

M / S (HEU)

DATE: 31.May.2007

Design Department

Ome Manufacturing Operation

Hitachi Lighting,Ltd

16-2,shinmachi 6-chome,Ome-Shi

Tokyo 198-8611,JAPAN

TEL.0428-31-1204

FAX.0428-31-1224

## CUSTOMER'S ACCEPTANCE SPECIFICATIONS

(Backlight Inverters for cold cathode  
fluorescent lamp)

TYPE:INVC 817

### CONTENTS

No	ITEM	Page
	Cover	1
	Record of Revision	2
1	Scope	3
2	General Specifications	3
3	Electrical Characteristics	4-5
4	Reliability	6
5	Structures	6
6	Structures and Dimensions	7
7	Precautions in Design	8-9

Accepted by

Proposed by

T. Okada

## Record of Revision

DATE	PAGE	SUMMARY	Date Code & Rev.
31.May.2007		NEW	

## 1. Scope

- 1.1 This specification shall apply to inverter INVC817 to operate a cold cathode fluorescent lamp in the liquid-crystal display (LCD).
- 1.2 This inverter INVC817 is designed and adjusted for K-C160T3E54 Lamp . K-C160T3E54 Lamp (MATSUSHITA's type name) that is loaded LMG5278 LCD-module.

## 2. General Specifications

General specifications and condition for use are shown below.

Item	Specification
Output Power	Nominal 1.7W
Cooling condition	Free air flow
Efficiency	65 % min.
Weight	13.5 g max.
Ambient temperature (direct ambient air of Inverter board)	Operating 0~50deg Stock -20~70deg
Humidity	90 % RH.max.
Corrosive gasses	Not acceptable
Audible sound level	35 dB max. at 30cm
MTBF	60000Hrs. min.

### 3. Electrical Characteristics

#### 3.1.Maximum rating

Items	Min.	Typ.	Max.	unit	Remarks
Input voltage	7.0	---	18.0	V	

#### 3.2.Operationg Characteristics

K-C160T3E54 Lamp

AT=25deg.C

Item	Min	Typ	Max	Unit	Remarks
Input voltage	8.0	12.0	17.0	V	
Input current	160	210	260	mA	at 12.0V
Rush current	---	---	5.0	A	at 12.0V
Lamp current	3.7	4.2	4.7	mA	at 12.0V
Lamp power	---	1.7	---	W	at 12.0V
Main frequency	25	45	65	kHz	at 12.0V
Dimming range	---	100~50	---	%	

All characteristics are measured by our certain test equipment. The measurement of condition should be stable lighting (more than 30 minutes after startup :at 25+/-1deg.C and no breath of wind) (The measurement of input rush current is exception) .

- (1) The electrical characteristics are measured as we show on measurement diagram Fig.1.  $V_{in}=12.0V$ .
- (2) As we show on measurement diagram Fig.1, the test equipment shall be V1:DC Volt meter (Class0.5) A1:DC Current meter(Class0.5) A2:AC Current meter type2016(Y.E.W) or FLUKE45(FLUKE)  $V_{in}$ : DMS35-2.3(Metronix).
- (3) The line length of between the lamp and CN2(high voltage)is less than 150mm.

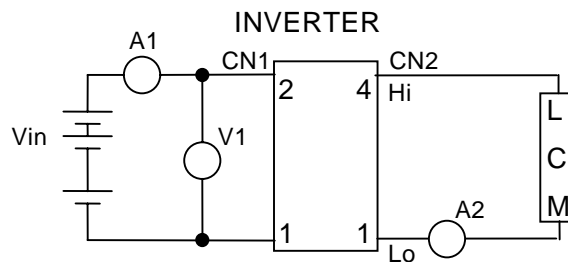


Fig.1 Wiring

### 3.3. Wiring Diagram

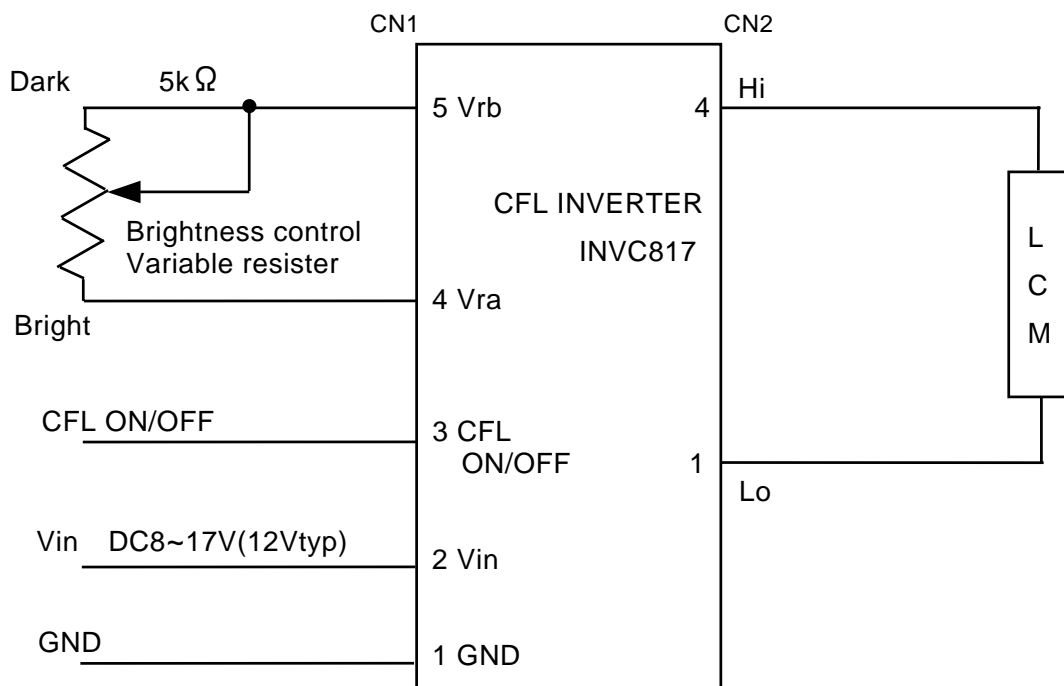


Fig.2 Wiring Diagram

#### 4. Reliability

Item	Test condition
Low temp. operate	0deg.C, 12.0V, 100%output, 500Hrs
High temp. operate	50deg.C, 12.0V, 100%output, 500Hrs
Low temp. stock	-20deg.C, 500Hrs
High temp. stock	70deg.C, 500Hrs
High temp. and high humidity	50deg.C, 90% 12.0V, 100%output, 500Hrs
Cyclic temp. operate	0deg.C - 25deg.C - 50deg.C 1Hr each 12.0V, 100%output, 50cycles
Thermal shock	-20deg.C - 70deg.C, 0.5Hrs each 50cycles
Vibration	3G, 30~200Hz, 0.5Hrs,xyz-axis
Impact test	50G,xyz-axis

#### 5. Structures

##### 5.1 Dimensions

Reference to drawing P.7

##### 5.2 Interface specification

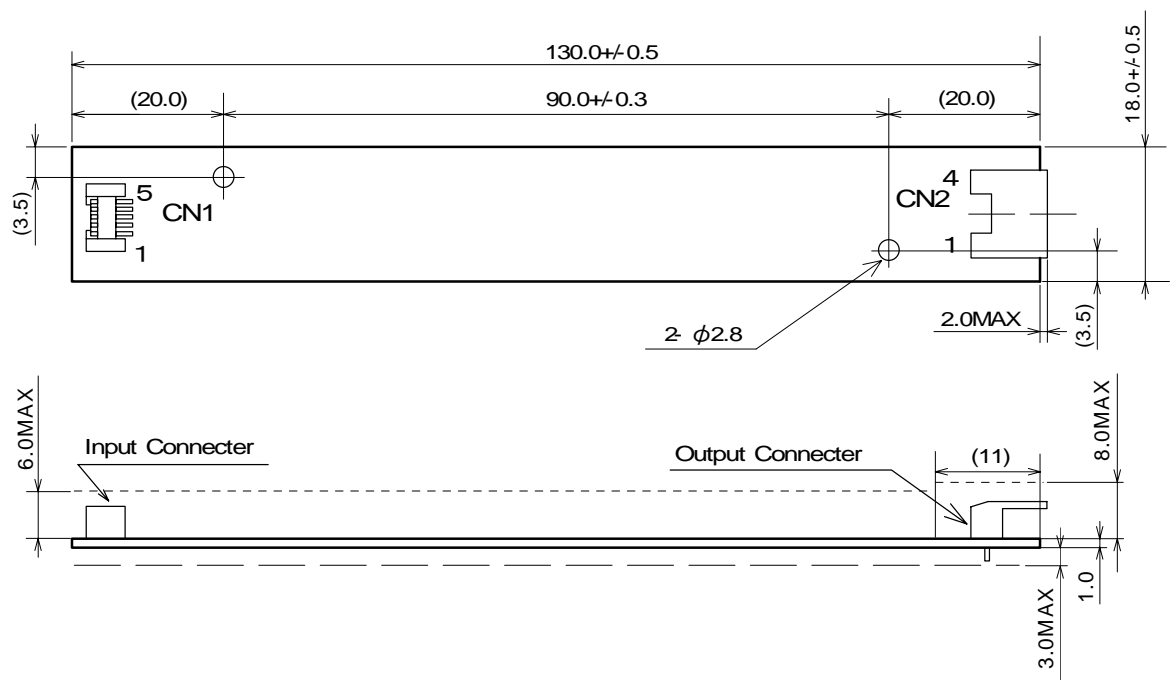
Input connector CN1:IL-Z-5PL-SMT(JAE)

Pin No.	Symbol	Comment
1	GND	
2	Vin	DC8~17V
3	CFL ON/OFF	ON :“L” Vol=0.8V MAX OFF:“H” Vin+/-0.5V or open
4	Vra	Brightness MAX:0Ω MIN:5kΩ Variable resistance is connected between 4pin and 5pin.
5	Vrb	

Output connector CN2:IL-G-4P-S3L2-SA(JAE)

Pin No.	Symbol
1	Lo
2	--
3	--
4	Hi

6.Structures and Dimensions



.Date code : ex "31E7"

## 7.Precautions in Design

7.1 Please turn off the power supply of the inverter before the out put connector (CN2) be put in or put off. Because voltage of the output connector is very high.

7.2 The high-voltage wiring of lamps may affect the characteristics of this product even in the presence of a slight stray capacity of 1 to few pF. So, please check whatever the below points have fully considered.

(1) Please use UL1330 equivalents as inverter output leads and keep length within 150mm.

(2) Please keep the length of wiring as short as possible and at the same time avoid binding high-voltage leads together and fitting high-voltage leads near the shield.

(3) Consider the electric potential of the parts adjacent to a wire because it greatly affects the electric characteristics and startup characteristics.

7.3 In the case of put in and put off the connector(CN1), please switch off power supply of the inverter. If power supply is operating, it will be possible that the inverter break down.

7.4 Please pay attention in using the inverter. Because the transformer in the inverter is weak to impact.

7.5 If it was exposed to thermal shock(out of order), come to have a crack itself.

7.6 Please do not give it any changes, such as reworking it, applying and hardening with adhesives, molding with resin, fixing with tape.

7.7 Please make a tight connection output and input connector.(If inverter's connector contact was imperfection, the components of inverter have high temperature and break down.)



7.8 Pay attention as printed circuit board is bent, and not adding excessive pressure when printed circuit board is built in. (Deterioration and the damage of component are caused, and movements of inverter are out of order.)