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**CUSTOMER'S ACCEPTANCE
SPECIFICATIONS**
(Backlight Inverters for cold cathode
fluorescent lamp)

TYPE:INVC662

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Proposed by

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RECORD OF REVISION

DATE	PAGE	SUMMARY	Date Code & Rev.
25.DEC.2003		NEW	
3.MAR.2004	9 page	ADDED: 7.9 specification of inverter install	

1. Scope

1.1 This specification shall apply to inverter INVC662 to operate a cold cathode fluorescent lamp in the liquid-crystal module(LCM).

1.2 This inverter INVC662 is designed and adjusted for SX19V009 LCD-module. (Hitachi's type name)

2. General Specifications

General specifications and condition for use are shown below.

Item	Specification
Cooling condition	Free air flow
Efficiency	75 % min
Weight	7.8g typ
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	35dB max. at 30cm

3. Electrical Characteristics

3.1. Maximum ratings

Items	Min.	Typ.	Max.	unit	Remarks
Input voltage	---	---	17.0	V	

3.2. Operating Characteristics

Item	Min	Typ	Max	Unit	Remarks
Input voltage	9.0	12.0	15.0	V	
Input current	170	200	230	mA	at 12.0V MAX (0 ohm)
	140	160	180	mA	at 12.0V MIN (5k ohm)
Output current	3.5	4.0	4.5	mA	at 12.0V MAX (0 ohm)
	2.5	3.0	3.5	mA	at 12.0V MIN (5k ohm)
Main frequency	55	65	75	kHz	at 12.0V MAX (0 ohm)

All characteristics are measured at SX19V009.

- (1) 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 and no breath of wind) (The measurement of input rush current is exception.)
- (2) The electrical characteristics are measured as we show on measurement diagram fig.1. $V_{cc}=12V$.
- (3) 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_{cc} :DMS35-2.3(Metronix) .
- (4) The line length of between the lamp and 1pin of CN2(high voltage side)is less than 150mm. The line length of between the lamp and 2pin of CN2(low voltage side)is less than 400mm.

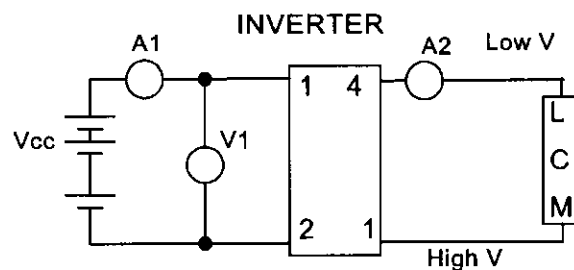


Fig.1 Wiring

3.4. Wiring Diagram

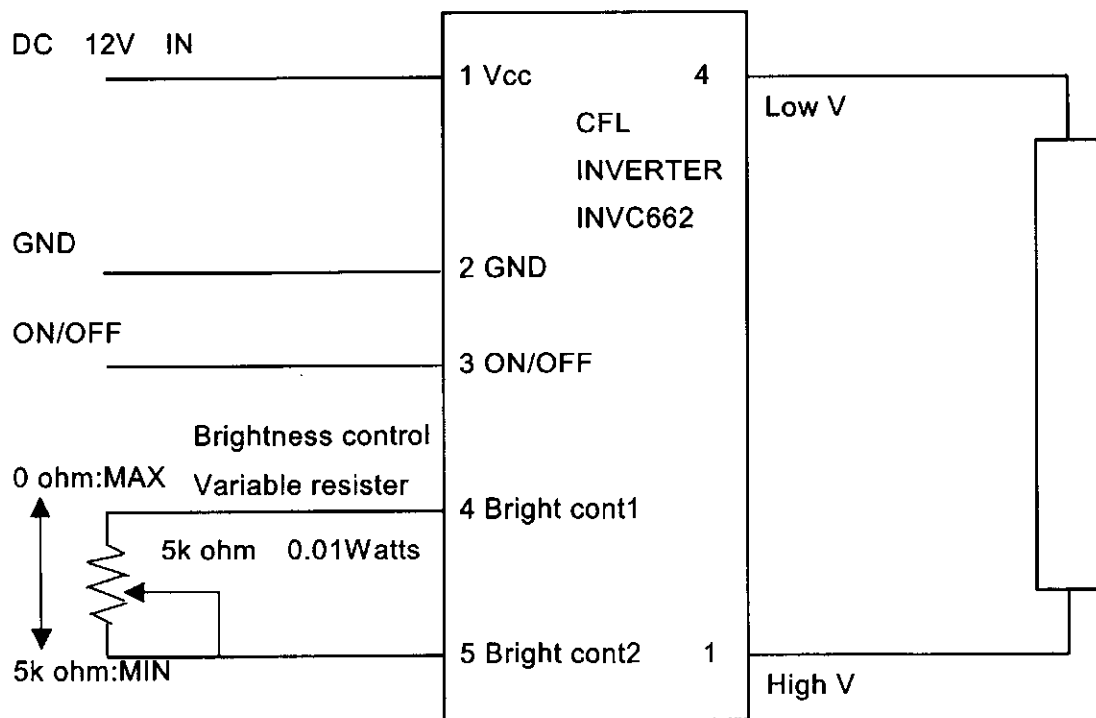


Fig.2 Wiring Diagram

4. Reliability

Item	Test condition
Low temp.oper.	0deg, 12.0V, 100%output, 500Hrs
High temp.oper.	50deg, 12.0V, 100%output, 500Hrs
Low temp.stock.	-20deg, 500Hrs
High temp.stock.	70deg, 500Hrs
High temp. and high humidity	50deg, 95% 12.0V, 100%output, 500Hrs
Cyclic temp.oper.	0deg – 25deg –50deg 1Hrs each 12.0V, 100%output, 50cycles
Thermal shock	-20deg – 70deg, 0.5Hrs each 100cycles
Vibration	3G, 30~200Hz, 0.5Hrs,xyz-axis
Impact test	50G,xyz-axis

5. Structure

5.1 Dimensions

Reference to drawing P.7

5.2 Interface specification

Input connector CN1: 53261-0590(Molex)

Pin No.	Symbol	Comement
1	Vcc	Vcc 12.0Vtyp
2	GND	GND
3	CFL ON/OFF	OFF at Low ON at 3V~Vcc
4	Bright cont1	Dimming through variable resistor 5k ohm
5	Bright cont2	Brightness MAX at 0 ohm, MIN at 5K ohm

Output connector CN2:M60-04-301-134P(MITUMI)

Pin No.	Symbol
1	CFL High V
2,3	N.C.
4	CFL Low V

6. Structure and Dimensions

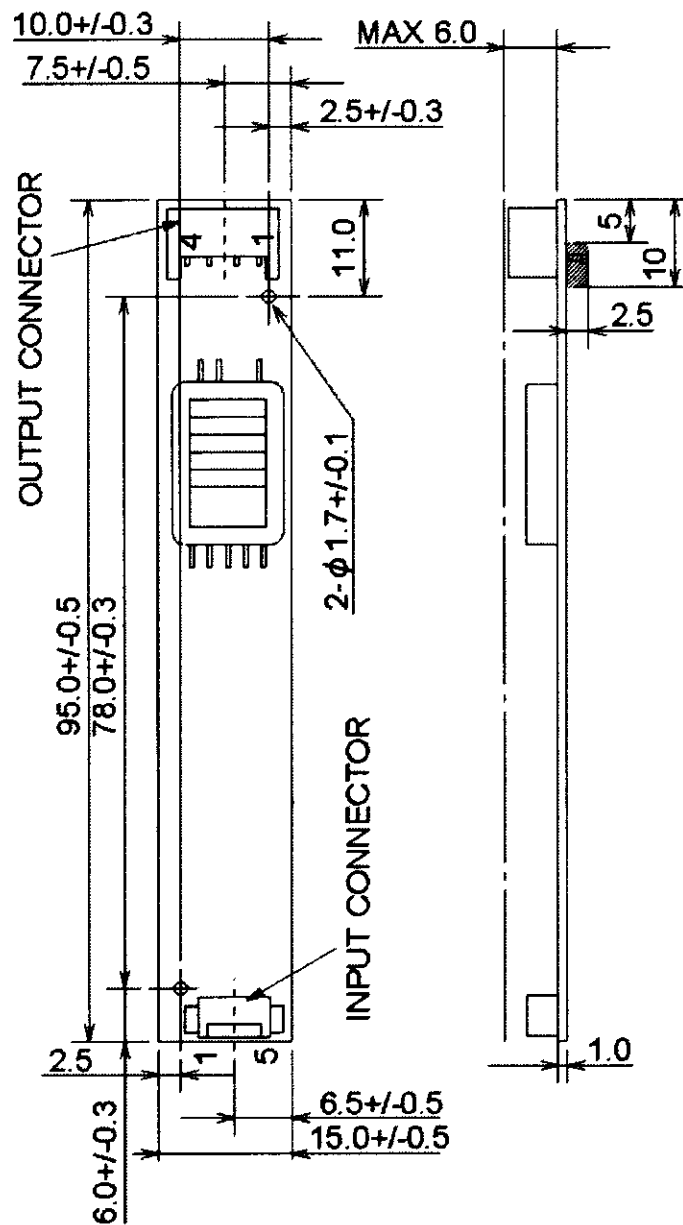


Fig.3 Dimensional Outline

1. Manufacturer's Name : "HITACHI" silk print
2. Manufacture'No : INVC"662" silk print
3. Date code : ex "25N3"

7. Precautions in Design

7.1 Please turn off the power supply of the inverter before the output connector (CN2) is put in or put off. Because the 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 and low-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 putting in and putting off the connector (CN1), please switch off the power supply of the inverter. If the power supply is operating, it is possible that the inverter will break down.

7.4 Please pay attention when 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), it may 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 of the output and input connector. (If the inverter's connector contact is imperfect, the components of the inverter will have a high temperature and break down.)

