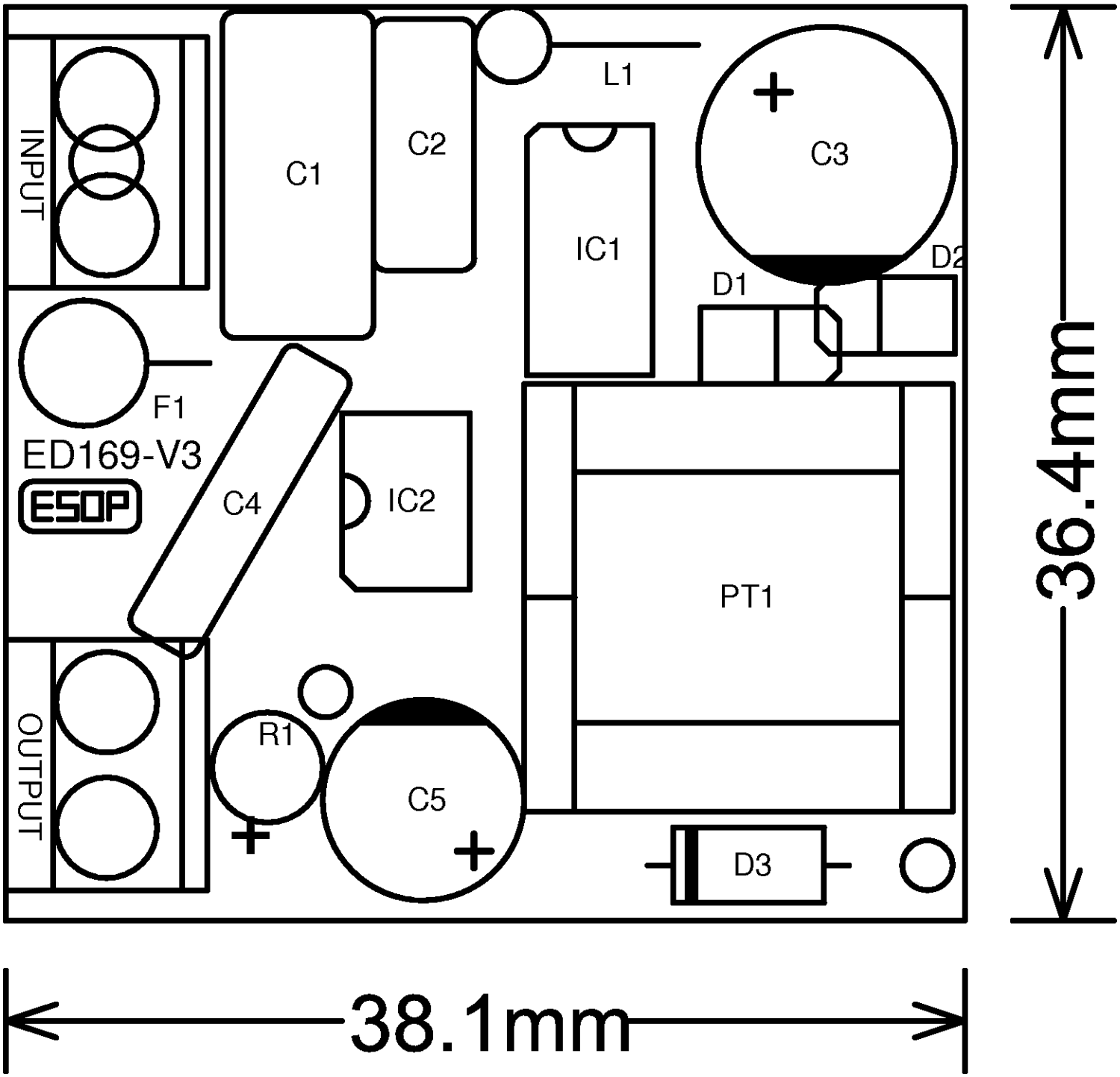
Constant Voltage
LED Driver
Model:LD-VU2512-01
PRI: 100V-240Vac, 50/60Hz
SEC: 12Vdc/250mA
Pout: 3W Max.
100V-240Vac
L
N


ED169-

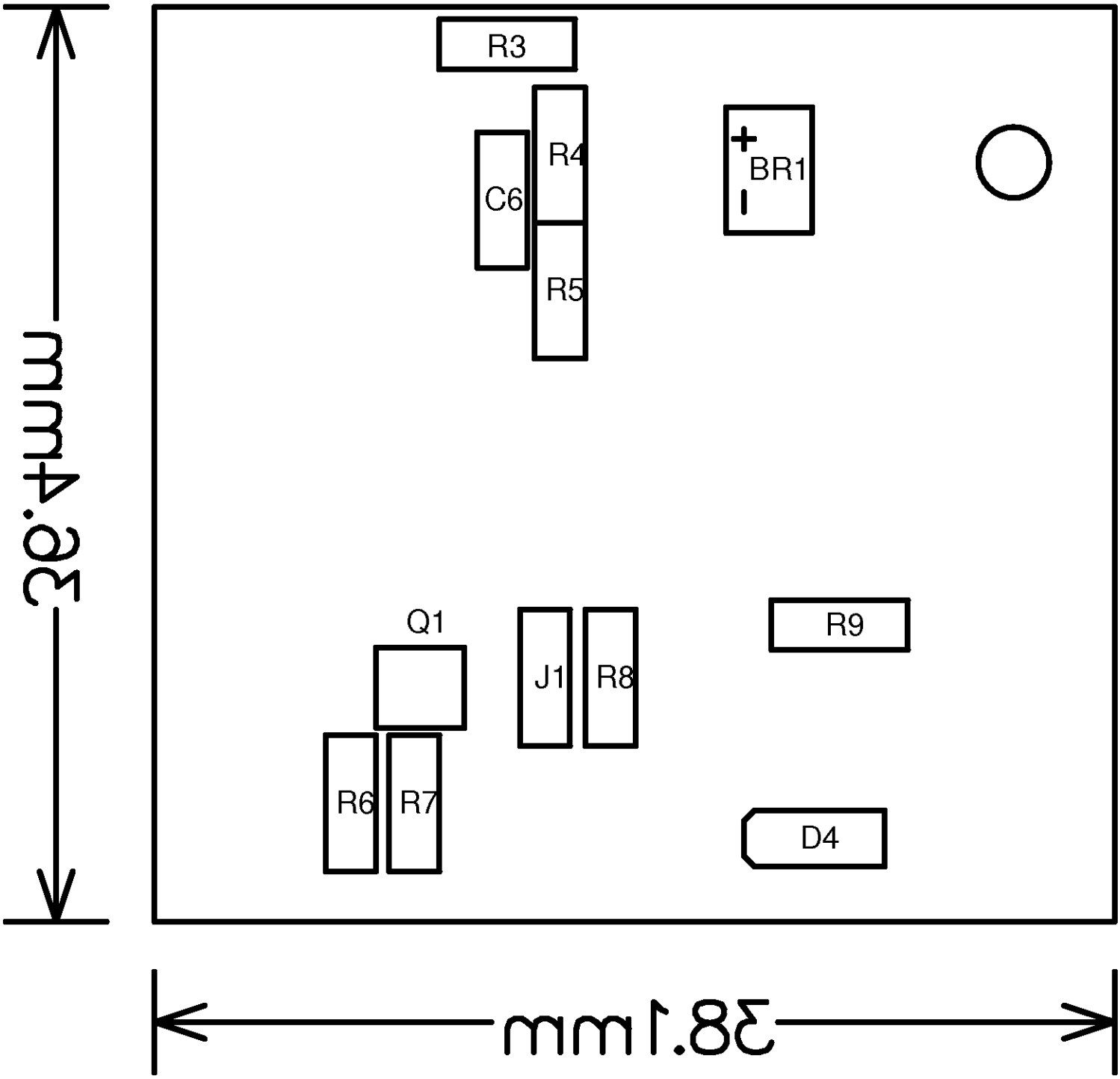

AC1
AC2
F1
RS1
C1
C4
L1
C5
IC1
D2
D1
C2
R3
Q
T1
2
1
3
4
CY
IC2
R4
R2
R5
R6
D4
D3
Q1
R1
R7
C3


28.7 (mm)
29.8 (mm)

Ever Shining Optotech Co.,Ltd.
ED169-V3
Top Overlay



Ever Shining Optotech Co.,Ltd.
ED169-V3
Bottom Overlay



TEST RECORD NO. 1

SAMPLES:

Samples as indicated below were submitted by the manufacturer. Each was representative of the construction described in the preceding section of this Report and the following tests were conducted. Test results relate only to the items tested.

Class 2 Power Units, Models LD-CU3503AF, LD-CU7006AF, LD-CU3536AF, LD-CU7021AF, LD-VU2512AF, LD-VU5012AF, LD-VU8312AF, LD-VU1224AF, LD-VU2524AF, LD-VU4124AF, LD-CU3503-02, LD-CU7006-02, LD-CU3536-02, LD-CU7021-02, LD-VU2512-02, LD-VU5012-02, LD-VU8312-02, LD-VU1224-02, LD-VU2524-02, LD-VU4124-02, LD-VU2512-01, LD-VU5012-01, LD-VU1224-01, LD-VU2524-01, LD-CU3512-01, LD-CU7012-01.

GENERAL:

Tests conducted on Model LD-VU8312AF were considered to represent Model LD-VU5012AF.

Tests conducted on Model LD-VU4124AF were considered to represent Model LD-VU2524AF.

Tests conducted on Models LD-CU3503AF, LD-CU7006AF, LD-CU3536AF, LD-CU7021AF, LD-VU2512AF, LD-VU5012AF, LD-VU8312AF, LD-VU1224AF, LD-VU2524AF and LD-VU4124AF were considered to represent Models LD-CU3503-02, LD-CU7006-02, LD-CU3536-02, LD-CU7021-02, LD-VU2512-02, LD-VU5012-02, LD-VU8312-02, LD-VU1224-02, LD-VU2524-02 and LD-VU4124-02 respectively.

Tests conducted on Model LD-VU5012-01 were considered to represent Model LD-VU2512-01.

Tests conducted on Model LD-VU2524-01 were considered to represent Model LD-VU1224-01.

The following tests conducted in accordance with UL 1310 were considered representative of the same tests required by Canadian Standard, CAN/CSA C22.2 No. 223-M91 with acceptable results. Clause and paragraph reference conventions consist of the UL1310 reference followed by (C22.2 No.223) reference.

Working Voltage Measurements:	24.2
(Electrical Spacings):	(4.10)
Leakage Current Test:	27
Leakage Current Test After Humidity Exposure:	27
Dielectric Voltage Withstand Test After Humidity Exposure:	27

Maximum Output Voltage Test:	28
(Open-Circuit Secondary Voltage)	(6.2.1)
Normal Input Test:	50.2
(Rated Input)	(6.2.2)
Maximum Input Test:	29
(Rated Input)	(6.2.2)
Output Current And Power Test:	30
(Maximum Output Current And Power)	(6.2.4)
Dielectric Voltage Withstand Test After Output Current And Power Test [C22.2 No. 223 Units]:	34
(Dielectric Strength)	(6.4)
Full-Load Output Current Test:	32
Normal Temperature Test - General:	33
(Temperature (Normal))	(6.3)
Dielectric Voltage Withstand Test:	34
(Dielectric Strength)	(6.4)
Abnormal Tests:	39 (6.7)
Output Loading Test - Abnormal:	39.2
(Secondary Circuit Protection)	(6.6)
Dielectric Voltage Withstand Test After Output Loading Test:	34
(Dielectric Strength)	(6.4)
Transformer Burnout Test (Switch Mode Designs) - Abnormal:	39.3
Dielectric Voltage Withstand Test After Transformer Burnout Test:	34
Component Breakdown Test - Abnormal:	39.6
(Abnormal)	(6.7)
Dielectric Voltage Withstand Test After Component Breakdown Test:	34
(Dielectric Strength)	(6.4)
Transformer Insulating Materials Test:	40
(Insulating Material)	(6.13)

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in the Standard mentioned above.

Test Record Summary:

The results of this investigation, including construction review and testing, indicate that the products evaluated comply with the applicable requirements in Class 2 Power Units, UL 1310, Fifth Edition, dated May 3, 2005, Last Revise date January 31, 2006; and Power Supplies with Extra-Low-Voltage Class 2 Outputs, CAN/CSA C22.2 No 223-M91, Second Edition, dated June 1991, and, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

CONCLUSION

Samples of the components covered by this Report have been found to comply with the requirements covering the category and the components are judged to be eligible for Component Recognition and Follow-Up Service. Under the Service, the manufacturer is authorized to use the Recognized Marking described in the Follow-Up Service Procedure on such products which comply with said Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those products which properly bear the Recognized Markings are considered as Recognized Components by Underwriters Laboratories Inc. Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

Report by:
POLING YEH
Engineer

Reviewed by:
RICHARD LEE
Project Engineer