

MESSRS :

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PRODUCT DRAWING

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CUSTOMER'S PRODUCT NAME:

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TDK PRODUCT NAME: DC/AC INVERTER UNIT  
CXA-L0612A-VxL

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TDK Corporation

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DWG.No.

CTR-0734-C

## Precautionary Notes Regarding the Use of This Inverter

**When using this product, give due consideration to the precautionary notes described below and ensure a safe design. Inappropriate use may result in electric shock, injury or fire.**



### Warning



This product is subject to high voltage. Do not touch it while the power is on.  
Failing to do so may result in electric shock.



### Caution

This product is designed for the lighting of a Cold Cathode Fluorescent Lamp.  
Do not use it with any other load.  
Store this product under the conditions defined in the specification document.  
Do not store this product in an environment where dust, dirt or corrosive gas (salt, acid, base, etc.) is present.  
This product is subject to high voltage. If there is a possibility that the user may touch the product, provide a proper indication in order to draw the user's attention.  
This product is designed for use with general electronic equipment.  
If it is to be used with medical equipment that directly affects human life or for the control of transportation equipment to which passengers entrust their lives, provide thorough fail-safe measures.  
Avoid using this product under high temperatures or high humidity or in an environment in which dust, dirt or any corrosive gas (salt, acid, base, etc.) is present.  
Also, be careful not to allow the formation of dew condensation. It may result in damage or electric shock.  
If the product does not have a built-in protective circuit (circuit breaker, fuse, etc.), it is recommended that a fuse be used at the input stage to prevent the generation of smoke or fire in the event of a malfunction.  
Even when the product has a built-in protective circuit (circuit breaker, fuse, etc.), the circuit may not function properly due to inappropriate operating conditions or power-supply capacity. It is recommended that an appropriate protective circuit (circuit breaker, fuse, etc.) be provided separately from the built-in circuit.  
Use the product only within the specified input voltage, output power, output voltage and operating temperature ranges. Exceeding these values may result in damage, etc.  
Provide a measure for the prevention of surge voltage due to lightning, etc.  
Abnormal voltage may result in damage, etc.  
To prevent problems arising from short-circuiting of the high-voltage section, provide appropriate measures to prevent the entry of foreign substances following installation.  
This product is not designed to provide resistance to radiation.  
Ripples could be superimposed on the voltage and the current in the input source connected to the inverter, depending on the impedance in the input source, wiring, etc.  
When you select an input source, please check waveforms, etc on the final set.

### Handling Precautions

This product uses thin wires. Observe the following precautions and handle it with care so as not to cause wire breakage. Broken wire may result in damage, etc.

- Do not stack multiple products on top of one another.
- Do not allow the product to come in contact with tools, etc.

Do not apply excessive stress during installation.  
It may cause chipping and cracking, resulting in damage, etc.  
Provide a clearance of 2 mm or more between the high-voltage section of this product and the frame body on which the product is installed and also the conductor section (pattern, pad, etc.).  
Please do not use the product, when dropping it, since there is a possibility of the parts damage.  
Please confirm abnormality is not found in the product enough when using it by any chance.

|                 |                               |             |      |
|-----------------|-------------------------------|-------------|------|
|                 | PRODUCT NAME or MODEL, TITLE  |             |      |
|                 | DC-AC INVERTER CXA-L0612A-VxL |             |      |
| TDK CORPORATION | NAME OF DRAWING               | DRAWING No. | PAGE |
|                 | Product Drawing               | CTR-0734-C  | 1/6  |

• The specifications may be changed without any notice.  
 • When placing orders, please confirm "Specifications" or Product Drawing" through TDK sales or distributors.

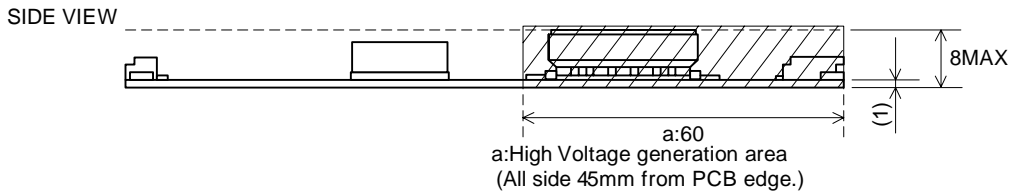
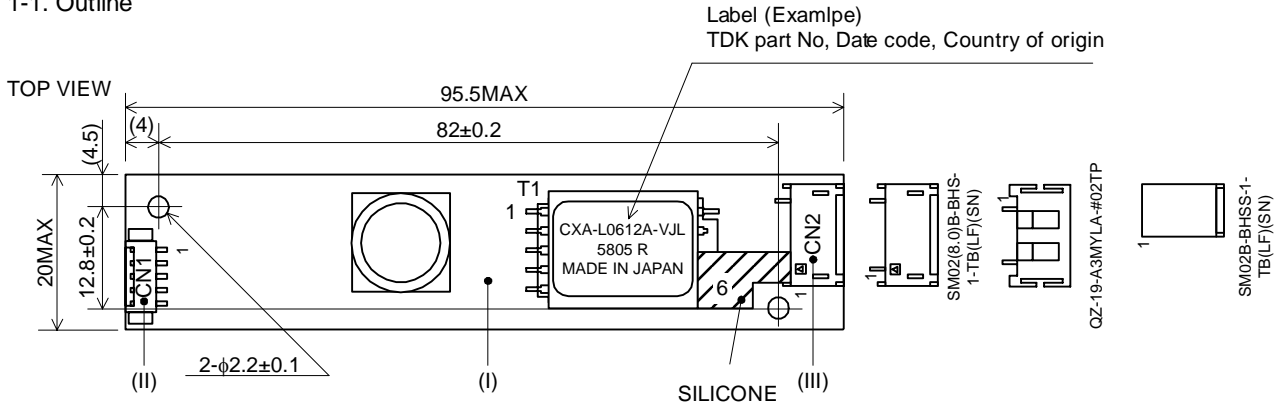
Features

- This inverter is for one lamp. It has Dimming function and Remote function.
- The high-voltage area is coated with silicone so as to avoid the defects caused by dust.
- This product is conformity to RoHS directive.\*

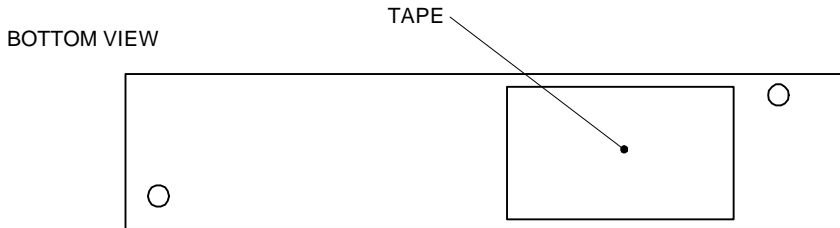
\* : Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

[1] Outline

1-1. Outline



Please secure the air clearance of 2mm or more from the high voltage generation area up and down and right and left. Please refer to Note1-4. for details.



Unit:mm  
 Weight:13.7g.typ.

| No.   | Part Description     | Material                    | QU. | REMARK        | MATES WITH  |
|-------|----------------------|-----------------------------|-----|---------------|-------------|
| (I)   | PCB                  | Composite (CEM-3)           | 1   | UL94V-0 t=1.0 | -           |
| (II)  | Input Connector CN1  | 53261-0571                  | 1   | MOLEX         | 51021-0500  |
| (III) | Output Connector CN2 | SM02(8.0)B-BHS-1-TB(LF)(SN) | 1   | JST           | BHR-03VS-1  |
|       |                      | QZ-19-A3MYLA-#02TP          | 1   | HONDA         | QZ-19-3F01  |
|       |                      | SM02B-BHSS-1-TB(LF)(SN)     | 1   | JST           | BHSR-02VS-1 |

|                               |                 |             |      |
|-------------------------------|-----------------|-------------|------|
| PRODUCT NAME or MODEL, TITLE  |                 |             |      |
| DC-AC INVERTER CXA-L0612A-VxL |                 |             |      |
| TDK CORPORATION               | NAME OF DRAWING | DRAWING No. | PAGE |
|                               | Product Drawing | CTR-0734-C  | 2    |

\*Example of naming product

C X A - L 0 6 1 2 A - V x L

Inverter.

Output power : 4~5W.

Output current : 6mArms type.

Input voltage :12V type.

Power improvement goods of CXA-L0612.

CN2 high voltage output side terminal position :  
L-Leftside sees from insert terminal.

Output connector : J-JST SM02(8.0)B-BHS-1-TB(LF)(SN)  
HOND A QZ-19-A3MYLA-#02TP  
S-JST SM 02B-BHSS-1-TB(LF)(SN)

Adjustment of brightness method : Voltage amplitude control method to put current feedback.

1-2. Connector Configuration

Input side CN1

| Pin No. | Symbol | Rating        | Notes  |
|---------|--------|---------------|--|
| CN1-1   | Vin    | 9.6~14.4V     |  |
| CN1-2   | GND    | 0V            |  |
| CN1-3   | Vrmt   | 0V / 2.5V~Vin | 0~0.4V : OFF<br>2.5V~Vin : ON                  |
| CN1-4   | Vbr    | 0~4V          | Power supply for adjustment of brightness.     |
| CN1-5   | N.C.   | -             | For an internal circuit use.<br>Don't connect. |

Output side CN2

(CXA-L0612A-VJL)

| Pin No. | Symbol | Rating         |
|---------|--------|----------------|
| CN2-1   | VHIGH  | 600Vrms 6mArms |
| CN2-2   | N.C.   | -              |
| CN2-3   | VLOW   | (2V)           |

Output side CN2

(CXA-L0612A-VHL)

| Pin No. | Symbol | Rating         |
|---------|--------|----------------|
| CN2-1   | VLOW   | (2V)           |
| CN2-2   | N.C.   | -              |
| CN2-3   | VHIGH  | 600Vrms 6mArms |

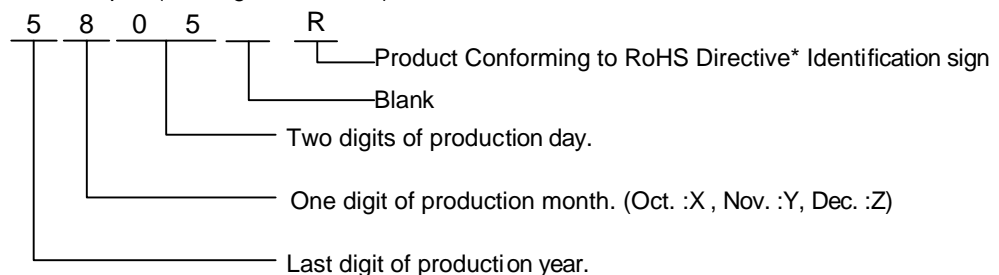
Output side CN2

(CXA-L0612A-VSL)

| Pin No. | Symbol | Rating         |
|---------|--------|----------------|
| CN2-1   | VHIGH  | 600Vrms 6mArms |
| CN2-2   | VLOW   | (2V)           |

Note1-1. Marking of TDK part No, Date code, Country of origin.

- 1) TDK part No., Date code, Country of origin, is marked on the transformer.
- 2) Date code example. (ex. August. 05. 2005)



- 3) Country of origin code example. (ex. MADE IN JAPAN. MADE IN CHINA).

\* : Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

Note1-1. For connector pins assignment, please refer to inverter mechanical specification as it may differ from manufacturer pins assignment.

Note1-2. For circuit connection, please refer to test circuit diagram [5].

|                 |                               |             |      |
|-----------------|-------------------------------|-------------|------|
|                 | PRODUCT NAME or MODEL, TITLE  |             |      |
|                 | DC-AC INVERTER CXA-L0612A-VxL |             |      |
| TDK CORPORATION | NAME OF DRAWING               | DRAWING No. | PAGE |
|                 | Product Drawing               | CTR-0734-C  | 3    |

<The specifications may be changed without any notice.>

Note1-4. Please use minimum of 2mm clearance (all directions) between inverter high voltage area and any conductors.  
Please refer to mechanical drawing for marking of high voltage area.

Note1-5. Open voltage (strike voltage) is measured across the transformer secondary winding at no load as the reading at the output connector would be less than the actual value.

Note1-6. If the start up voltage falls below Cold Cathode Tube strike voltage, the CCFL will not light up easily specially at lower ambient temperature. Please review mounting instruction to avoid any abnormal operation due to coupling/leakage capacitance of inverter high voltage area to any surrounding conductor.

Note1-7. Please check your lamp characteristic for minimum operational current and set the limit point in your design to avoid flickering and/or abnormal operation.

Note1-8. For proper operation of circuit protection (FUSE or IC PROTECTOR), Please use minimum of 2A capacity for input power supply.

[2] Absolute maximum ratings

| Item                  | Symbol | Specification | Unit | Notes   |
|-----------------------|--------|---------------|------|---|
| Input Voltage         | Vin    | 0~16          | VDC  |   |
| Load Resistance       | RL     | 130max.       | kΩ   | 110MAX at output voltage 10.8V or less              |
| Operating Temp. range | Ta     | 0~70          | °C   |   |
| Storage Temp. range   | Ts     | -30~85        | °C   |   |
| Humidity range        | RH     | 95            | %RH  | A maximum wet ball temperature is 38 °C.<br>No dew. |

[3] Electrical specifications

| Item                                | Symbol          | Condition    |        |        |         | Specification |      |      | Unit  |
|-------------------------------------|-----------------|--------------|--------|--------|---------|---------------|------|------|-------|
|                                     |                 | Vin(V)       | Ta(°C) | RL(kΩ) | Vbr (V) | MIN.          | TYP. | MAX  |       |
| Output Current<br>(Brightness max.) | Iout1/<br>Iout2 | 9.6~<br>14.4 | 18~28  | 100    | 0       | 5.4           | 6.0  | 6.6  | mArms |
|                                     |                 | 9.6~<br>14.4 | 0~70   | 90~130 | 0       | 5.3           | 6.0  | 6.7  |       |
| Output Current<br>(Brightness min.) | Iout1/<br>Iout2 | 9.6~<br>14.4 | 18~28  | 520    | 4       | 1.3           | 1.6  | 1.9  |       |
| Input Current                       | Iin             | 12           | 0~70   | 90~130 | 0       | -             | 0.40 | 0.65 | A     |
| Frequency                           | F               | 9.6~<br>14.4 | 0~70   | 90~130 | 0       | 48            | 58   | 68   | kHz   |
| Open Circuit<br>Voltage             | Vopen           | 9.6~<br>14.4 | 0~70   | ∞      | 0~3     | 1.5           | 1.8  | -    | kVrms |

PRODUCT NAME or MODEL, TITLE

DC-AC INVERTER CXA-L0612A-VxL

TDK CORPORATION

NAME OF DRAWING

Product Drawing

DRAWING No.

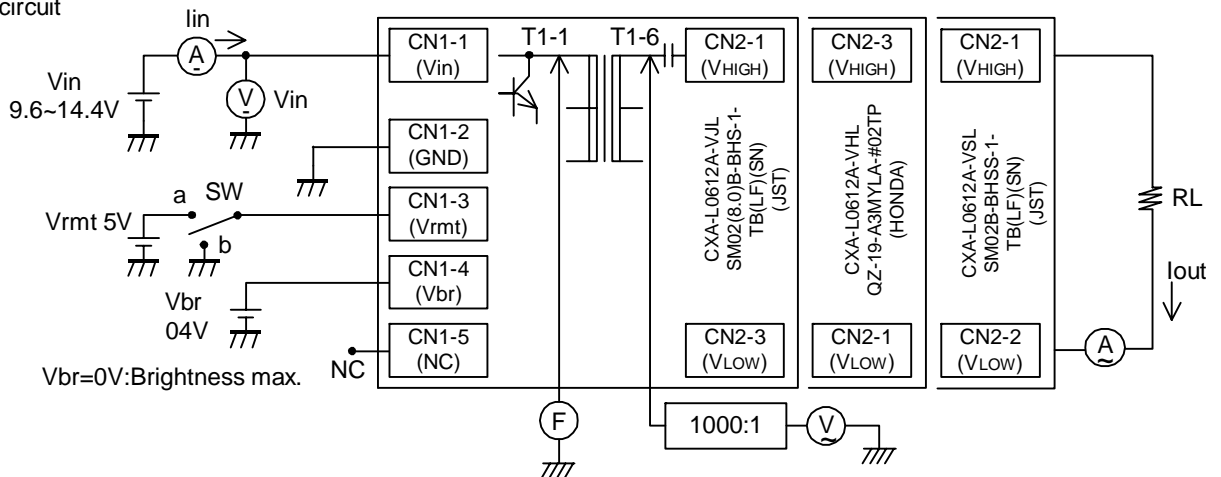
CTR-0734-C

PAGE

4

<The specifications may be changed without any notice.>

[4] Test circuit



\*For the number of the component's position, please refer to Outline diagram [1].

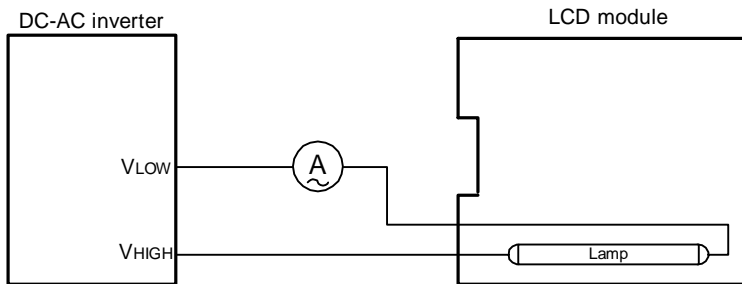
Note4-1. SW(ON/OFF) Operation is as following;

| SW | Operation of unit |
|----|-------------------|
| a  | Operation         |
| b  | Non operation     |

Note4-2. Test Equipments

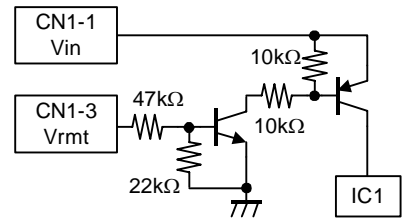
- (V) Digital Multiple Meter(ADVANTEST R6451A or equivalent)
- (A) DC Current Meter(ADVANTEST R6451A or equivalent)
- (F) Frequency Counter(ADVANTEST R6452A or equivalent)
- (V) True RMS Meter(KEITHLEY 2001 or equivalent.)
- (A) High Frequency Current Meter(KEITHLEY 2001 or equivalent)
- 1000:1 High Voltage Probe(Tektronix P3000 or equivalent)

Connection diagram of LCD module (Reference)



\*Connect the High Frequency Current Meter to the Low-Voltage (VLOW) side.

Remote terminal circuit (Reference)



[5] Reliability test

Following test items are assured.

| Item                       | Condition   | Judgement                                       |
|----------------------------|---|---|
| Low Temp.Non operational   | -40°C 500h  | Electrical and apperance should be in the spec. |
| Low Temp.operational       | -10°C 500h Load cond.:TYP                                       |   |
| High Temp.Non operational  | 85°C 500h   |   |
| High Temp.operational      | 70°C 500h Load cond.:TYP  |   |
| Heat shock                 | -20°C to 75°C 30min.Each 100 Cycles                             |   |
| Humidity (Non operational) | 40°C 90~95%RH 500h  |   |
| Vibration                  | 10~55Hz Amplitude 0.35mm or 5G Sweep:1min 30min each axis X,Y,Z |   |
| Shock                      | 100G 6ms Harf-sine pulse 1 time each axis ±X,Y,Z                |   |

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DC-AC INVERTER CXA-L0612A-VxL

TDK CORPORATION

NAME OF DRAWING

Product Drawing

DRAWING No.

CTR-0734-C

PAGE

5

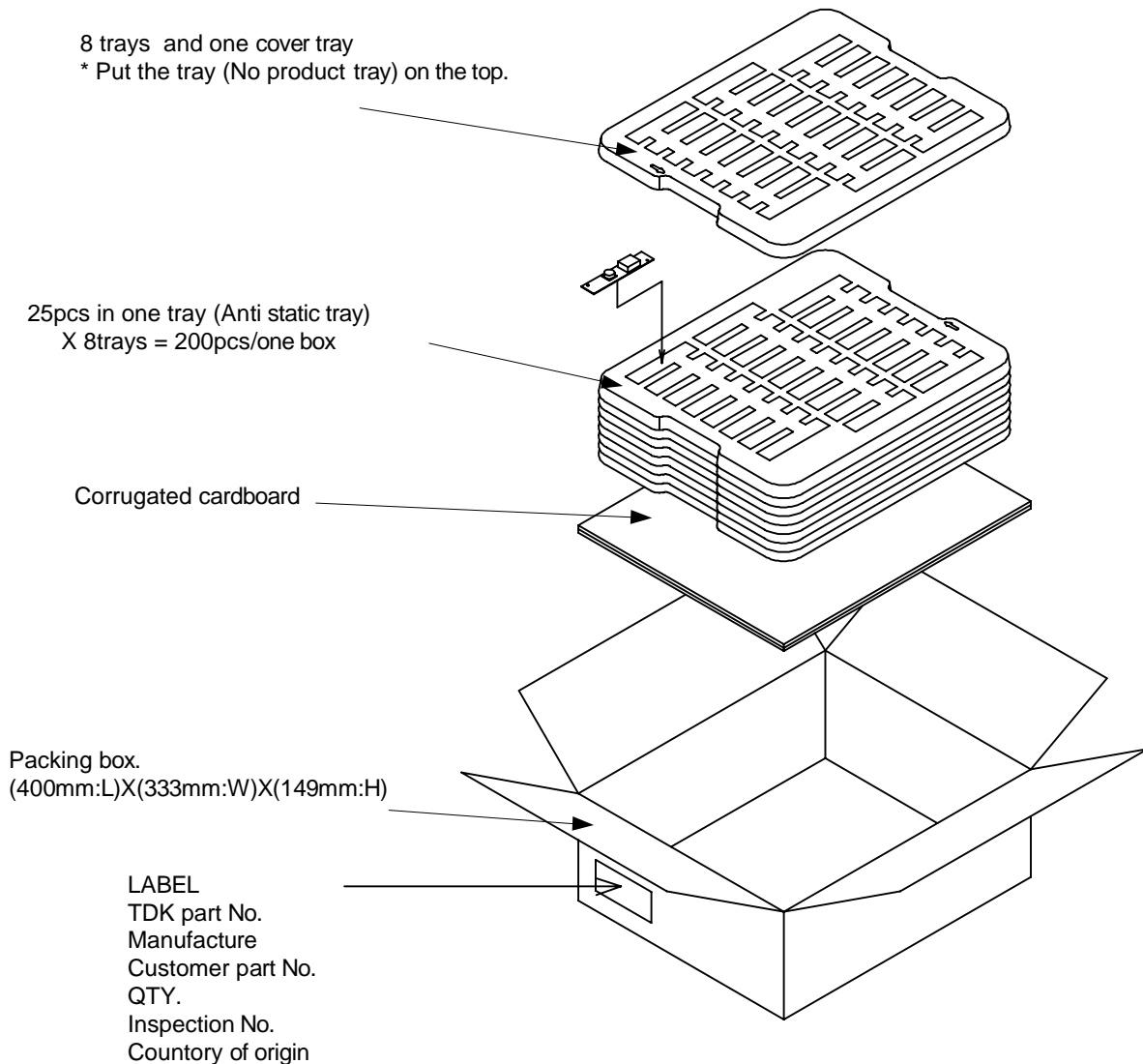
<The specifications may be changed without any notice.>

[6] Packing and Marking

A shipping box is packaged to avoid from damage. Follo wing items are printed on the box.

- 6-1. TDK part No. (ex) CXA-L0612A-VJL
- 6-2. Manufacture TDK
- 6-3. Customer part No.
- 6-4. QTY.
- 6-5. Inspection No.
- 6-6. Country of origin

Packing style as under Fig. (200 going in with a standard.)



[7] Others

7-1. Test cond.

A normal test condition :Temperature (20±15°C), Humidity (65±20%RH).

7-2. Std warrantry

One year after shipment.This covers any defects in material or workmanshi p. Defective units will be replaces at no charge.

7-3. Others

TDK and customer are to discuss changes,problems, and modifications and etc, when needed.

|                 |                               |             |      |
|-----------------|-------------------------------|-------------|------|
|                 | PRODUCT NAME or MODEL,TITLE   |             |      |
|                 | DC-AC INVERTER CXA-L0612A-VxL |             |      |
| TDK CORPORATION | NAME OF DRAWING               | DRAWING No. | PAGE |
|                 | Product Drawing               | CTR-0734-C  | 6    |