

MESSRS :

Product Drawing

CUSTOMER'S PRODUCT NAME:

TDK PRODUCT NAME: DC-AC INVERTER
CXA-0377C

TDK-Lambda

TDK Corporation

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DWG.No.	CTR-2421-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 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 per listed on page 2, [1] "Outline".
- 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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1. Part Name

The part name is CXA-0377C.

2. Contents

Item	Attached view	Page
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Listed description are subject to change without notice.

<Product summary>

This inverter is designed for two lamp LCD panel.

<Features>

Remote function

PWM dimming function

This product is good at modulated light by the selection of either following method.

a.Variable resistance (0-10kOhm) is inserted between CN1-3 and 4- CN1-5.

b.Voltage (0-2.5V) is impressed between CN1-3 and 4- CN1-5.

Alarm output function

This product has the alarm output (load open detection) that informs of the malfunction of the load when the load opens.

Shutdown function

This product has shutdown function might not keep doing the high voltage generation.

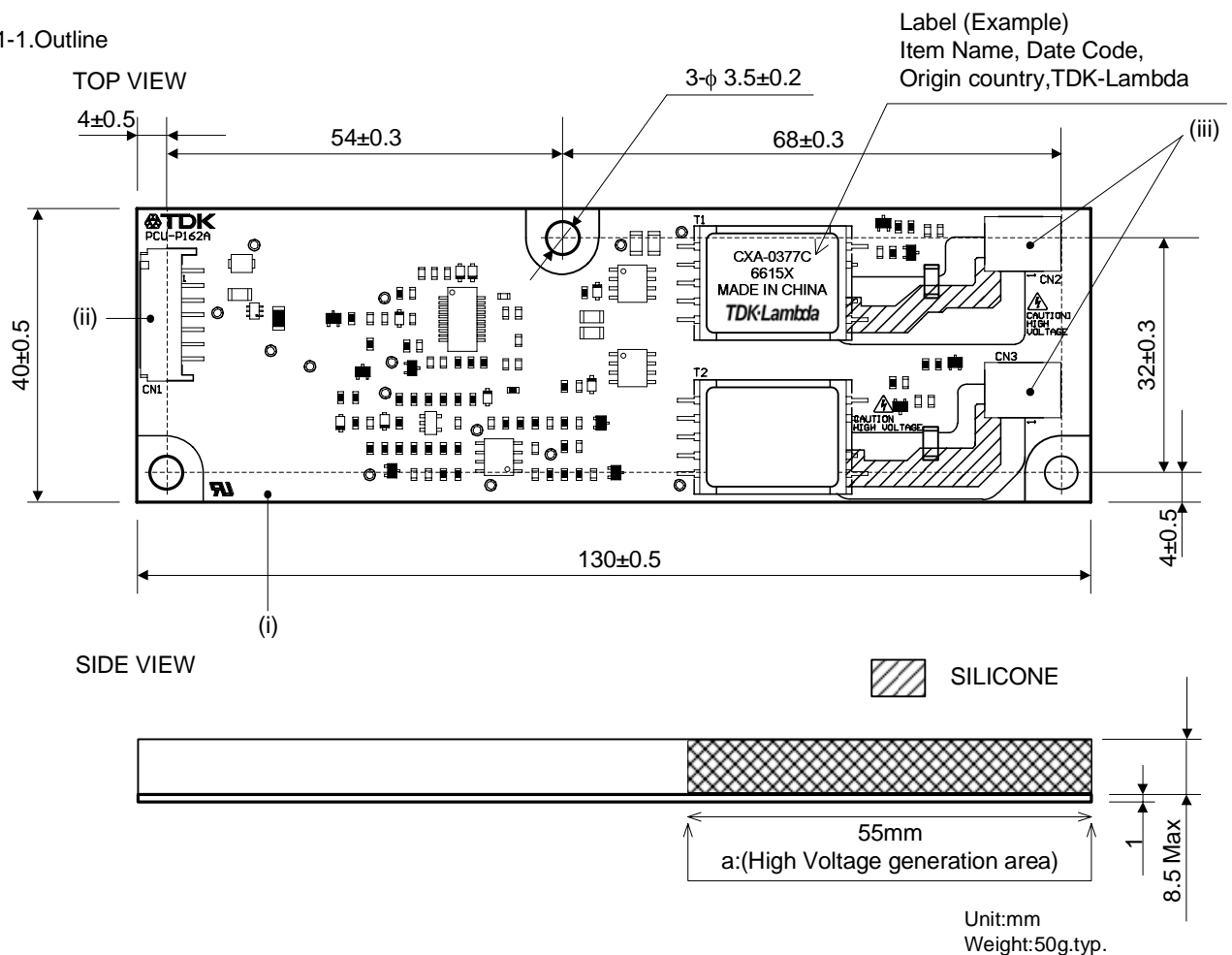
Silicon is spread on the high voltage generation part for the dust countermeasure.

• 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 3mm or more from the high voltage generation area up and down and right and left. Please refer to Note1-2. for details.

No.	Part Description	Material	QU	REMARK	MATES WITH
(i)	PCB	Composite (CEM-3)	1	UL94V-0 t=1.0	-
(ii)	Input Connector CN1	S7B-PH-SM3 (LF)(SN)	1	JST	PHR-7
(iii)	Output Connector CN2,CN3	SM02B-BHSS-1 (LF)(SN)	2	JST	BHSR-02VS-1

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[2] Absolute maximum ratings

Item	Symbol	Specification	Unit
Input Voltage	Vin	0 ~ 16	V
Load Resistance	RL	220 MAX	kOhm
Operating Temp. range	Ta	0 ~ 70	deg.C
Storage Temp. range	Ts	-30 ~ 85	deg.C
Humidity range	RH	95	* %RH

* : A maximum wet ball temperature is 38 deg. No dew.

[3] Electrical specifications

Item	Symbol	Condition					Specification			Unit
		Vin [V]	Vbr [V]	Vrmt [V]	Ta [°C]	RL1 RL2 [kOhm]	MIN.	TYP.	MAX.	
Output Current (Brightness max)	Io1/2	10.8~13.2	0	5	0~60	200±0.5 200±0.5	3.5	4.5	5.5	mArms
Output Current (Brightness min)		10.8~13.2	2.5	5	0~60	200±0.5 200±0.5	1.5	2.5	3.5	
Input Current	Iin	10.8~13.2	0	5	0~60	200±0.5 200±0.5	-	0.90	1.15	A
Frequency	F	10.8~13.2	0	5	0~60	200±0.5 200±0.5	60	65	70	kHz
Frequency	Fduty	10.8~13.2	2.5	5	0~60	200±0.5 200±0.5	200	240	300	Hz
Warning Output	Vst	10.8~13.2	0	5	0~60	∞ 200±0.5	4.0	5.0	5.5	Vdc
						200±0.5 ∞				
						200±0.5 200±0.5	-	0	0.5	
Open Circuit Voltage	Vopen	10.8~13.2	0	5	0~60	∞ ∞	1300	-	-	V

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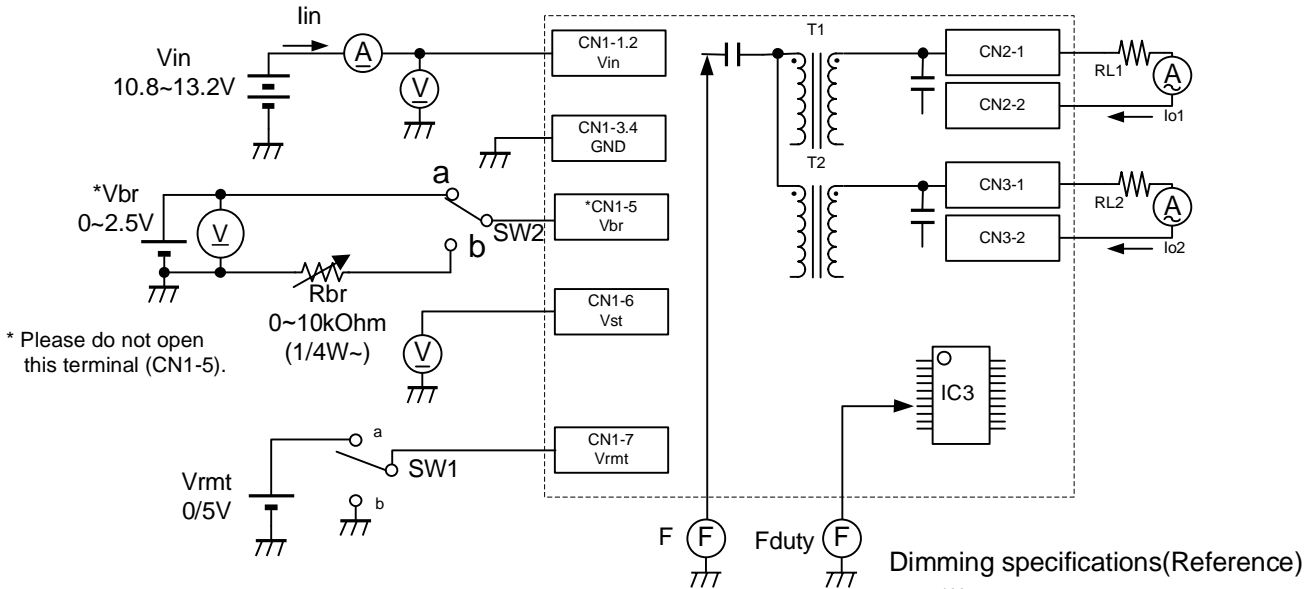
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[4] Terminal connection diagram

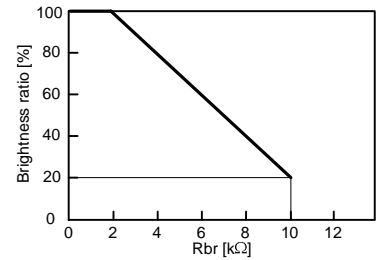
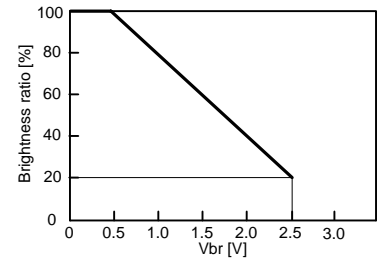


* Please do not open this terminal (CN1-5).

SW1	Operation	SW2	Operation
a	Work	a	**Voltage dimming $V_{br}=0\sim 2.5V$
b	Doesn't work	b	**Variable resistance dimming $VR=0\sim 10k\Omega$
OPEN	Doesn't work		

** $V_{br}=0V$: Brightness max.
 $R_{br}=0\Omega$: Brightness max.

Dimming specifications(Reference)



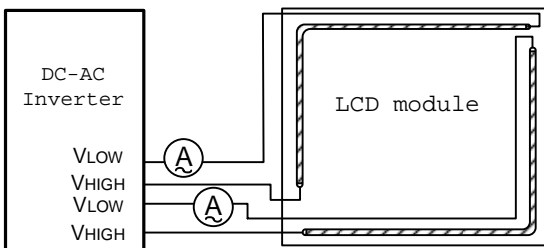
Alarm output Function

Load Condition	Alarm Signal (CN1-6)***	Shutdown Operation****
Normal Operation	0.5V max.	Normal
1 Lamp Open	4.0~5.5V	Normal
2 Lamps Open	4.0~5.5V	Shutdown

*** In test circuit[4], if CN2 or CN3 opens, then the warning signal will be activated (+5V).

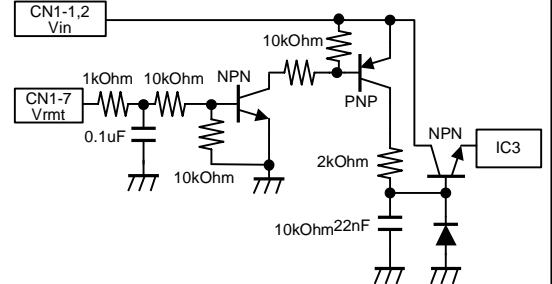
**** If the inverter detects open circuit all of the lamps for more than 3 seconds it will shut down.

Connection diagram of LCD module (Reference)



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

V_{rmt} : Internal circuit



Note4-1. Test Equipments

- (V) Digital Multiple Meter(ADVANTEST R6452A or equivalent)
- (A) DC Current Meter(ADVANTEST R6452A or equivalent)
- (F) Frequency Countor(ADVANTEST R6452A or equivalent)
- (V) True RMS Meter(NF Circuit M2170r or equivalent)
- (A) High Frequency Current Meter(FLUKE187r or equivalent)
- (1000:1) High Voltage Probe(Tektronix P6015A or equivalent)

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[5]Reliability Test

Following test items are assured.

Item	Condition	Judgement
Low Temp.Non operational	-30°C 500h	Electrical and apperance should be in the spec.
Low Temp.operational	-10°C 500h	
High Temp.Non operational	85°C 500h	
High Temp.operational	70°C 500h	
Heat shock	-30°C←→70°C 30min.Each 100 Cycles	
Humidity (Non operational)	40°C 90~95%RH 500h	
Vibration	10~57Hz Amplitude0.75mm 58~500Hz 9.8m/s ² Sweep:11min 60min each axis X,Y,Z 3hours	
Shock	980m/s ² 11ms Harf-sine pulse 1 time each axis ±X,Y,Z total 6 times	

[6]Others

6-1. Test conditions

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

6-2. Warranty

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

6-3.Disposition for non-conforming lots

Non-conforming lots, when occurred, shall be discussed and decided upon between both parties.

6-4. MTTF

MTTF which calculated according to MIL-HDBK-217-F is as follows.

TEMPERATURES 25°C

MTTF 980000 hours or more

6-5. Others

When any doubt arises about this specification, it shall be discussed and decided upon between both parties.

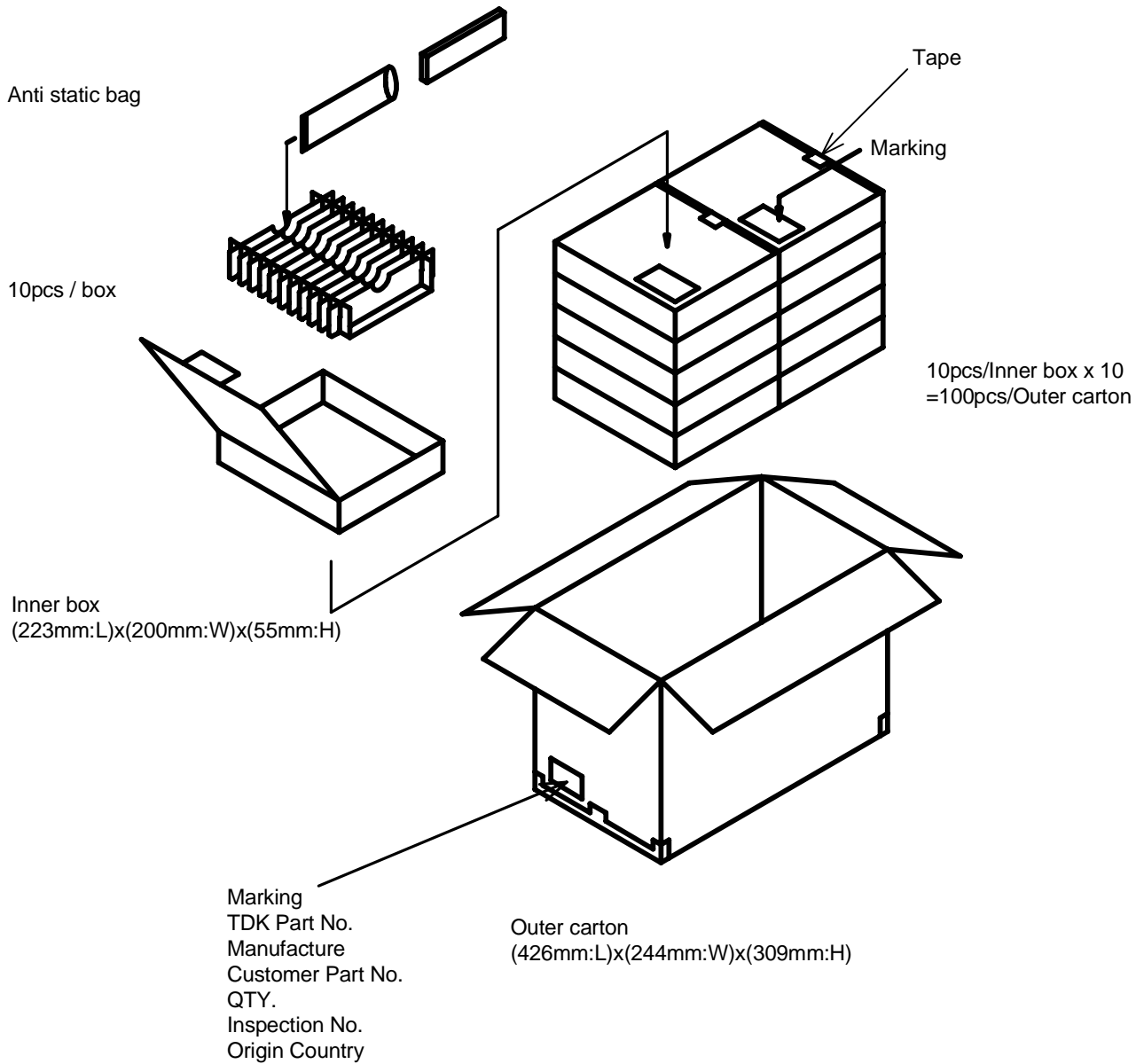
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[7]Packing and Marking

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

- 7-1. TDK part No. CXA-0377C
- 7-2. Manufacture TDK
- 7-3. Customer part No.
- 7-4. QTY. 100 pcs
- 7-5. Inspection No.
- 7-6. Country of origin MADE IN JAPAN , MADE IN CHINA

Packing style as under Fig. (100 going in with a standard.)



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