TDK·Lambda

MESSRS :

Product Drawing

CUSTOMER'S PRODUCT NAME:

TDK PRODUCT NAME: **DC/AC INVERTER UNIT CXA-0549**

TENTATIVE

*Notice
Product Drawing is not contract. This is only technical data.
This technical data may change internal description without any notice.
When you design final product please request us specification through our sales or distributors.
After you receive the specification, the contract is effective on signature of the specification.

TDK

TDK-Lambda Corporation

PREPARED BY	APPROVED BY	AUTHORIZED BY
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DWG.No.	CTR-3835-A

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 lighting Cold Cathode Fluorescent Lamps. 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 warning 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.
- Consult us before using if this product is to be installed in a habitual vibration environment (vehicle, etc.).
- 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 from occurring as a result of a short circuit in the high voltage section, be sure to take appropriate measures to prevent the entry of foreign substances into the inverter after it is installed.
- This product is not designed to provide resistance to radiation.
- In order to protect the inverter from vibration and shock, be sure to use all the mounting holes when installing the inverter.
- 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.
- Please use all the mounting holes, because to defend the converter from vibration and impact.

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 clearance between the high-voltage section of this product and the frame body on which the product is installed and also the conductor section as on page 2 , [1] "Outline" .
- Do not use the product after it has been dropped because there is the possibility that components have been damaged.

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No.	MATERIALS NAME	QU	MATERIAL	REMARK
PRODUCT NAME or MODEL,TITLE				
DC-AC INVERTER UNIT CXA-0549				

TDK-Lambda	NAME OF DRAWING	DRAWING No.	PAGE
	Product Drawing	CTR-3835-A	1

1. Part Name

The part name is CXA-0549.

2. Contents

Item	Attched view	Page
1.Appearance,Structure and Dimensions		
Outline	refer to [1]	3
Pin configration	refer to [1]	4
2.Characteristics		
Absolute Maximum Ratings	refer to [2]	5
3.Electrical Characteristics	refer to [3]	5
4.Test circuit	refer to [4]	6
5.Reliability Test	refer to [5]	7
6.Packing and Marking	refer to [6]	8
7.Others		
Test Cond Std Warranty Others	refer to [7]	8

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●Features●

・ This inverter is for two lamps. It has Dimming function(PWM System) and Remote functio n.

・ With lamp failure dete ctor.

Normal Operation : CN1-4=0V

Some Lamps Open : CN1-4=5V

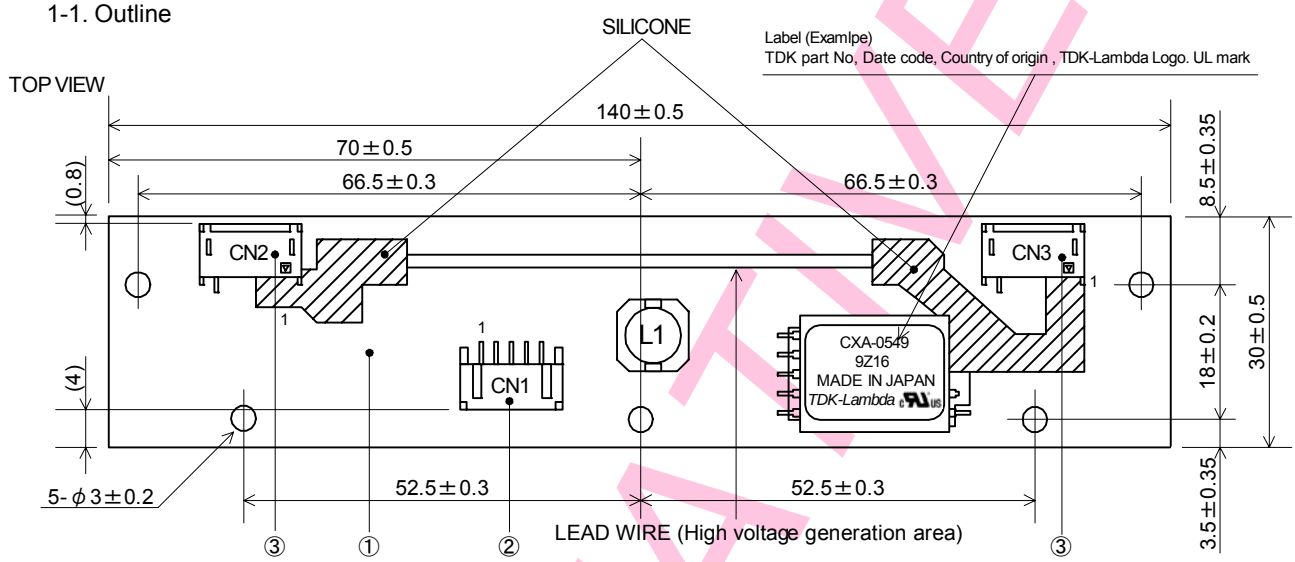
・ The high-voltage area (terminals and patterns) is coated with silicone so as to avoid the d efects caused by dust.

・This product is conformity to RoHS direc tive.(※)

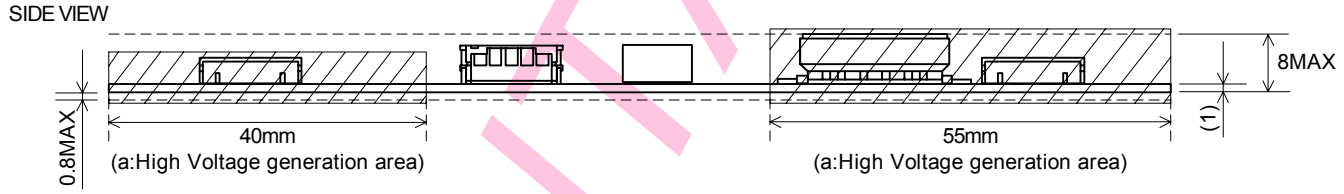
(※)Conformity to RoHS Directive:This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used,exce pt for exempted applications.

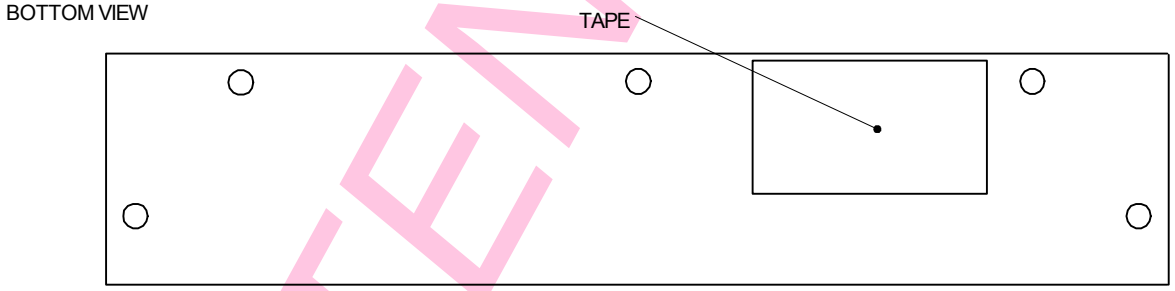
[1] Outline

1-1. Outline



Note1.A slanted line department in an upper figure expresses silicone application position.

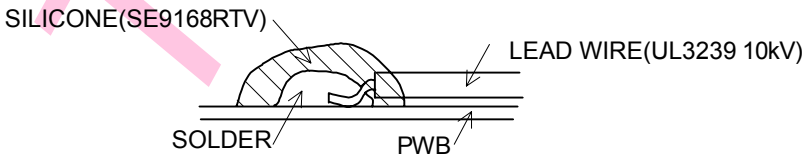




Unit:mm

Weight:22.0g.typ.

Sectional view



※Please secure 3mm or longer space distance from the high voltage generating area in all directions. Please see Note 1-3 for the details.

No.	Part Description	Material	Qu	Remark
①	PCB	Composite (CEM-3)	1	UL94V-0 t=1.0
②	Input Connector CN1	S5B-PH-SM4-TB(LF)(SN)	1	JST
③	Output Connector CN2, CN3	SM02(8.0)B-BHS-1-TB(LF)(SN)	2	JST

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1-2. Connector Configuration

Input side

Pin No.	Symbols	Ratings	Notes
CN1-1	Vin	10.8～13.2V	Input Voltage
CN1-2	GND	0V	GND
CN1-3	Vbr	0～2.5V	Dimming Control
CN1-4	Vst (出力)	0V/5V	The warning output 5V in abnormal circumstances
CN1-5	Vrmt	-1～Vin+1V	Remote Control

Output side : CN2

Pin No.	Symbols	Ratings	Notes
CN2-1	VHIGH1	(460Vrms)	Output 1
CN2-3	VLOW1	(5V)	Output 1 Return

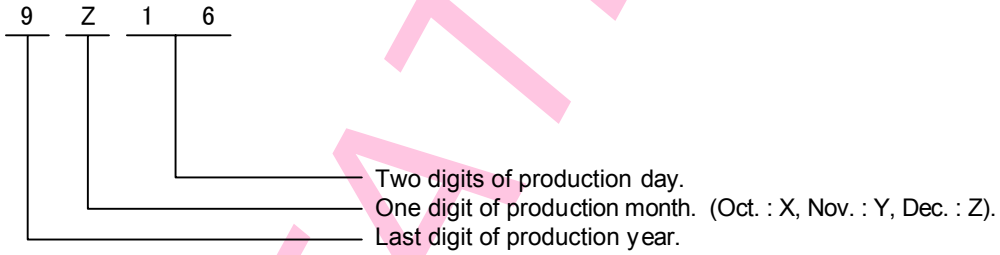
Output side : CN3

Pin No.	Symbols	Ratings	Notes
CN3-1	VHIGH2	(460Vrms)	Output 2
CN3-3	VLOW2	(5V)	Output 2 Return

Note1-1. Marking of TDK part No, Date code, Country of origin,TDK-Lambda Logo, UL mark.

1) TDK part No., Date code, Country of origin, TDK-Lambda Logo, UL mark is marked on the transform er.

2) Date code example. (ex. Dec. 16. 2009)



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

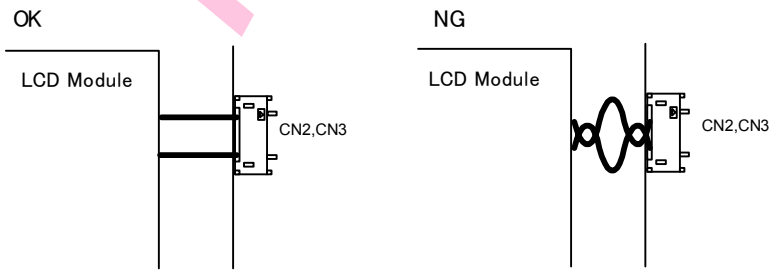
Note1-2. For circuit connection, please prefer to test circuit diagram [4].

Note1-3. Please use minimum of 3mm clearance (all directions) between inverter high voltag e area and any conductors. Please refer to mechanical drawing for marking of high volta ge area.

Note1-4. 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.

Note1-5. 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 abnorm al operation due to coupling/leakage capacitance of inverter high voltage area to any surrounding conductor.

Fig1.High Voltage Code



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No.	MATERIALS NAME	QU	MATERIAL	REMARK
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TDK-Lambda	NAME OF DRAWING	DRAWING No.	PAGE
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Note1-6. Please check your lamp characteristic for minimum operational current and set the limit point in your design to avoid flickering and/or abnormal operation.

Note1-7. For proper operation of circuit protection (fuse or IC PROTECTOR),Please use minimum of 3.5A capaci ty for input power supply.

Note1-8. Impedence from the wire connection can cause a ripple in the input. The product has an internal fuse of 1.75A. Please check that input current peak wave form does not exceed 1.75A.

[2] Absolute maximum ratings

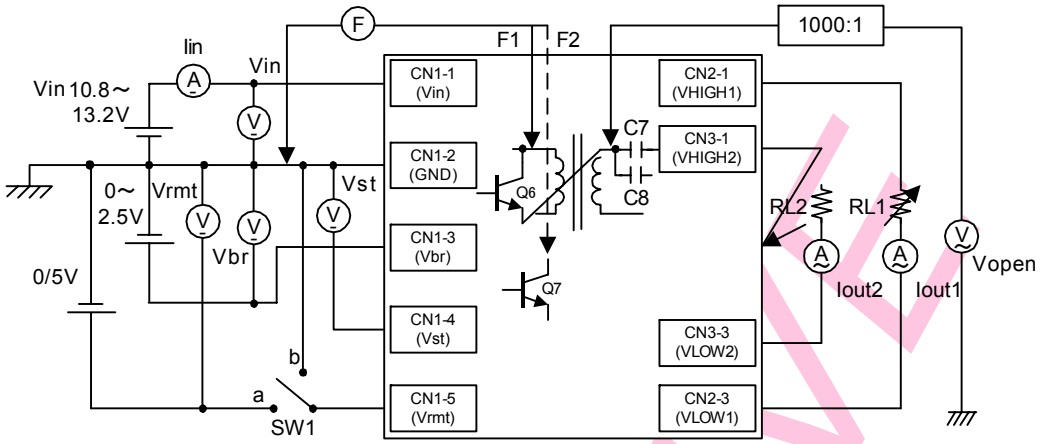
Items	Symbols	Specification	Unit	Notes
Input Voltage	Vin	0～14.4	VDC	
	Vrmt			
	Vbr	0～3		
Load Resistance	RL1,2	85	kΩ	
Operating Temp. range	Ta	-20～70	℃	
Storage Temp. range	Ts	-30～85	℃	
Humidity range	RH	95	%RH	A maximum wet ball temperature is 38°C No dew.

[3] Electrical specifications

Item	Symbol	Conditions					Specifications			Unit
		Vin(V)	Vrmt(V)	Vbr(V)	Ta(℃)	RL1(kΩ) / RL2(kΩ)	MIN.	TYP.	MAX.	
Output Current (Dimming max.)	Io1/2	12±0.1	5±0.25	0	23±5	74±0.5 / 74±0.5	5.7	6.0	6.7	mArms
	Io1/2	12±1.2	5±0.25	0	-20 ～ 70	74±0.5 / 74±0.5	5.0	6.0	7.0	mArms
Output Current (Dimming min.)	Io1/2	12±0.1	5±0.25	2.5±0.5	23±5	74±0.5 / 74±0.5	1.2	2.0	2.8	mArms
Input Current 1	Iin1	12±1.2	5±0.25	0	23±5	74±0.5 / 74±0.5	---	0.59	0.84	A DC
Input Current 2	Iin2	12±1.2	0 ～ 0.4	0	23±5	74±0.5 / 74±0.5	---	---	1.0	mA DC
Frequency	F1	12±1.2	5±0.25	0	23±5	74±0.5 / 74±0.5	38	43	48	kHz
Frequency (Duty)	F2	12±1.2	5±0.25	2.5	23±5	74±0.5 / 74±0.5	254	305	356	Hz
Output Open Voltage	Vopen	12±1.2	5±0.25	0	23±5	∞ / ∞	1.25	1.50	---	kVrms
Warning Signal	Vst	12±0.1	5±0.25	0 ～ 2.5	23±5	74±0.5 / ∞	4.5	5.0	5.5	V DC
		12±0.1	5±0.25	0 ～ 2.5	23±5	∞ / 74±0.5	4.5	5.0	5.5	V DC
		12±0.1	5±0.25	0 ～ 2.5	23±5	∞ / ∞	4.5	5.0	5.5	V DC
		12±0.1	5±0.25	0 ～ 2.5	23±5	74±0.5 / 74±0.5	---	---	0.5	V DC

PRELIMINARY

[4] Test circuit



RL1～2:Load resistance(7W or more)

Note.4-1.SW1(ON/OFF) Operation is as following;

SW1	Operation of unit
a	Operation
b	Non operation
Open	Non operation

Note4-2.Safety Function

Conditions	Alarm Signal Function (CN1-4)※1
Normality	0.5V max.
Load (Lamp) one open	4.5～5.5V
Load (Lamp) Two open	4.5～5.5V

Note4-3.Safety Function

- (V) Digital Multiple Meter(ADVA NTESTR6451A or equivalent)
- (A) DC Current Meter(ADVANTEST R6451A or equivalent)
- (F) Frequency Courtor(ADVANTE ST R6452A or equivalent)
- (V~) True RMS Meter(KEITHLEY 2001or equivalent.)
- (A~) High Frequency Current Meter(KEITHLEY 2001 or equivalent)
- 1000:1 High Voltage Probe (Tektronix P3000 or equivalent)

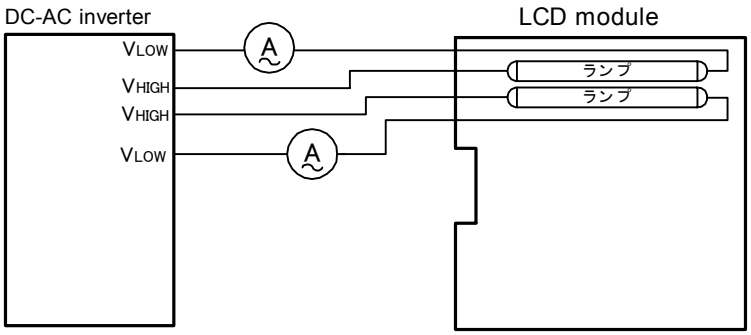
※1.When any of the load is opened, the alarm output becomes 5V.

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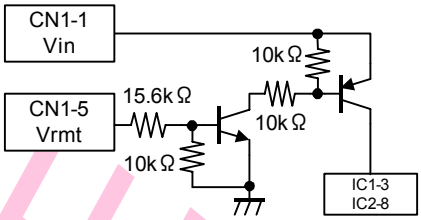
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LCD module Connected chart (reference)



Vrmt terminal circuit (Reference)



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

[5] Reliability test
Following test items are assured.

Items	Conditions	Judgement
Low Temp. Non operational	-30°C 500h	Electrical and apperrance should be in the spec.
Low Temp.operational	-30°C 500h Load cond.:TYP	
High Temp. Non operational	85°C 500h	
High Temp.operational	80°C 500h Load cond.:TYP	
Heat shock	-30°C to 80°C 30min.Each 100 Cycles	
Humidity (Non operational)	60°C 90~95%RH 500h	
Vibration	10~57Hz Amplitude 0.75mm or 9.8m/s^2 58~500Hz 9.8m/s^2 Sweep:11min 60min each axis X,Y,Z	
Shock	980m/s^2 11ms Harf-sine pulse 1 time each axis ±X,Y,Z	

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[6] Packing and Marking

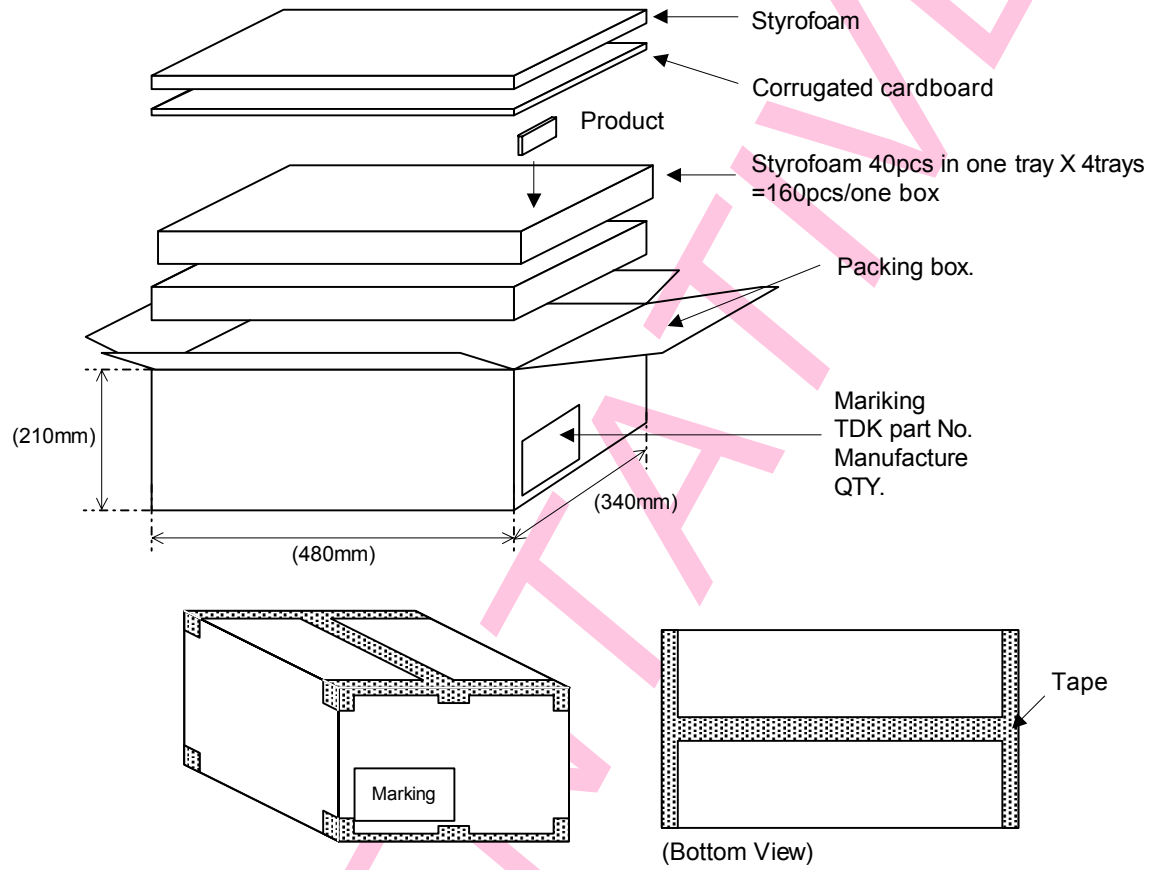
A shipping box is packaged to avoid from water or damage. Following items are printed on the box.

6-1. TDK part No. CXA-0549

6-2. Manufacture

6-3. QTY.

Packing style as under Fig. (160 going in with a standard.)



[7] Others

7-1.Test conditions

Unless otherwise specified, the temperature to be (25±15)℃ and humidity to be (65±20) %RH.

7-2. Warranty

Warranty shall be for one year after delivery, and those products causing failure during the w arranty period and which failures are attributed to the manufacturer's responsibility shall be replaced at no charge.

7-3.Oters

When any doubt arises about this specification, it shall be discussed and decided upon between both parties. Shipment inspection result sheet are subject to change without notice.

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