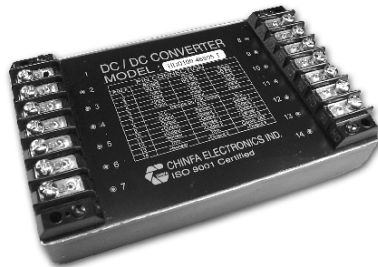


# HDD I 00 SERIES



DC - DC CONVERTER  
100W SINGLE OUTPUT

## FEATURES

- 100W DC / DC CONVERTER
- 2:1 INPUT RANGE, Pi INPUT FILTER
- ISOLATION INPUT AND OUTPUT
- HIGH PERFORMANCE UP TO 86%
- SHORT CIRCUIT PROTECTION
- 2 YEARS WARRANTY

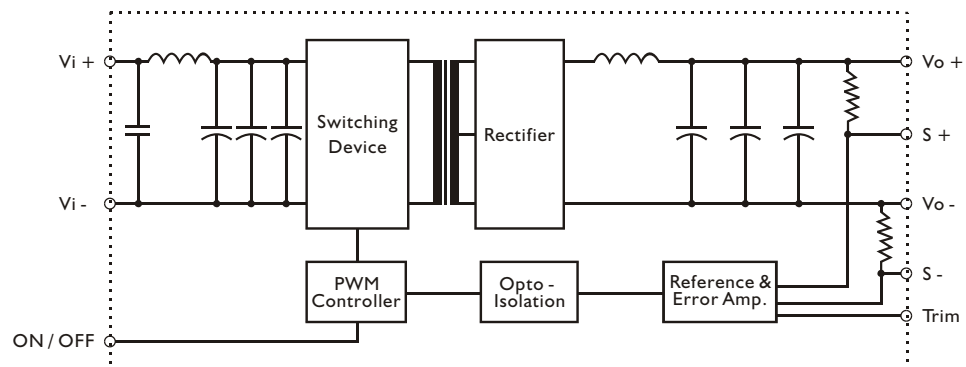
## MODEL LIST

| MODEL NO.                   | INPUT VOLTAGE | OUTPUT WATTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFF. (min.) |
|-----------------------------|---------------|----------------|----------------|----------------|-------------|
| <b>Single Output Models</b> |               |                |                |                |             |
| HDD I00 - 24S05-X           | 18~36 VDC     | 100 WATTS      | + 5 VDC        | 20000 mA       | 80%         |
| HDD I00 - 24S12-X           | 18~36 VDC     | 100 WATTS      | + 12 VDC       | 8300 mA        | 84%         |
| HDD I00 - 24S15-X           | 18~36 VDC     | 100 WATTS      | + 15 VDC       | 6600 mA        | 84%         |
| HDD I00 - 24S24-X           | 18~36 VDC     | 100 WATTS      | + 24 VDC       | 4000 mA        | 85%         |
| HDD I00 - 48S05-X           | 36~72 VDC     | 100 WATTS      | + 5 VDC        | 20000 mA       | 83%         |
| HDD I00 - 48S12-X           | 36~72 VDC     | 100 WATTS      | + 12 VDC       | 8300 mA        | 85%         |
| HDD I00 - 48S15-X           | 36~72 VDC     | 100 WATTS      | + 15 VDC       | 6600 mA        | 85%         |
| HDD I00 - 48S24-X           | 36~72 VDC     | 100 WATTS      | + 24 VDC       | 4000 mA        | 86%         |

- SUFFIX "X=P" : PCB MOUNTING TYPE, HEAT SINK WILL BE ADDED ON MODULE.
- SUFFIX "X=T" : CHASSIS MOUNTING TYPE:(TERMINAL BLOCK), NO HEAT SINK.  
USE CHASSIS AS HEAT SINK OR FAN FORCE COOLING.  
INDICATE SUFFIX WHEN ORDER.

## CIRCUIT SCHEMATIC

- Block diagram for HDD I00 series with single output



### SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

#### GENERAL

| Characteristics      | Conditions                          | min.               | typ.    | max.  | unit   |
|----------------------|-------------------------------------|--------------------|---------|-------|--------|
| Switching frequency  | Vi nom, Io nom                      |                    | 80      |       | KHz    |
| Isolation voltage    | Input / Output                      | 1,500              |         |       | VDC    |
| Isolation resistance | Input / Output, @ 500VDC            | 1G                 |         |       | Ω      |
| Ambient temperature  | Operating at Vi nom, Io nom         | -25                |         | + 71  | °C     |
| Case temperature     | Operating at Vi nom, Io nom         |                    |         | + 100 | °C     |
| Derating             | Vi nom                              | See derating curve |         |       | % / °C |
| Storage temperature  | Non operational                     | -25                |         | + 100 | °C     |
| M.T.B.F.             | According to MIL-HDBK-217F, GF40    |                    | 100,000 |       | Hrs    |
| Dimension            | L88.9 x W139.7 x H42.4 for "P" type |                    |         |       | mm     |
|                      | L88.9 x W139.7 x H32.9 for "T" type |                    |         |       | mm     |
| Cooling              | Free air convection                 |                    |         |       |        |
| Case material        | Metal                               |                    |         |       |        |

#### INPUT SPECIFICATIONS

| Characteristics          | Conditions                |            | min. | typ. | max. | unit |
|--------------------------|---------------------------|------------|------|------|------|------|
| Input voltage range      | Ta min ... Ta max, Io nom |            | 18   | 24   | 36   | VDC  |
|                          |                           |            | 36   | 48   | 72   | VDC  |
| No load input current    | Vi = nom, Io=0            | 24V models |      |      | 20   | mA   |
|                          |                           | 48V models |      |      | 15   | mA   |
|                          |                           |            |      |      |      |      |
| Input voltage w/o damage | Io nom                    | 24V models |      |      | 40   | VDC  |
|                          |                           | 48V models |      |      | 75   | VDC  |
| Input filter             | Pi type                   |            |      |      |      |      |

#### OUTPUT SPECIFICATIONS

| Characteristics         | Conditions                 | min.                      | typ. | max.        | unit   |
|-------------------------|----------------------------|---------------------------|------|-------------|--------|
| Output voltage accuracy | Vi nom, Io nom             |                           |      | ± 1         | %      |
| Minimum load            | Vi nom                     | 0                         |      |             | %      |
| Line regulation         | Io nom, Vi min ... Vi max  |                           |      | ± 1         | %      |
| Load regulation         | Vi nom, Io min ... Io nom  |                           |      | ± 2         | %      |
| Transient recovery time | 25% load, step changed     |                           | 500  |             | μs     |
| Temperature coefficient | Vi nom, Io nom             |                           |      | ± 0.02      | % / °C |
| Ripple & noise          | Vi nom, Io nom, BW = 20MHz |                           |      | Vout x ± 1% | mV     |
| Voltage trim range      | Vi nom                     |                           | ± 10 |             | %      |
| Efficiency              | Vi nom, Io nom, Po / Pi    | Up to 86%, See model list |      |             |        |

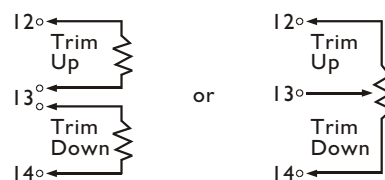
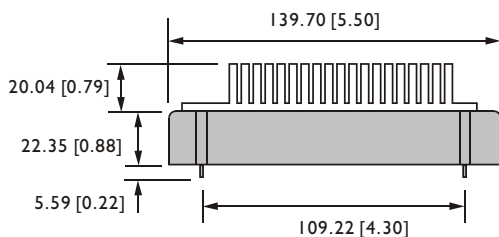
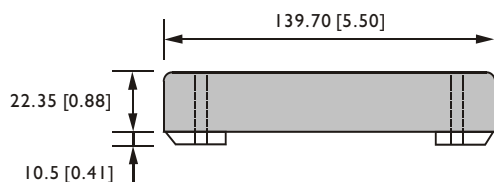
#### CONTROL AND PROTECTION

|                      |                                                       |
|----------------------|-------------------------------------------------------|
| Remote ON / OFF      | ON: opened or +5.5VDC applied, reference to input GND |
|                      | OFF: -1.8VDC applied, reference to input GND          |
| Input reversed       | Shunt diode built in, external fuse recommended       |
| Output short circuit | Continuous                                            |

## SINGLE OUTPUT

## EXTERNAL OUTPUT TRIMMING

CONVERTER SHUTDOWN IDLE CURRENT ..... 10 mA  
CONTROL COMMON ..... INPUT TERMINAL 2

[illegible][illegible]

## DERATING

|               |                                                                |
|---------------|----------------------------------------------------------------|
| CASE SIZE     | 88.9 x 139.7 x 42.4 mm    3.5 x 5.5 x 1.67 inches for "P" type |
|               | 88.9 x 139.7 x 32.9 mm    3.5 x 5.5 x 1.29 inches for "T" type |
| CASE MATERIAL | Metal                                                          |
| WEIGHT        | 710 g for "P" type / 570 g for "T" type                        |

## DERATING

A line graph showing the relationship between Power out [%] and Ambient Temperature [°C] for Natural Convection Cooling. The y-axis ranges from 0 to 100, and the x-axis ranges from -25 to 100. A horizontal line at 100% power output extends from -25°C to 71°C. At 71°C, the power output begins to decrease linearly, reaching 0% at 100°C. A vertical dotted line marks the transition at 71°C.

| Ambient Temperature [°C] | Power out [%] |
|--------------------------|---------------|
| -25                      | 100           |
| 71                       | 100           |
| 100                      | 0             |

| PIN NO. | SINGLE                |
|---------|-----------------------|
| 1       | NO PIN                |
| 2 & 3   | Vi -                  |
| 4 & 5   | Vi +                  |
| 6       | REMOTE ON/OFF CONTROL |
| 7       | N. C.                 |
| 8       | Vo -                  |
| 9       | Vo -                  |
| 10      | Vo +                  |
| 11      | Vo +                  |
| 12      | SENSOR -              |
| 13      | Trim                  |
| 14      | SENSOR +              |