

Customer Name : (주) 하이디스플레이

Date : 2011. 02. 16.

SPECIFICATION FOR APPROVAL

Part Name : CCFL INVERTER

Customer Part No. :

DS-Plus Part No. : DS-1302WE-Voltage dimming control

Approval Sign

Please Return 1 Copy After Approved

DS -Plus Inc.

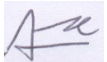

TEST	APPROVAL
	

Table of content

<u>Contents</u>	<u>Page</u>
1. Revision history	3/12
2. Features	4/12
3. Applications	4/12
4. Absolute maximum ratings	4/12
5. Recommend operating conditions	5/12
6. Electrical characteristics	5/12
7. Functional pin description	6/12
8. Mechanical dimensions	6/12
9. Test circuit	7/12
10. Heat shock test	7/12
11. Notation of lot number	8/12
12. Packing	8/12
13. Parts list	9/12
14. Circuit diagram	10/12
15. PCB Lay-out	11/12
16. Material list	12/12

1. Revision history

No .	DATE	REVISION	DESCRIPTION

2. Features

- High efficiency
- Drive one lamp with one module
- Nominal current 6.0mArms for lamp
- Wide input voltage operation
- Accurate and stable output current regulation
- Voltage dimming control
- Protection against lamp open or failure
- Long lamp life with soft start
- Low sleep current
- Single sided PCB layout
- Small and compact size
- Low EMI and spurious noise

3. Applications

- 3.8~14.1" Desktop LCD monitor
- Industrial LCD panel

4. Absolute maximum ratings

Input supply voltage (V_{IN})	-----	- 0.3V to 13.2V
Output current (I_O)	-----	8.0mArms
Output power	-----	4.0W
Sleep & Bright adjust signal voltage (V_{SLEEP} , V_{BRT})	-----	- 0.3V to V_{IN}
Ambient operating temperature	-----	0 °C to 50 °C
Storage temperature range	-----	- 30 °C to 80 °C
Operating & storage humidity	-----	10 % to 85 %

5. Recommended operating conditions (R.C.)

Parameter	Symbol	Recommendation			Units
		Min	R.C.	Max	
Input supply voltage	V_{IN}	10.8	12.0	13.2	V
Full bright lamp current	$I_{O(MAX)}$	5.0	6.0	7.0	mArms
Brightness control voltage range	V_{BRT}	0		5.0	V
Lamp on/off control voltage	V_{SLEEP}	3.0	5.0	7.0	V
Lamp operating voltage	V_O		648		Vrms
Operating ambient temperature range	T_A	0		50	°C

6. Electrical characteristics

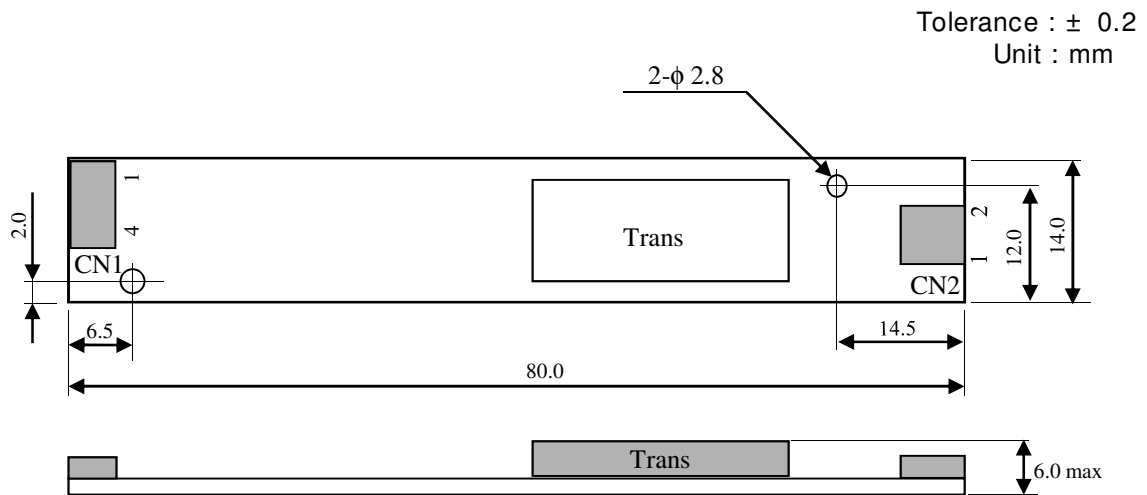
Parameter	Symbol	Conditions*	Specification			Unit
			Min	Typ	Max	
Input supply voltage	V_{IN}		10.8	12.0	13.2	V
Input current	I_{IN}	$V_{IN}=12V, V_{BRT}=0V$	0.30	0.40	0.50	A
Full bright lamp current	$I_{O(MAX)}$	$V_{IN}=12V, V_{BRT}=0V$	5.0	6.0	7.0	mArms
Minimum lamp current	$I_{O(MIN)}$	$V_{IN}=12V, V_{BRT}=5.0V$	1.5	2.5	3.5	mArms
Operating frequency	F_O	$V_{IN}=12V, V_{BRT}=0V$	43	48	53	KHz
Dimming ratio		$V_{IN}=12V, V_{BRT}=0$ to $5.0V$		2 : 1		
Sleep current	I_{SLEEP}	$V_{IN}=12V, V_{SLEEP}=0V$			10	mA
Efficiency		$V_{IN}=12V, V_{BRT}=0V$	80	88		%

* At the reference 9”(FG09011DNCWAGT1) of Data image LCD Panel

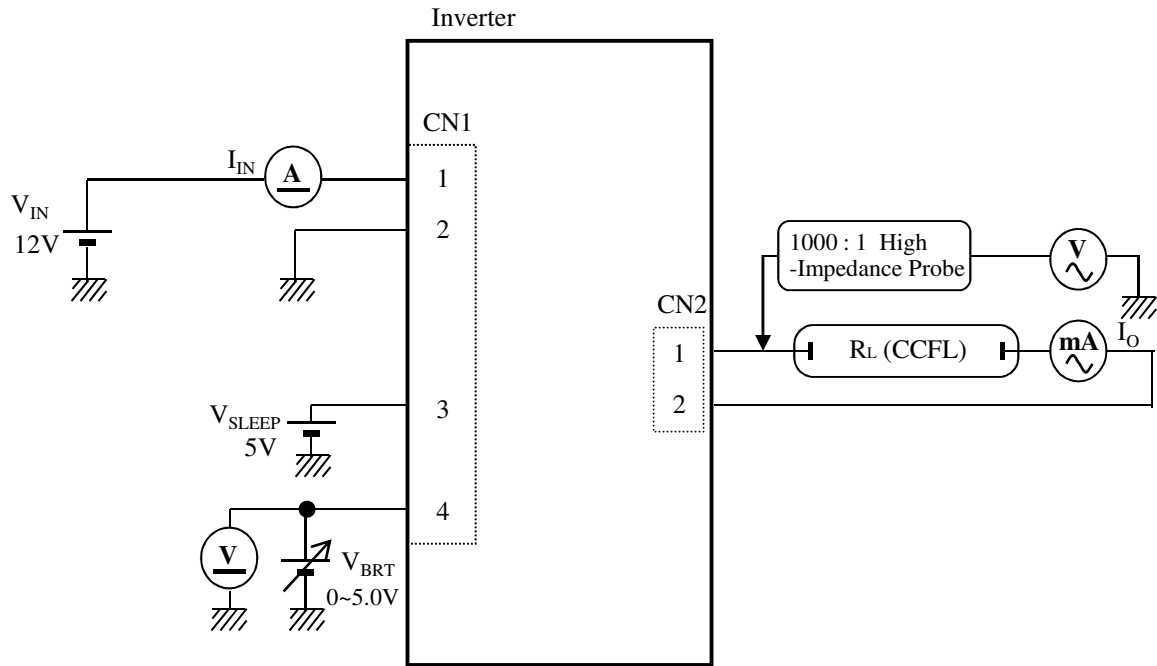
7. Functional pin description

CN1 Connector	:	12505WR- 04A00 (YEONHO or Equivalent)
CN1- 1		V_{IN} (Input power supply)
CN1- 2		G_{ND} (Power supply return)
CN1- 3		V_{SLEEP} (Lamp On/Off control ; Off at Low, On at High)
CN1- 4		V_{BRT} (Bright adjust ; 0 to 5.0V)
CN2 Connector (Option)	:	35001WR- 02A00 (YEONHO or Equivalent) → 2P小 or 20015WR- 05A00 (YEONHO or Equivalent) → 2P大
CN2 - 1		High voltage
CN2 - 2		Lamp current return

8. Mechanical dimensions

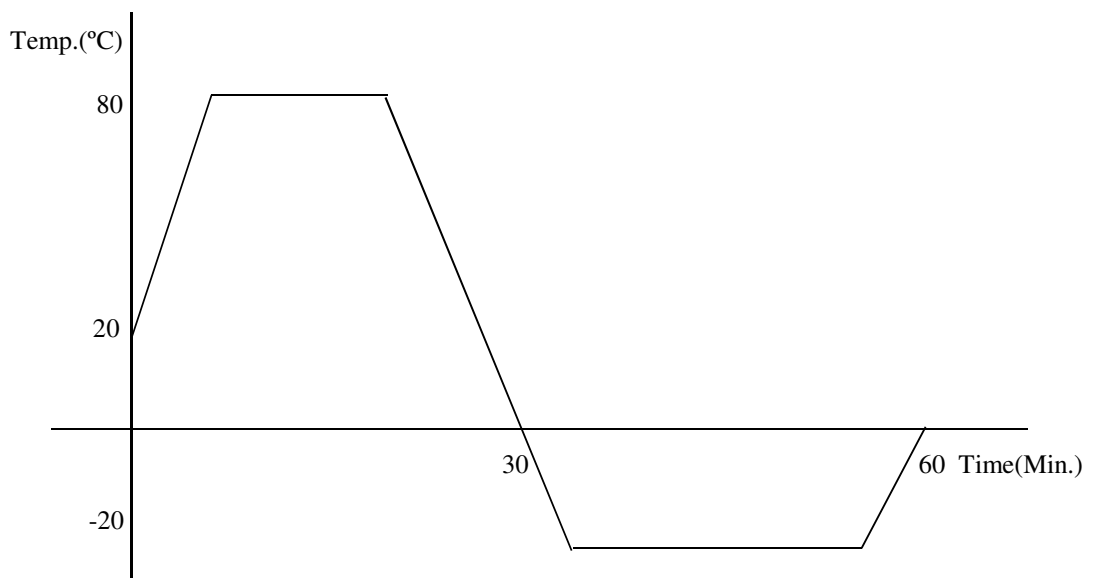


9. Test circuit



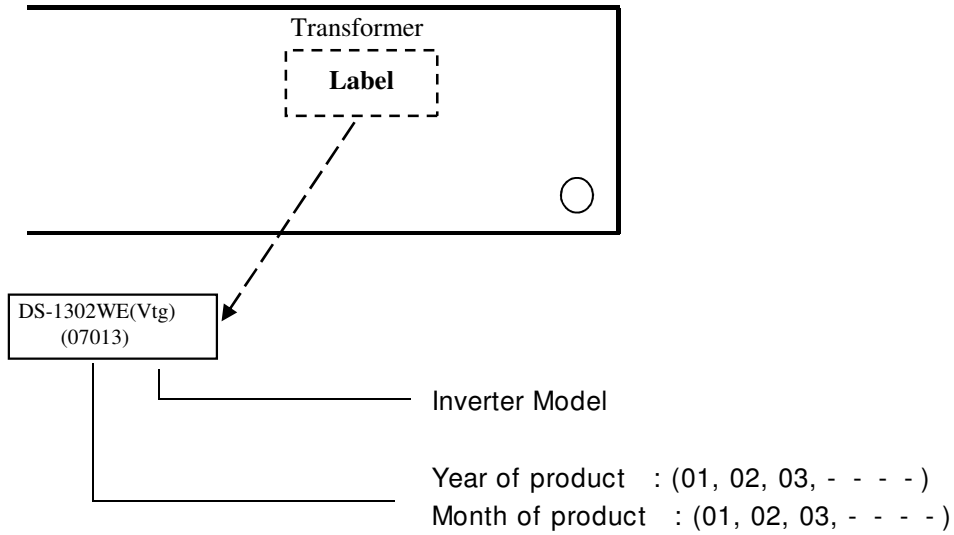
10. Heat shock test

20 cycles of test



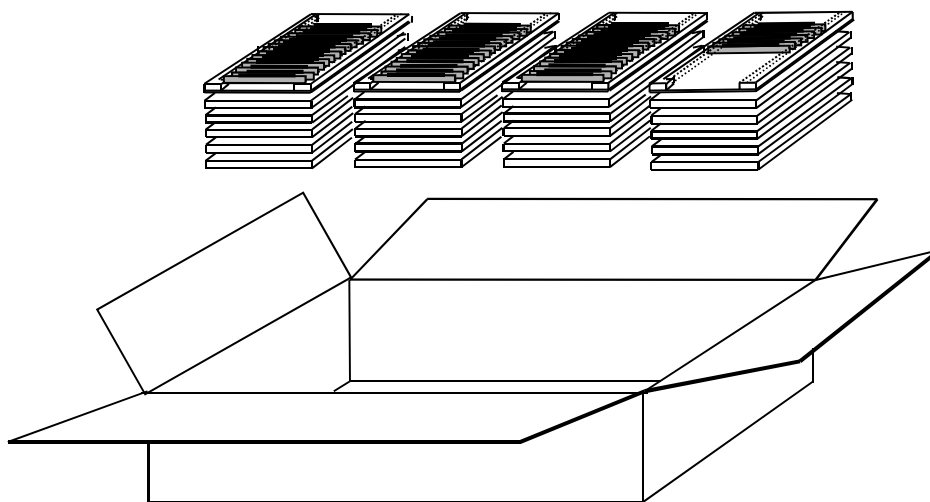
11. Notation of lot number

Bar code label position : Bottom of PWB

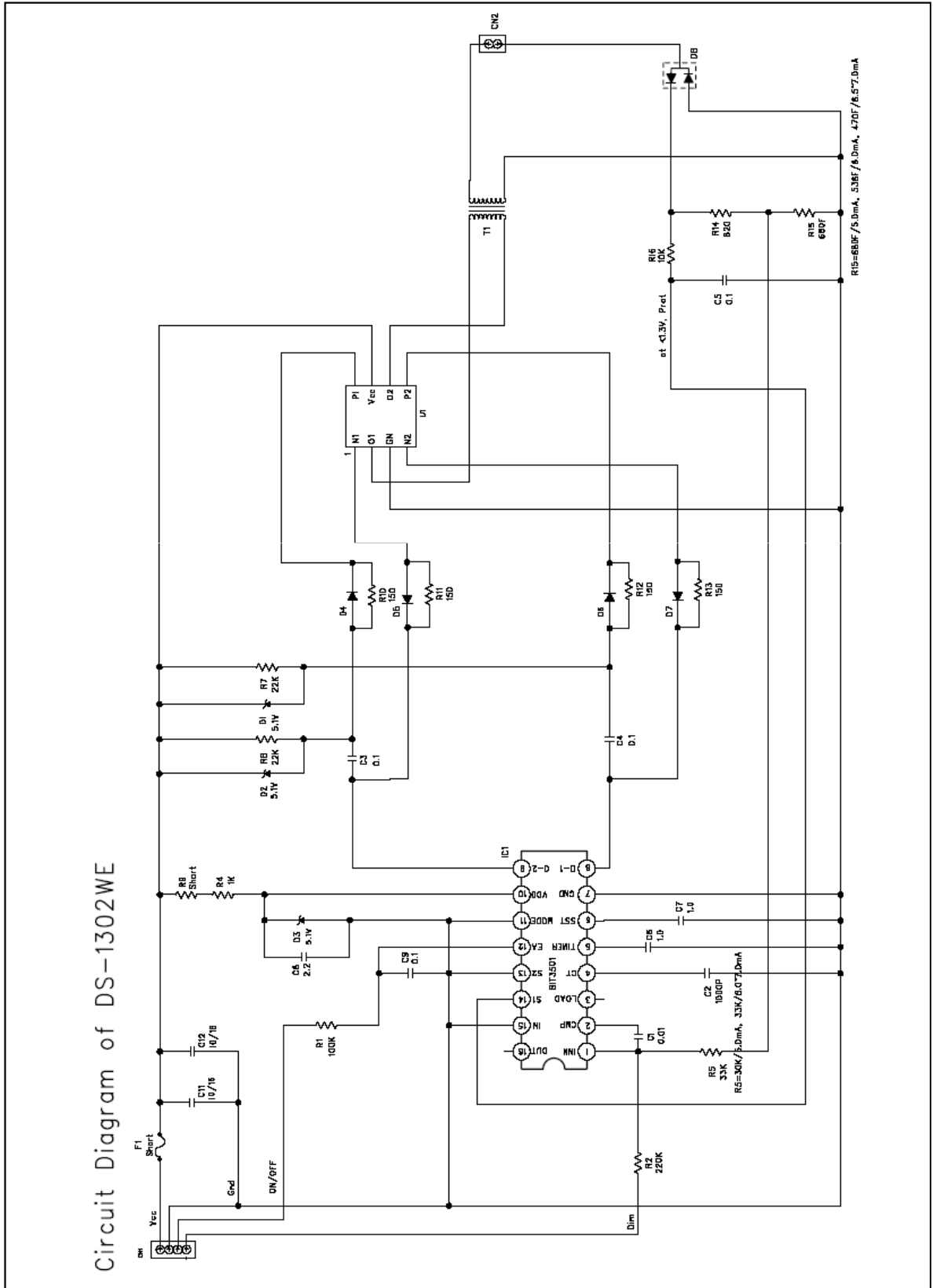


12. Packing

1 Box = 480 Pieces (20 Ea × 6 layer × 4 Row)



14. Circuit Diagram



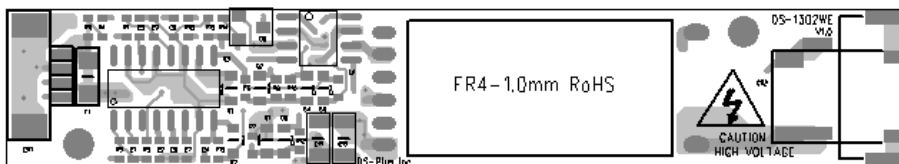
15. PCB Lay- Out



< Bottom Side >



< Top Side >



< Components Lay-out >

16. Material List

Symbol	Component	Type No.	Manufacture	Description
	PWB		ERE Electronics or Equivalent	UL File No.-E213562
CN1	Connector	12505WR-04A00	YEONHO or Equivalent	UL File No.-E108706
CN2	Connector	35001WR-02A00	YEONHO or Equivalent	UL File No.-E108706
⚠ T1	Transformer	DS-3022	DONG HEUNG or Equivalent	See Specification