

## 1.4-3W, 12V Input, 180-2000V Output DC-DC Converters

<https://product.tdk.com/en/power/chvm>

[www.emea.lambda.tdk.com/chvm](http://www.emea.lambda.tdk.com/chvm)



Medical



Industrial



Test



The CHVM series of non-isolated DC-DC converters feature very compact sizes and have a metal case to provide five-sided shielding for lower ripple and noise. Three package sizes cover power levels from 1.4W to 3W and output voltages of 180V to 2kV. The output can be adjusted from 0.5% to 100% of the rated voltage using either an external voltage or resistance.

### Features

- Programmable Output Voltage (Voltage or Resistance)
- Compact Size
- Five-Sided Shielding
- Low Output Ripple
- Safety Certified

### Benefits

- Remote Adjustment
- Less Board Area Needed
- Reduced Radiated and Conducted Noise
- Less External Filtering Required
- Simplified System Compliance

### Model Selector

| Model             | Input Voltage (V) | Output Voltage (V) | Maximum Current (mA) | Maximum Power (W) | Input Current (mA) (Typical) | Typical Ripple & Noise (mV) | Maximum Ripple & Noise (mV) |
|-------------------|-------------------|--------------------|----------------------|-------------------|------------------------------|-----------------------------|-----------------------------|
| CHVM1R5-12-1000P  | 11.0 - 13.0       | 0 to +1000         | 1.5                  | 1.5               | 220                          | 5                           | 15                          |
| CHVM1R5-12-1000N  | 11.0 - 13.0       | 0 to -1000         | 1.5                  | 1.5               | 220                          | 5                           | 15                          |
| CHVM1R5-12-1500P  | 11.0 - 13.0       | 0 to +1500         | 1                    | 1.5               | 230                          | 7                           | 25                          |
| CHVM1R5-12-1500N  | 11.0 - 13.0       | 0 to -1500         | 1                    | 1.5               | 230                          | 7                           | 25                          |
| CHVM1R5-12-2000P  | 11.0 - 13.0       | 0 to +2000         | 0.7                  | 1.4               | 280                          | 10                          | 30                          |
| CHVM1R5-12-2000N  | 11.0 - 13.0       | 0 to -2000         | 0.7                  | 1.4               | 280                          | 10                          | 30                          |
| CHVM2R7-12-0180PW | 10.8 - 13.2       | 0 to +180          | 15                   | 2.7               | 350                          | 30                          | 100                         |
| CHVM2R7-12-0180NW | 10.8 - 13.2       | 0 to -180          | 15                   | 2.7               | 350                          | 30                          | 100                         |
| CHVM3-12-0300PW   | 10.8 - 13.2       | 0 to +300          | 10                   | 3                 | 395                          | 30                          | 100                         |
| CHVM3-12-0300NW   | 10.8 - 13.2       | 0 to -300          | 10                   | 3                 | 395                          | 30                          | 100                         |
| CHVM2R5-12-0350PW | 10.8 - 13.2       | 0 to +350          | 7                    | 2.45              | 330                          | 30                          | 100                         |
| CHVM2R5-12-0350NW | 10.8 - 13.2       | 0 to -350          | 7                    | 2.45              | 330                          | 30                          | 100                         |
| CHVM2R6-12-0470PW | 10.8 - 13.2       | 0 to +470          | 5.6                  | 2.63              | 390                          | 40                          | 150                         |
| CHVM2R6-12-0470NW | 10.8 - 13.2       | 0 to -470          | 5.6                  | 2.63              | 390                          | 40                          | 150                         |
| CHVM2-12-1000PW   | 10.8 - 16.5       | 0 to +1000         | 2                    | 2                 | 280                          | 30                          | 100                         |
| CHVM2-12-1000NW   | 10.8 - 16.5       | 0 to -1000         | 2                    | 2                 | 280                          | 30                          | 100                         |
| CHVM2-12-1500PW   | 10.8 - 16.5       | 0 to +1500         | 1.3                  | 1.95              | 290                          | 30                          | 100                         |
| CHVM2-12-1500NW   | 10.8 - 16.5       | 0 to -1500         | 1.3                  | 1.95              | 290                          | 30                          | 100                         |
| CHVM2-12-2000PW   | 10.8 - 16.5       | 0 to +2000         | 1                    | 2                 | 340                          | 50                          | 150                         |
| CHVM2-12-2000NW   | 10.8 - 16.5       | 0 to -2000         | 1                    | 2                 | 340                          | 50                          | 150                         |

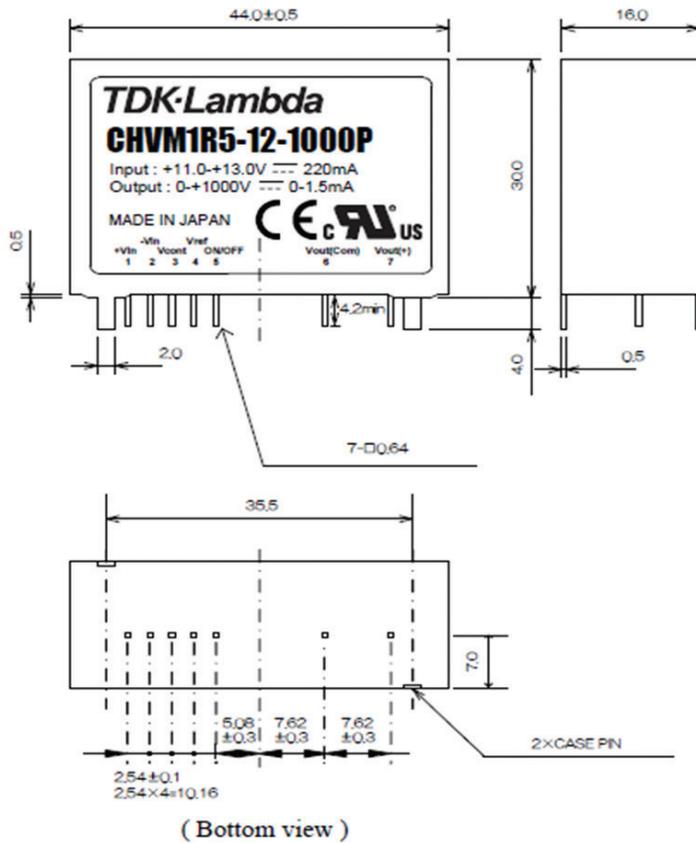
| CHVM | 1R5  | -12                   | 1000                | P  | W  |
|------|--|-----------------------|---------------------|--|--|
|      | Output power<br>1R5: 1.4 to 1.5W<br>2: 2W<br>2R5: 2.45W<br>2R6: 2.63W<br>2R7: 2.7W | Nominal input voltage | Max. output voltage | P Positive polarity<br>N Negative polarity | Blank: standard input<br>W: wide range input |

| Specifications                         |        |  |   |   |
|--|--------|--|---|---|
| Model                                  |        | CHVM1R5                                      | CHVM2 / CHVM2R6                                 | CHVM2R5, CHVM2R7 & CHVM3                        |
| <b>Input</b>                           |        |  |   |   |
| Input Voltage Range                    | Vdc    | See model selector table                     |   |   |
| Safety Agency Certifications           | -      | IEC/UL/CSA/EN62368-1, CE Mark (LVD and RoHS) |   |   |
| <b>Output</b>                          |        |  |   |   |
| Output Voltage Tolerance               | %      | ±2   | ±5  | ±5  |
| Output Voltage Adjustment              | -      | External voltage or resistance               |   |   |
| Switching Frequency                    | kHz    | 200  |   |   |
| Line Regulation (Typical / Maximum)    | %      | 0.01 / 0.02                                  | 0.03 / 0.1                                      | 0.02 / 0.06                                     |
| Load Regulation (Typical / Maximum)    | %      | 0.02 / 0.04                                  | 0.08 / 0.3                                      | 0.5 / 1.5                                       |
| Ripple & Noise                         | -      | See model selector                           |   |   |
| Minimum Load                           | -      | None   |   |   |
| Overcurrent Protection                 | -      | Fold back mode >105%                         |   |   |
| Overvoltage Protection                 | V      | None   |   |   |
| Remote Sense                           | -      | No remote sense                              |   |   |
| Remote On/Off                          | -      | OFF: Open, ON: Short (0 to 0.4V, 1mA max)    |   |   |
| Parallel Operation                     | -      | Not possible                                 |   |   |
| Series Operation                       | -      | Not possible                                 |   |   |
| <b>Environmental</b>                   |        |  |   |   |
| Operating Temperature (-20°C start up) | °C     | -10 to 50                                    | -10 to 60, derate linearly above 50 to 60% load | -10 to 60, derate linearly above 50 to 60% load |
| Storage Temperature                    | °C     | -25 to +85                                   |   |   |
| Humidity (non condensing)              | %RH    | 20 - 95 (Operating & Storage)                |   |   |
| Cooling                                | -      | Convection                                   |   |   |
| Altitude                               | m      | 2,000  |   |   |
| Vibration                              | -      | See reliability data on website              |   |   |
| Shock                                  | -      | See reliability data on website              |   |   |
| <b>Other</b>                           |        |  |   |   |
| Weight (Typ)                           | g      | 50   | 65  | 46  |
| Size (WxLxH)                           | mm     | 44 x 16 x 30                                 | 110 x 12 x 19.75                                | 80 x 12 x 19.75                                 |
| Size (WxLxH)                           | Inches | 1.73 x 0.63 x 1.18                           | 4.33 x 0.47 x 0.78                              | 3.15 x 0.47 x 0.78                              |
| Case Material                          | -      | Metal  |   |   |
| MTBF                                   | Hours  | >600,000                                     | >390,000  | >480,000  |
| Warranty                               | yrs    | 1  |   |   |

Notes:

See website for detailed specifications, test methods and installation manual

## Outline Drawing CHVM1R5

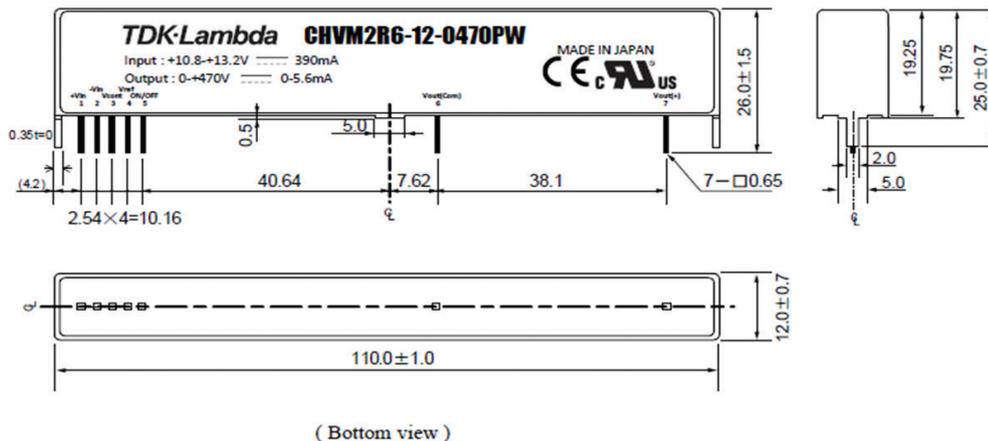


| Pin-No. | Pin name      |
|---------|---------------|
| 1       | +Vin          |
| 2       | -Vin          |
| 3       | Vcont         |
| 4       | Vref          |
| 5       | ON/OFF        |
| 6       | Vout(Com)     |
| 7       | Vout (+ or -) |

- 1) Terminal  
Material: Phosphor bronze  
Treatment: Ni base Au plating
- 2) Case  
Material: Brass  
Treatment: Nickel plating

Weight: 50g typ.  
Unit: mm  
Unspecified dimensional tolerance  $\pm 0.5$

## Outline Drawing CHVM2 and CHVM2R6

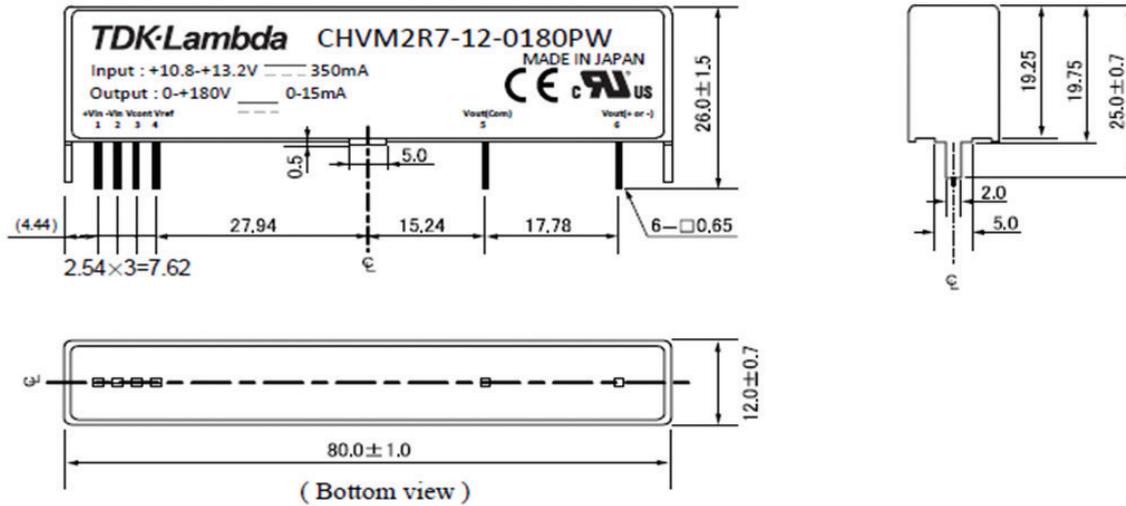


| Pin-No. | Pin name      |
|---------|---------------|
| 1       | +Vin          |
| 2       | -Vin          |
| 3       | Vcont         |
| 4       | Vref          |
| 5       | ON/OFF        |
| 6       | Vout (com)    |
| 7       | Vout (+ or -) |

- 1) Pins  
Material : Phosphorous bronze  
Treatment : Ni base Au coating
- 2) Case  
Material : Brass  
Treatment : Nickel coating

Weight : 65g typ. Units : mm Tolerance unless otherwise specified  $\pm 0.5$

## Outline Drawing CHVM2R5, CHVM2R7 and CHVM3



| Pin-No. | Pin name      |
|---------|---------------|
| 1       | +Vin          |
| 2       | -Vin          |
| 3       | Vcont         |
| 4       | Vref          |
| 5       | Vout (com)    |
| 6       | Vout (+ or -) |

- 1) Pins  
 Material : Phosphorous bronze  
 Treatment : Ni base Au coating
- 2) Case  
 Material : Brass  
 Treatment : Nickel coating

Weight : 46g typ. Units : mm Tolerance unless otherwise specified ±0.5