

**SERIES:** VYC30W-T | **DESCRIPTION:** DC-DC CONVERTER

**FEATURES**

- chassis mount with screw terminal connectors
- up to 30 W output
- compact size
- 4:1 input range (9~36 V, 18~75 V)
- single and dual outputs
- 1,500 V isolation
- short circuit, over current, and over voltage protection
- wide temperature operation (-40~85°C)
- efficiency up to 88%



| MODEL            | input<br>voltage<br>range<br>(Vdc) | output<br>voltage<br>(Vdc) | output<br>current<br>max<br>(A) | output<br>power<br>max<br>(W) | ripple and<br>noise <sup>1</sup><br>max<br>(mVp-p) | efficiency<br><br>typ<br>(%) |
|------------------|------------------------------------|----------------------------|---------------------------------|-------------------------------|----------------------------------------------------|------------------------------|
| VYC30W-Q24-S5-T  | 9 ~ 36                             | 5                          | 6                               | 30                            | 120                                                | 87                           |
| VYC30W-Q24-S12-T | 9 ~ 36                             | 12                         | 2.5                             | 30                            | 120                                                | 88                           |
| VYC30W-Q24-S15-T | 9 ~ 36                             | 15                         | 2                               | 30                            | 120                                                | 87                           |
| VYC30W-Q24-D5-T  | 9 ~ 36                             | ±5                         | ±3                              | 30                            | 120                                                | 86                           |
| VYC30W-Q24-D12-T | 9 ~ 36                             | ±12                        | ±1.25                           | 30                            | 120                                                | 88                           |
| VYC30W-Q24-D15-T | 9 ~ 36                             | ±15                        | ±1                              | 30                            | 120                                                | 87                           |
| VYC30W-Q48-S5-T  | 18 ~ 75                            | 5                          | 6                               | 30                            | 120                                                | 87                           |
| VYC30W-Q48-S12-T | 18 ~ 75                            | 12                         | 2.5                             | 30                            | 120                                                | 88                           |
| VYC30W-Q48-S15-T | 18 ~ 75                            | 15                         | 2                               | 30                            | 120                                                | 87                           |
| VYC30W-Q48-D5-T  | 18 ~ 75                            | ±5                         | ±3                              | 30                            | 120                                                | 86                           |
| VYC30W-Q48-D12-T | 18 ~ 75                            | ±12                        | ±1.25                           | 30                            | 120                                                | 88                           |
| VYC30W-Q48-D15-T | 18 ~ 75                            | ±15                        | ±1                              | 30                            | 120                                                | 87                           |

Notes: 1. Ripple and noise are measured at 20 MHz BW with 10μF tantalum capacitor and 1μF ceramic capacitor across output

**PART NUMBER KEY**

**VYC30W - QXX - XXX - X - T**

Base Number

Input Voltage

Output  
S = single output  
D = dual output

Output Voltage

Heatsink  
"blank" = No  
H = Yes

## INPUT

| parameter                  | conditions/description                                                                       | min       | typ      | max         | units                    |
|----------------------------|----------------------------------------------------------------------------------------------|-----------|----------|-------------|--------------------------|
| operating input voltage    |                                                                                              | 9<br>18   | 24<br>48 | 36<br>75    | Vdc<br>Vdc               |
| start-up time              |                                                                                              |           | 10       |             | ms                       |
| under voltage lockout      | power up 24 V input<br>power up 48 V input<br>power down 24 V input<br>power down 48 V input | 8<br>16.0 |          | 9.0<br>17.8 | Vdc<br>Vdc<br>Vdc<br>Vdc |
| Remote on/off <sup>1</sup> | module off<br>module on (or open circuit)                                                    | 0<br>3.5  |          | 1.2<br>12   | Vdc<br>Vdc               |
| filter                     | PI type                                                                                      |           |          |             |                          |

Notes: 1. The on/off pin voltage is referenced to GND

## OUTPUT

| parameter                | conditions/description                                                             | min | typ   | max  | units |
|--------------------------|------------------------------------------------------------------------------------|-----|-------|------|-------|
| line regulation          | measured from low line to high line                                                |     | ±0.2  | ±0.5 | %     |
| load regulation          | measured from 10% to full load                                                     |     | ±0.5  | ±1   | %     |
| voltage accuracy         | refer to recommended circuit                                                       |     | ±1    | ±3   | %     |
| transient recovery time  | 25% step load charge                                                               |     | 300   | 500  | µs    |
| transient peak deviation | 25% rated load                                                                     |     | 300   |      | µs    |
| cross regulation         | dual output models<br>main output 50%,<br>supplemental output from<br>10~100% load |     |       | ±5   | %     |
| adjustability            |                                                                                    |     | ±10%  |      | Vdc   |
| switching frequency      | 100% load, input voltage range                                                     |     | 400   |      | kHz   |
| temperature coefficient  |                                                                                    |     | ±0.02 |      | %/°C  |

## PROTECTIONS

| parameter                | conditions/description                                  | min | typ             | max | units             |
|--------------------------|---------------------------------------------------------|-----|-----------------|-----|-------------------|
| short circuit protection | hiccup, automatic recovery                              |     |                 |     |                   |
| over current protection  | all models<br>input voltage range                       |     | 130             |     | %                 |
| over voltage protection  | single and dual<br>output models<br>5 V<br>12 V<br>15 V |     | 6.1<br>15<br>18 |     | Vdc<br>Vdc<br>Vdc |

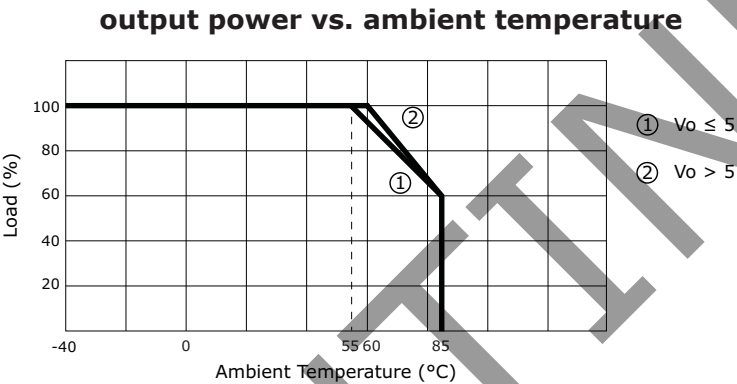
## SAFETY AND COMPLIANCE

| parameter             | conditions/description           | min       | typ   | max | units |
|-----------------------|----------------------------------|-----------|-------|-----|-------|
| isolation voltage     | tested for 1 minute at 1 mA max. | 1,500     |       |     | Vdc   |
| isolation resistance  | at 500 Vdc                       | 1,000     |       |     | MΩ    |
| isolation capacitance | input to output, 100 kHz / 0.1 V |           | 2,000 |     | pF    |
| RoHS compliant        | yes                              |           |       |     |       |
| MTBF                  | M1L-HDBK-217F                    | 1,000,000 |       |     | hours |

ENVIRONMENTAL

| parameter                  | conditions/description | min | typ | max | units |
|----------------------------|------------------------|-----|-----|-----|-------|
| case operating temperature |                        | -40 |     | 85  | °C    |
| maximum case temperature   | during operation       |     |     | 105 | °C    |
| storage temperature        |                        | -40 |     | 125 | °C    |
| storage humidity           | non-condensing         | 5   |     | 95  | %     |

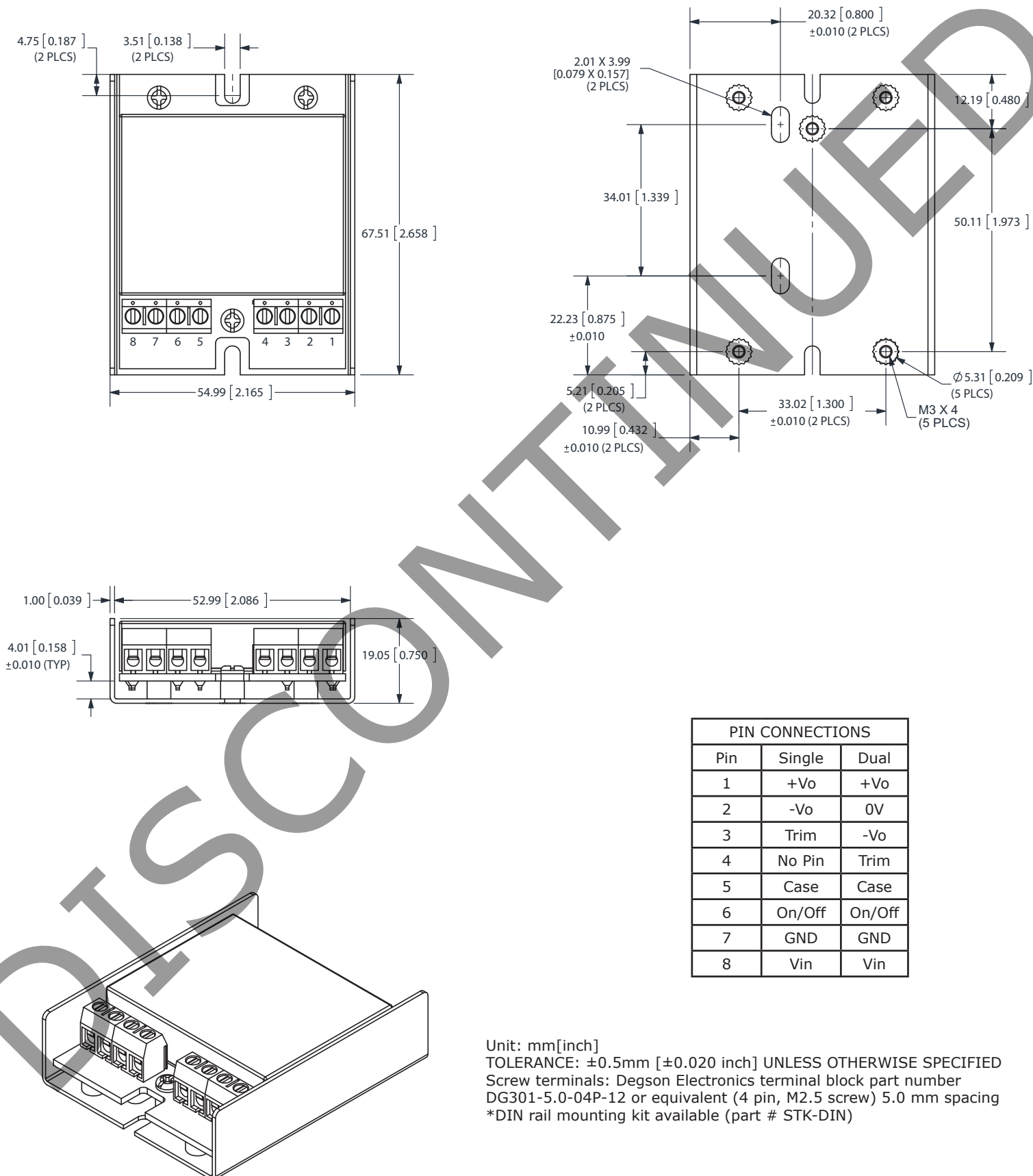
DERATING CURVES



MECHANICAL

| parameter     | conditions/description                          | min | typ  | max | units |
|---------------|-------------------------------------------------|-----|------|-----|-------|
| dimensions    | 2.17 x 2.66 x 0.75 inch (55.0 x 67.5 x 19.1 mm) |     |      |     |       |
| case material | aluminum                                        |     |      |     |       |
| weight        |                                                 |     | 83.5 |     | g     |

## MECHANICAL DRAWING



## APPLICATION NOTES

### 1. EMI & EMS recommended external circuit

|     | Single output, 18 ~ 75 Vin                 | Single output, 9 ~ 36 Vin                  | Dual output, 18 ~ 75 Vin                   | Dual output, 9 ~ 36 Vin                    |
|-----|--------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| TVS | SMCJ90A,1500W(Bringtking)                  | SMCJ48A,1500W(Bringtking)                  | SMCJ90A,1500W(Bringtking)                  | SMCJ48A,1500W(Bringtking)                  |
| LCM | 232uH(0.1V 100KHz) 15T<br>core: N5 T12*6*4 | 232uH(0.1V 100KHz) 15T<br>core: N5 T12*6*4 | 232uH(0.1V 100KHz) 15T<br>core: N5 T12*6*4 | 232uH(0.1V 100KHz) 15T<br>core: N5 T12*6*4 |
| C0  | 680μF/1000V (CapXon)                       | 1000μF/50V(CapXon)                         | 680μF/100V (CapXon)                        | 1000μF/50V(CapXon)                         |
| C1  | 105K/100V 1210(TDK)                        | 105K/100V 1210(TDK)                        | 105K/100V 1210(TDK)                        | 105K/100V 1210(TDK)                        |
| C2  | 225K/100V 1210(TDK)                        | 225K/100V 1210(TDK)                        | 225K/100V 1210(TDK)                        | 225K/100V 1210(TDK)                        |
| C3  | No component                               | No component                               | 102K/2000V 1206 (TDK)                      | 102K/2000V 1200 (TDK)                      |
| C4  | No component                               | No component                               | 102K/2000V 1206 (TDK)                      | 102K/2000V 1206 (TDK)                      |

Figure 1 (Single output)

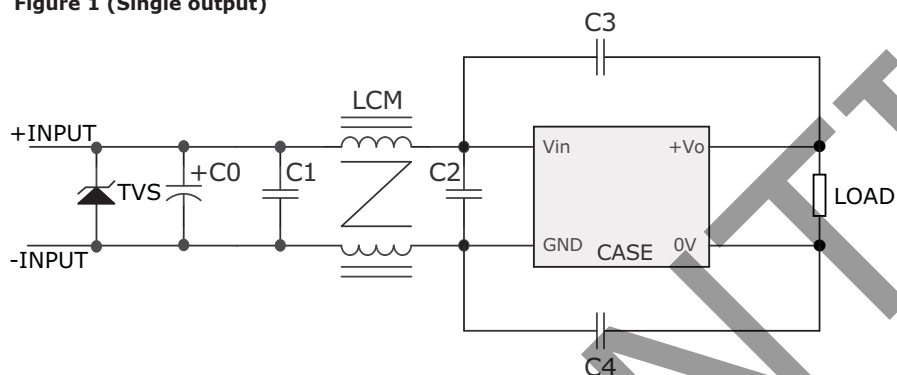
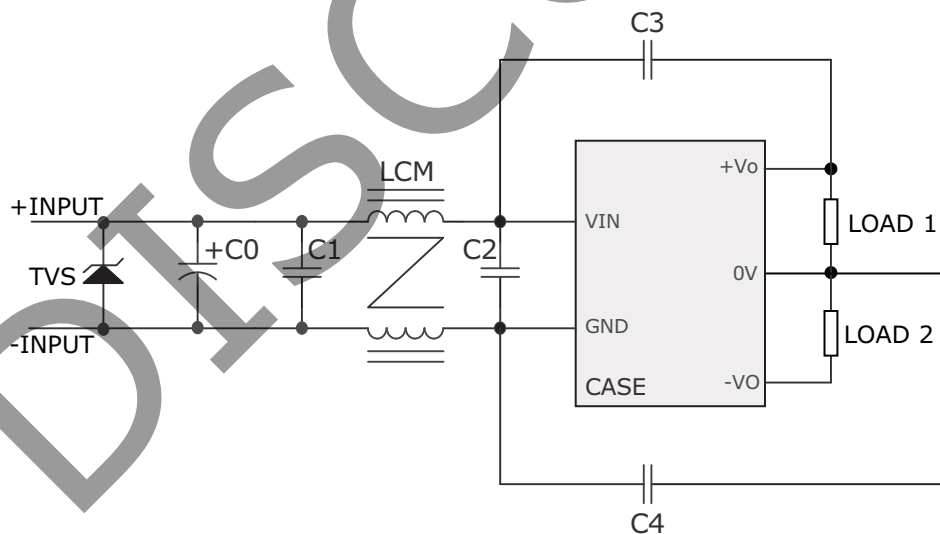


Figure 2 (Dual output)



## REVISION HISTORY

| rev. | description                               | date       |
|------|-------------------------------------------|------------|
| 1.0  | initial release                           | 08/23/2011 |
| 1.01 | added VYC30W-Q24-D5-T and VYC30W-Q48-D5-T | 03/08/2012 |
| 1.02 | V-Infinity branding removed               | 08/29/2012 |

The revision history provided is for informational purposes only and is believed to be accurate.

**CUI INC®**

**Headquarters**  
20050 SW 112th Ave.  
Tualatin, OR 97062  
**800.275.4899**

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.