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## Power Supplies

DC to AC Inverters

## On-board type, Non-dimming, 4.5W, For 1 and 2 Bulbs

## FEATURES

- The CXA-L10 series inverters for 2-cold cathode fluorescent lamps support a wide range of CCFL devices and are characterized by highly stable output current.
- Employing a resonance-type push-pull circuit, these inverters deliver sine wave output with very low noise levels.
- Through the use of four different connection methods and combinations of 1 and 2 lamps, different output currents can be selected.
- Compact, lightweight printed circuit board design.
- High efficiency (typically $80 \%$ ).


## APPLICATIONS

Industrial and other equipment employing LCD panels, products employing small lamps, information terminal devices.

TEMPERATURE AND HUMIDITY RANGES

| Temperature range <br> $\left({ }^{\circ} \mathrm{C}\right)$ | Operating | -10 to +60 |
| :--- | :--- | :--- |
| Humidity range(\%)RH | Storage | -20 to +85 |

SHAPES AND DIMENSIONS

*1 Terminal numbers 2 and 5 are connected by the jumper. Cut this jumper to let the secondary side float with respect to the primary side.
*2 $\square$ : High-voltage generator (The entire surface within a range of 25 mm away from the end of the base in the output)

## CXA Series CXA-L10A/-L10L

## CIRCUIT DIAGRAMS

CONNECTION A


CONNECTION B


CONNECTION C


## CONNECTION D



TERMINAL NUMBERS AND FUNCTIONS

| Terminal No. | Functions | CXA-L10A | CXA-L10L | Symbol |
| :--- | :--- | :--- | :--- | :--- |
| 1 | Input voltage Edc | 0 to 6V <br> $5 \mathrm{~V}[\mathrm{nom]}$. | 0 to 14.4V <br> 12V[nom.] | Vin |
| 2 | 0 V | 0V | GND |  |
| 3 | Output 1 <br> [High voltage] Irms | 5 mA | 5 mA | VHIGH1 |
| 4 | Output 2 <br> [High voltage] Irms | 5 mA | 5 mA | VHIGH2 |
| 5 | Output[Low voltage] | 0V | 0V | VLOW |

## Power Supplies

CXA Series CXA-L10A/-L10L
DC to AC Inverters
On-board type, Non-dimming, 4.5W, For 1 and 2 Bulbs

ELECTRICAL CHARACTERISTICS
5V INPUT TYPE/CXA-L10A

| Connections | Items | Unit | Symbol | Specifications |  |  | Conditions |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | min. | typ. | max. | Vin(V) | $\mathrm{Ta}\left({ }^{\circ} \mathrm{C}\right)$ | RL(k $\Omega$ ) |
| A | Output current Irms | mA | lout | 9 | 10 | 11 | $5 \pm 1 \%$ | $23 \pm 5$ | 30 |
|  |  |  |  | 8 | 10 | 12 | $5 \pm 5 \%$ | -10 to +60 | 23 to 37 |
|  | Input current Idc | A | lin | - | 0.8 | 1.2 | $5 \pm 5 \%$ | -10 to +60 | 23 to 37 |
|  | Oscillation frequency | kHz | FL | 25 | 30 | 35 | $5 \pm 5 \%$ | -10 to +60 | 23 to 37 |
|  | Open circuit output voltage Erms | V | Vopen | 800 | 900 | - | $5 \pm 5 \%$ | -10 to +60 | $\infty$ |
|  | Output power | W | Pout | - | - | 4.5 | $5 \pm 5 \%$ | -10 to +60 | - |
| B | Output current Irms | mA | Iout | 5.2 | 6 | 6.6 | $5 \pm 1 \%$ | $23 \pm 5$ | 50 |
|  |  |  |  | 4.6 | 6 | 7.2 | $5 \pm 5 \%$ | -10 to +60 | 38 to 62 |
|  | Input current Idc | A | lin | - | 0.51 | 0.77 | $5 \pm 5 \%$ | -10 to +60 | 38 to 62 |
|  | Oscillation frequency | kHz | FL | 30 | 35 | 40 | $5 \pm 5 \%$ | -10 to +60 | 38 to 62 |
|  | Open circuit output voltage Erms | V | Vopen | 800 | 900 | - | $5 \pm 5 \%$ | -10 to +60 | $\infty$ |
|  | Output power | W | Pout | - | - | 2.7 | $5 \pm 5 \%$ | -10 to +60 | - |
| C | Output current Irms | mA | lout | 4.5 | 5 | 5.6 | $5 \pm 1 \%$ | $23 \pm 5$ | 60 |
|  |  |  |  | 4 | 5 | 6.1 | $5 \pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Input current Idc | A | lin | - | 0.45 | 0.68 | $5 \pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Oscillation frequency | kHz | FL | 25 | 30 | 35 | $5 \pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Open circuit output voltage Erms | V | Vopen | 800 | 900 | - | $5 \pm 5 \%$ | -10 to +60 | $\infty$ |
|  | Output power | W | Pout | - | - | 2.25 | $5 \pm 5 \%$ | -10 to +60 | - |
| D | Output current Irms | mA | Iout1 | 4.5 | 5 | 5.5 | $5 \pm 1 \%$ | $23 \pm 5$ | 60 |
|  |  |  | lout2 | 4.5 | 5 | 5.5 | $5 \pm 1 \%$ | $23 \pm 5$ | 60 |
|  |  |  | lout1 | 4 | 5 | 6 | $5 \pm 5 \%$ | -10 to +60 | 45 to 75 |
|  |  |  | lout2 | 4 | 5 | 6 | $5 \pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Input current Idc | A | lin | - | 0.8 | 1.2 | $5 \pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Oscillation frequency | kHz | FL | 25 | 30 | 35 | $5 \pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Open circuit output voltage Erms | V | Vopen | 800 | 900 | - | $5 \pm 5 \%$ | -10 to +60 | $\infty$ |
|  | Output power | W | Pout | - | - | $2.25 \times 2$ | $5 \pm 5 \%$ | -10 to +60 | - |

## Power Supplies

CXA Series CXA－L10A／－L10L
DC to AC Inverters
On－board type，Non－dimming，4．5W，For 1 and 2 Bulbs

ELECTRICAL CHARACTERISTICS
12V INPUT TYPE／CXA－L10L

| Connections | Items | Unit | Symbol | Specifications |  |  | Conditions |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | min． | typ． | max． | $\mathrm{Vin}(\mathrm{V})$ | $\mathrm{Ta}\left({ }^{\circ} \mathrm{C}\right)$ | $\mathrm{RL}(\mathrm{k} \Omega)$ |
| A | Output current Irms | mA | Iout | 9 | 10 | 11 | 12 $\pm 1 \%$ | $23 \pm 5$ | 30 |
|  |  |  |  | 8 | 10 | 12 | 12 $\pm 5 \%$ | -10 to +60 | 23 to 37 |
|  | Input current Idc | A | lin | － | 0.32 | 0.48 | 12 $\pm 5 \%$ | -10 to +60 | 23 to 37 |
|  | Oscillation frequency | kHz | FL | 25 | 30 | 35 | 12 $\pm 5 \%$ | -10 to +60 | 23 to 37 |
|  | Open circuit output voltage Erms | V | Vopen | 800 | 900 | － | 12 $\pm 5 \%$ | -10 to +60 | $\infty$ |
|  | Output power | W | Pout | － | － | 4.5 | 12 $\pm 5 \%$ | -10 to＋60 | － |
| B | Output current Irms | mA | lout | 5.3 | 6 | 6.7 | 12土1\％ | $23 \pm 5$ | 50 |
|  |  |  |  | 4.7 | 6 | 7.3 | $12 \pm 5 \%$ | -10 to＋60 | 38 to 62 |
|  | Input current Idc | A | lin | － | 0.2 | 0.3 | 12 $\pm 5 \%$ | -10 to +60 | 38 to 62 |
|  | Oscillation frequency | kHz | FL | 30 | 35 | 40 | 12 $\pm 5 \%$ | -10 to +60 | 38 to 62 |
|  | Open circuit output voltage Erms | V | Vopen | 800 | 900 | － | 12 $\pm 5 \%$ | -10 to＋60 | $\infty$ |
|  | Output power | W | Pout | － | － | 2.7 | 12 $\pm 5 \%$ | -10 to＋60 | － |
| C | Output current Irms | mA | Iout | 4.5 | 5 | 5.6 | 12 $\pm 1 \%$ | $23 \pm 5$ | 60 |
|  |  |  |  | 4 | 5 | 6.1 | 12 $\pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Input current Idc | A | lin | － | 0.18 | 0.27 | 12 $\pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Oscillation frequency | kHz | FL | 25 | 30 | 35 | 12 $\pm 5 \%$ | -10 to +60 | 45 to 75 |
|  | Open circuit output voltage Erms | V | Vopen | 800 | 900 | － | 12 $\pm 5 \%$ | -10 to +60 | $\infty$ |
|  | Output power | W | Pout | － | － | 2.25 | 12 $\pm 5 \%$ | -10 to +60 | － |
| D | Output current Irms | mA | Iout1 | 4.5 | 5 | 5.5 | 12土1\％ | $23 \pm 5$ | 60 |
|  |  |  | lout2 | 4.5 | 5 | 5.5 | 12 $\pm 1 \%$ | $23 \pm 5$ | 60 |
|  |  |  | lout1 | 4 | 5 | 6 | 12 $\pm 5 \%$ | -10 to +60 | 45 to 75 |
|  |  |  | lout2 | 4 | 5 | 6 | 12 $\pm 5 \%$ | -10 to＋60 | 45 to 75 |
|  | Input current Idc | A | lin | － | 0.32 | 0.48 | 12 $\pm 5 \%$ | -10 to＋60 | 45 to 75 |
|  | Oscillation frequency | kHz | FL | 25 | 30 | 35 | 12 $\pm 5 \%$ | -10 to＋60 | 45 to 75 |
|  | Open circuit output voltage Erms | V | Vopen | 800 | 900 | － | 12 $\pm 5 \%$ | -10 to +60 | $\infty$ |
|  | Output power | W | Pout | － | － | $2.25 \times 2$ | 12 $\pm 5 \%$ | -10 to +60 | － |



