

# DC to AC Inverters

Conformity to RoHS Directive

## On-board type, Non-dimming, 6W, for 1 and 2 Bulbs

### CXA Series CXA-M10A-L/-M10L-L/-M10M-L

#### FEATURES

- The CXA-M10 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%).
- It is a product conforming to RoHS directive.

#### APPLICATIONS

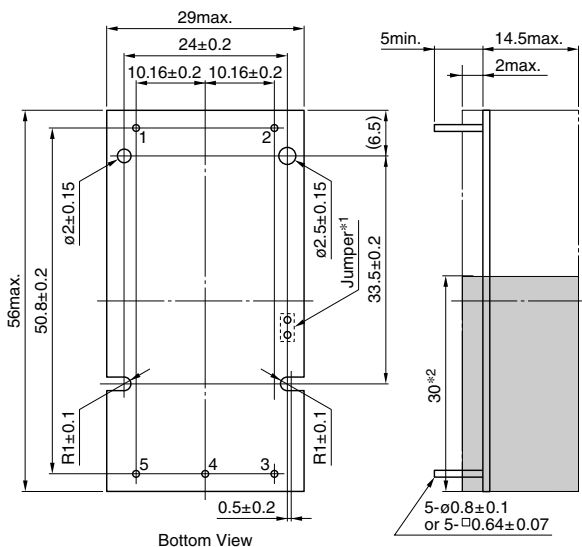
Industrial and other equipment employing LCD panels, products employing small lamps, information terminal devices.

#### TEMPERATURE AND HUMIDITY RANGES

Temperature range (°C)	Operating	-10 to +60
	Storage	-20 to +85
Humidity range(%RH)		95max.
		[Maximum wet-bulb temperature 38°C]

#### SHAPES AND DIMENSIONS

##### CXA-M10A-L/-M10L-L/-M10M-L



- \*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. Weight: 21g typ.
- \*2 : High-voltage generator (The entire surface within a range of 30mm away from the end of the base in the output) Dimensions in mm

#### TERMINAL NUMBERS AND FUNCTIONS

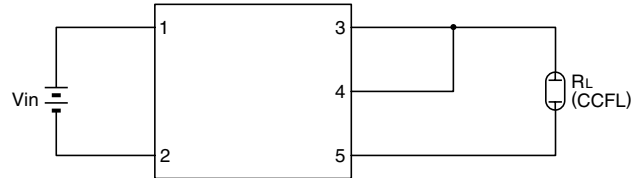
Terminal No.	Functions	CXA-M10A-L	CXA-M10L-L	CXA-M10M-L	Symbol
1	Input voltage Edc	4.75 to 5.25V 5V[nom.]	11.4 to 12.6V 12V[nom.]	22.8 to 25.2V 24V[nom.]	V <sub>in</sub>
2		0V	0V	0V	GND
3	Output 1[High voltage] I <sub>rms</sub>	5mA	5mA	5mA	V <sub>HIGH1</sub>
4	Output 2[High voltage] I <sub>rms</sub>	5mA	5mA	5mA	V <sub>HIGH2</sub>
5	Output[Low voltage]	0V	0V	0V	V <sub>LOW</sub>

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

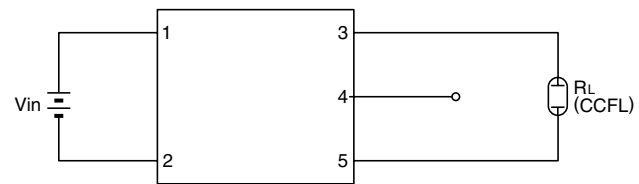
- All specifications are subject to change without notice.

#### CIRCUIT DIAGRAMS

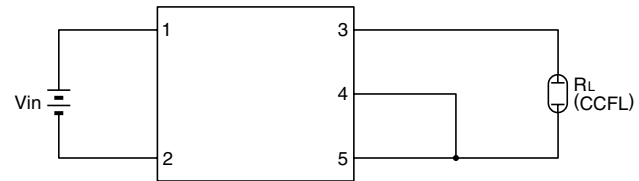
##### CONNECTION A



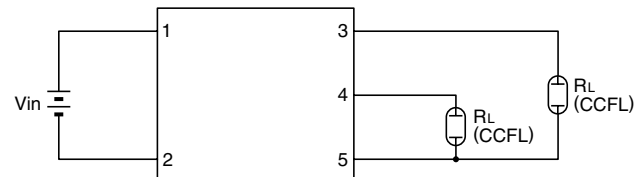
##### CONNECTION B



##### CONNECTION C



##### CONNECTION D



## CXA-M10A-L

### ELECTRICAL CHARACTERISTICS

#### 5V INPUT TYPE/CXA-M10A-L

Connections	Items	Unit	Symbol	Specifications			Conditions		
				min.	typ.	max.	V <sub>in</sub> (V)	T <sub>a</sub> (°C)	R <sub>L</sub> (kΩ)
A	Output current I <sub>rms</sub>	mA	I <sub>out</sub>	9	10	11	5±1%	23±5	40
				8	10	12	5±5%	-10 to +60	30 to 50
	Input current I <sub>dc</sub>	A	I <sub>in</sub>	—	1	1.5	5±5%	-10 to +60	30 to 50
	Oscillation frequency	kHz	F <sub>L</sub>	23	28	33	5±5%	-10 to +60	30 to 50
	Open circuit output voltage E <sub>rms</sub>	V	V <sub>open</sub>	1000	1200	—	5±5%	-10 to +60	∞
Output power	W	P <sub>out</sub>	—	—	6	5±5%	-10 to +60	—	
B	Output current I <sub>rms</sub>	mA	I <sub>out</sub>	5.1	6	6.5	5±1%	23±5	67
				4.5	6	7.1	5±5%	-10 to +60	50 to 84
	Input current I <sub>dc</sub>	A	I <sub>in</sub>	—	0.6	1	5±5%	-10 to +60	50 to 84
	Oscillation frequency	kHz	F <sub>L</sub>	27	32	37	5±5%	-10 to +60	50 to 84
	Open circuit output voltage E <sub>rms</sub>	V	V <sub>open</sub>	1000	1200	—	5±5%	-10 to +60	∞
Output power	W	P <sub>out</sub>	—	—	3.6	5±5%	-10 to +60	—	
C	Output current I <sub>rms</sub>	mA	I <sub>out</sub>	4.2	5	5.4	5±1%	23±5	80
				3.7	5	5.9	5±5%	-10 to +60	60 to 100
	Input current I <sub>dc</sub>	A	I <sub>in</sub>	—	0.6	0.9	5±5%	-10 to +60	60 to 100
	Oscillation frequency	kHz	F <sub>L</sub>	23	28	33	5±5%	-10 to +60	60 to 100
	Open circuit output voltage E <sub>rms</sub>	V	V <sub>open</sub>	1000	1200	—	5±5%	-10 to +60	∞
Output power	W	P <sub>out</sub>	—	—	3	5±5%	-10 to +60	—	
D	Output current I <sub>rms</sub>	mA	I <sub>out1</sub>	4.5	5	5.5	5±1%	23±5	80
			I <sub>out2</sub>	4.5	5	5.5	5±1%	23±5	80
			I <sub>out1</sub>	4	5	6	5±5%	-10 to +60	60 to 100
			I <sub>out2</sub>	4	5	6	5±5%	-10 to +60	60 to 100
	Input current I <sub>dc</sub>	A	I <sub>in</sub>	—	1	1.5	5±5%	-10 to +60	60 to 100
	Oscillation frequency	kHz	F <sub>L</sub>	23	28	33	5±5%	-10 to +60	60 to 100
	Open circuit output voltage E <sub>rms</sub>	V	V <sub>open</sub>	1000	1200	—	5±5%	-10 to +60	∞
	Output power	W	P <sub>out</sub>	—	—	3×2	5±5%	-10 to +60	—

## CXA-M10L-L

### ELECTRICAL CHARACTERISTICS

#### 12V INPUT TYPE/CXA-M10L-L

Connections	Items	Unit	Symbol	Specifications			Conditions		
				min.	typ.	max.	Vin(V)	Ta(°C)	RL(kΩ)
A	Output current Irms	mA	Iout	9	10	11	12±1%	23±5	40
				8	10	12	12±5%	-10 to +60	30 to 50
	Input current Idc	A	Iin	—	0.42	0.63	12±5%	-10 to +60	30 to 50
	Oscillation frequency	kHz	FL	23	28	33	12±5%	-10 to +60	30 to 50
	Open circuit output voltage Erms	V	Vopen	1000	1200	—	12±5%	-10 to +60	∞
Output power	W	Pout	—	—	6	12±5%	-10 to +60	—	
B	Output current Irms	mA	Iout	5.1	6	6.5	12±1%	23±5	67
				4.5	6	7.1	12±5%	-10 to +60	50 to 84
	Input current Idc	A	Iin	—	0.27	0.41	12±5%	-10 to +60	50 to 84
	Oscillation frequency	kHz	FL	26	31	36	12±5%	-10 to +60	50 to 84
	Open circuit output voltage Erms	V	Vopen	1000	1200	—	12±5%	-10 to +60	∞
Output power	W	Pout	—	—	3.6	12±5%	-10 to +60	—	
C	Output current Irms	mA	Iout	4.3	5	5.5	12±1%	23±5	80
				3.8	5	6	12±5%	-10 to +60	60 to 100
	Input current Idc	A	Iin	—	0.23	0.35	12±5%	-10 to +60	60 to 100
	Oscillation frequency	kHz	FL	23	28	33	12±5%	-10 to +60	60 to 100
	Open circuit output voltage Erms	V	Vopen	1000	1200	—	12±5%	-10 to +60	∞
Output power	W	Pout	—	—	3	12±5%	-10 to +60	—	
D	Output current Irms	mA	Iout1	4.5	5	5.5	12±1%	23±5	80
			Iout2	4.5	5	5.5	12±1%	23±5	80
			Iout1	4	5	6	12±5%	-10 to +60	60 to 100
			Iout2	4	5	6	12±5%	-10 to +60	60 to 100
	Input current Idc	A	Iin	—	0.42	0.63	12±5%	-10 to +60	60 to 100
	Oscillation frequency	kHz	FL	23	28	33	12±5%	-10 to +60	60 to 100
	Open circuit output voltage Erms	V	Vopen	1000	1200	—	12±5%	-10 to +60	∞
	Output power	W	Pout	—	—	3×2	12±5%	-10 to +60	—

## CXA-M10M-L

### ELECTRICAL CHARACTERISTICS 24V INPUT TYPE/CXA-M10M-L

Connections	Items	Unit	Symbol	Specifications			Conditions		
				min.	typ.	max.	Vin(V)	Ta(°C)	RL(kΩ)
A	Output current Irms	mA	Iout	9	10	11	24±1%	23±5	40
				8	10	12	24±5%	-10 to +60	30 to 50
	Input current Idc	A	Iin	—	0.21	0.33	24±5%	-10 to +60	30 to 50
	Oscillation frequency	kHz	FL	23	28	33	24±5%	-10 to +60	30 to 50
	Open circuit output voltage Erms	V	Vopen	1000	1200	—	24±5%	-10 to +60	∞
	Output power	W	Pout	—	—	6	24±5%	-10 to +60	—
B	Output current Irms	mA	Iout	5	6	6.4	24±1%	23±5	67
				4.4	6	7	24±5%	-10 to +60	50 to 84
	Input current Idc	A	Iin	—	0.14	0.21	24±5%	-10 to +60	50 to 84
	Oscillation frequency	kHz	FL	26	31	36	24±5%	-10 to +60	50 to 84
	Open circuit output voltage Erms	V	Vopen	1000	1200	—	24±5%	-10 to +60	∞
	Output power	W	Pout	—	—	3.6	24±5%	-10 to +60	—
C	Output current Irms	mA	Iout	4.3	5	5.5	24±1%	23±5	80
				3.8	5	6	24±5%	-10 to +60	60 to 100
	Input current Idc	A	Iin	—	0.12	0.19	24±5%	-10 to +60	60 to 100
	Oscillation frequency	kHz	FL	23	28	33	24±5%	-10 to +60	60 to 100
	Open circuit output voltage Erms	V	Vopen	1000	1200	—	24±5%	-10 to +60	∞
	Output power	W	Pout	—	—	3	24±5%	-10 to +60	—
D	Output current Irms	mA	Iout1	4.5	5	5.5	24±1%	23±5	80
			Iout2	4.5	5	5.5	24±1%	23±5	80
			Iout1	4	5	6	24±5%	-10 to +60	60 to 100
			Iout2	4	5	6	24±5%	-10 to +60	60 to 100
	Input current Idc	A	Iin	—	0.21	0.33	24±5%	-10 to +60	60 to 100
	Oscillation frequency	kHz	FL	23	28	33	24±5%	-10 to +60	60 to 100
	Open circuit output voltage Erms	V	Vopen	1000	1200	—	24±5%	-10 to +60	∞
	Output power	W	Pout	—	—	3×2	24±5%	-10 to +60	—

