

MESSRS :

PRODUCT DRAWING

CUSTOMER'S PRODUCT NAME:

TDK PRODUCT NAME: DC/AC INVERTER UNIT
CXA-P20L-L



TDK Corporation

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DWG.No.	CTR-0879-B
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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.

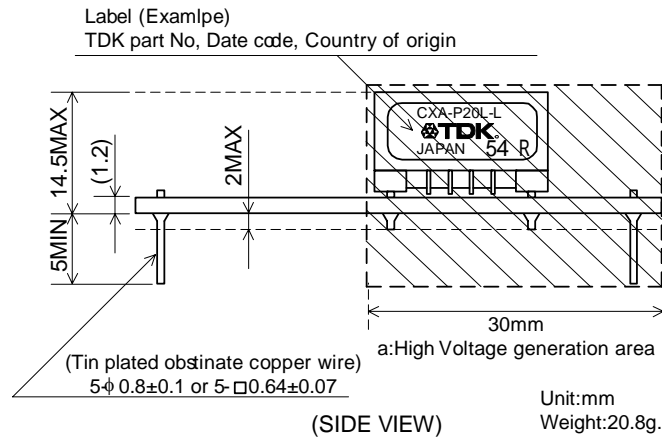
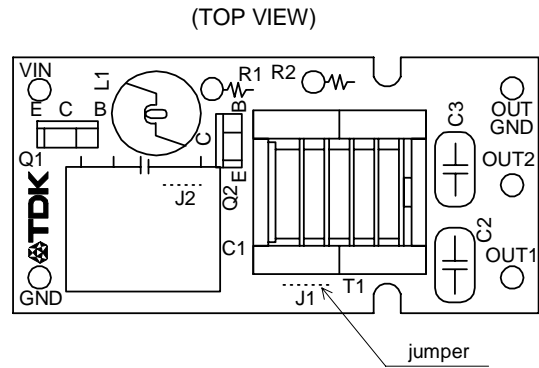
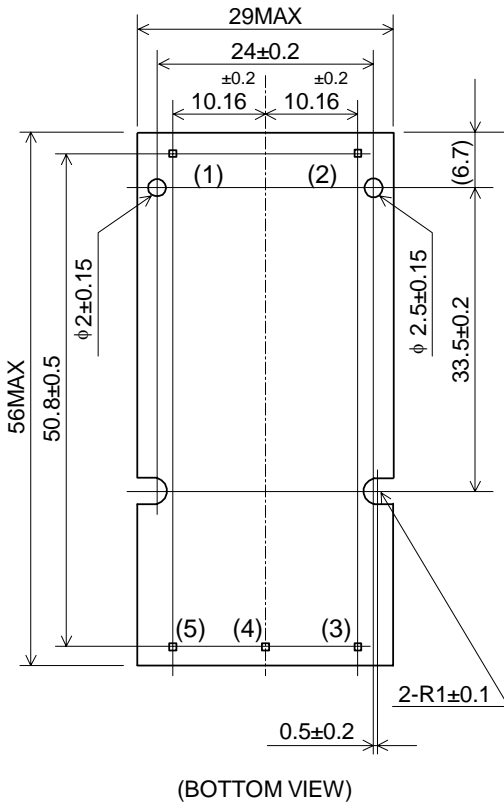
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• The specifications may be changed without any notice.
 • When placing orders, please confirm "Specifications" or "Product Drawing" through TDK sales or distributors.

- Features
- This inverter is for one or two lamps. (changed by the connection.)
 - This inverter is the mount board.
 - 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.

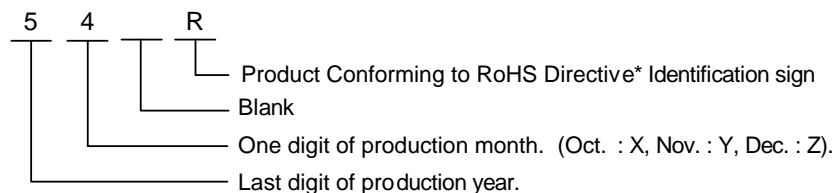
1-2. Connector configuration

Pin No.	Connection		Notes
	Symbols	Rating	
(1)	Vin	12V	
(2)	GND	0V	
(3)	OUT1	300Vrms/10mArms	
(4)	OUT2	300Vrms/10mArms	
(5)	OUT GND	0V	

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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 side of transformer.
- 2) Date code example. (ex. APR. 2005)



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

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- Note2. For circuit connection, prefer to test circuit diagram [4].
- Note3. For operation in floating mode, please remove the jumper(J1) on top side of PCB that pin2 and pin 5.
- Note4. 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.
- Note5. To prevent electrical discharge from high voltage area, please use non-conductive fastener in U mounting hole.
- Note6. 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.
- Note7. 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.

[2] Absolute maximum ratings

Items	Symbols	Specification	Unit	Notes
Input Voltage	Vin	0~14.4	VDC	
Output Power	Pout	9	W	
Operating Temp. range	Ta	-10~60	°C	
Storage Temp. range	Ts	-20~85	°C	
Humidity range	RH	95	%RH	A maximum wet ball temperature is 38°C

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[3] Electrical specifications

Items	Symbols	Conditions			Connection	Specification			Unit	
		Vin [V]	Ta [°C]	RL [kΩ]		MIN.	TYP.	MAX.		
Output Current	Iout	12±0.12	23±5	15	1	18	20	22	mArms	
						16	20	24		
Input Current	Iin	12±0.6	-10~60	11.2~18.8		2	-	0.63	0.95	ADC
Frequency	F								23	28
Open Circuit Voltage	Vopen						∞	800	900	-
Output Current	Iout	12±0.12	23±5	25	2		10	12	13	mArms
						9	12	14		
Input Current	Iin	12±0.6	-10~60	19~31		3	-	0.42	0.64	ADC
Frequency	F								27	32
Open Circuit Voltage	Vopen						∞	800	900	-
Output Current	Iout1,Iout2	12±0.12	23±5	30	3		9/9	10/10	11/11	mArms
						8/8	10/10	12/12		
Input Current	Iin	12±0.6	-10~60	22.5~37.5		3	-	0.63	0.95	ADC
Frequency	F								23	28
Open Circuit Voltage	Vopen						∞	800	900	-

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[4] Test circuit

Connection	Test circuit	Notes
1		Short of OUT1,OUT2
2		Open of OUT1 or OUT2
3		

Note4-1. Test Equipments

Digital Multiple Meter(ADVANTEST R6451A or equivalent)

DC Current Meter(ADVANTEST R6451A or equivalent)

Frequency Counter(ADVANTEST R6452A or equivalent)

True RMS Meter(KEITHLEY 2001 or equivalent.)

High Frequency Current Meter(KEITHLEY 2001 or equivalent)

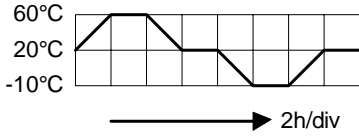
High Voltage Probe(Tektronix P3000 or equivalent)

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[5]Reliability test

Following test items are assured.

Items	Conditions	Judgement
Low Temp.Non operational	-40°C 96h	Electrical and apperance should be in the spec.
Low Temp.operational	-10°C 96h Load cond.:TYP	
High Temp.Non operational	85°C 96h	
High Temp.operational	60°C 96h Load cond.:TYP	
Temperature Cycling	The following 5 cycles,Load cond.:TYP 	
Humidity (Non operational)	40°C 90~95%RH 96h	
Vibration	10~55Hz Amplitude 0.35mm or 5G Sweep:1min 30min each axis X,Y,Z	
Shock	60G 6ms Harf-sine pulse 1 time each axis ±X,Y,Z	
Terminal strength	Tensile:1kgf 10sec	
Heatresistance of solderling	260°C±5°C 10sec 350°C±10°C 3sec	
State of soldering	230°C±5°C 5sec	

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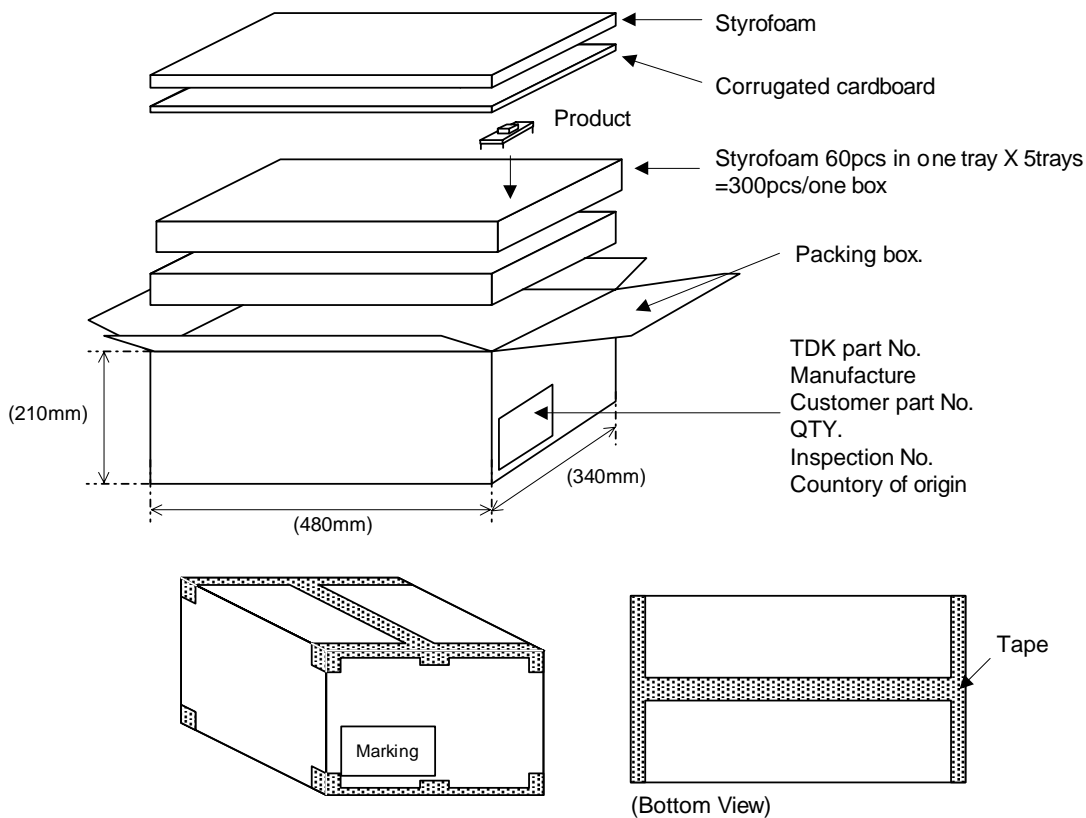
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[6] Packing and Marking

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

- 7-1. TDK part No. CXA-P20L-L
- 7-2. Manufacture TDK
- 7-3. Customer part No.
- 7-4. QTY.
- 7-5. Inspection No.
- 7-6. Country of origin

Packing style as under Fig. (300 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 warranty

One year after shipment. This covers any defects in material or workmanship. Defective units will be replaced at no charge.

7-3. Others

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

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