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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 voltage range | output voltage | output current max | output power max | ripple and noise ¹ max | efficiency typ |
|------------------|---------------------|----------------|--------------------|------------------|-----------------------------------|----------------|
| | (Vdc) | (Vdc) | (A) | (W) | (mVp-p) | (%) |
| 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 | 24 | 36 | Vdc |
| | | 18 | 48 | 75 | Vdc |
| start-up time | | | 10 | | ms |
| under voltage lockout | power up 24 V input | | | 9.0 | Vdc |
| | power up 48 V input | | | 17.8 | Vdc |
| | power down 24 V input | 8 | | | Vdc |
| | power down 48 V input | 16.0 | | | Vdc |
| Remote on/off ¹ | module off | 0 | | 1.2 | Vdc |
| | module on (or open circuit) | 3.5 | | 12 | 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 main output 50%, supplemental output from 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 input voltage range | | 130 | | % |
| over voltage protection | single and dual output models | 5 V | 6.1 | | Vdc |
| | | 12 V | 15 | | Vdc |
| | | 15 V | 18 | | Vdc |

SAFETY AND COMPLIANCE

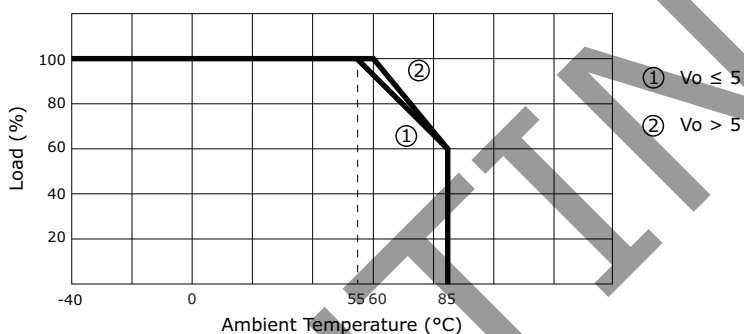
| parameter | conditions/description | min | typ | max | units |
|-----------------------|----------------------------------|-----------|-------|-----|-------|
| isolation voltage | tested for 1 minute at 1 mA max. | 1,500 | | | Vdc |
| isolation resistance | at 500 Vdc | 1,000 | | | MΩ |
| isolation 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

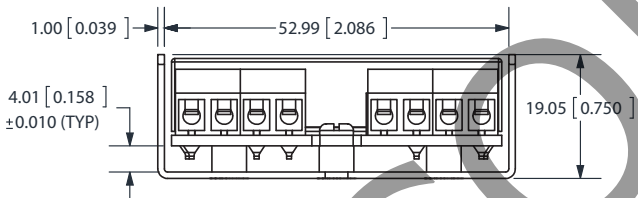
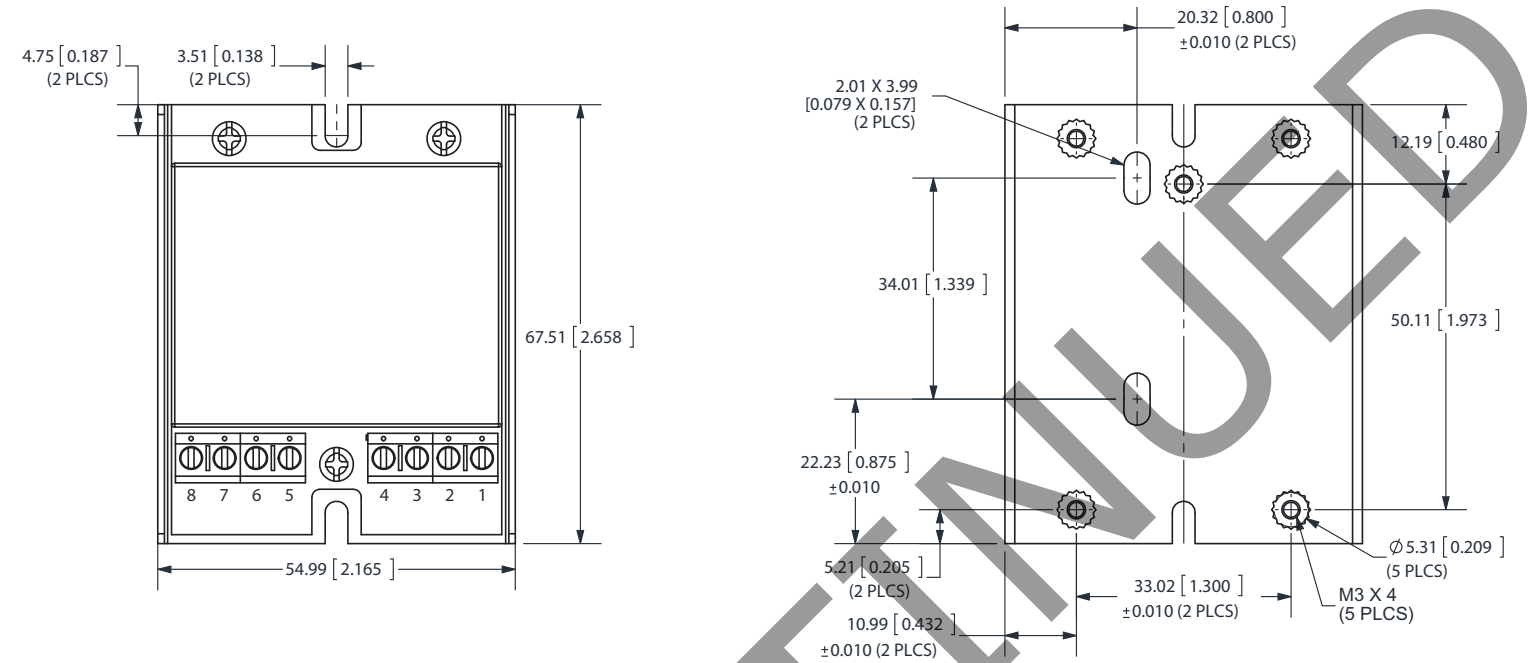
output power vs. ambient temperature



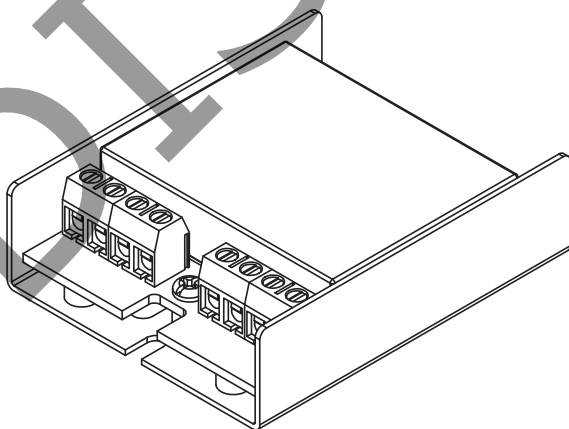
MECHANICAL

| 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



| PIN CONNECTIONS | | |
|-----------------|--------|--------|
| Pin | Single | Dual |
| 1 | +Vo | +Vo |
| 2 | -Vo | 0V |
| 3 | Trim | -Vo |
| 4 | No Pin | Trim |
| 5 | Case | Case |
| 6 | On/Off | On/Off |
| 7 | GND | GND |
| 8 | Vin | Vin |



Unit: mm[inch]
 TOLERANCE: ±0.5mm [±0.020 inch] UNLESS OTHERWISE SPECIFIED
 Screw terminals: Degson Electronics terminal block part number DG301-5.0-04P-12 or equivalent (4 pin, M2.5 screw) 5.0 mm spacing
 *DIN rail mounting kit available (part # STK-DIN)

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 core: N5 T12*6*4 | 232uH(0.1V 100KHz) 15T core: N5 T12*6*4 | 232uH(0.1V 100KHz) 15T core: N5 T12*6*4 | 232uH(0.1V 100KHz) 15T 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)

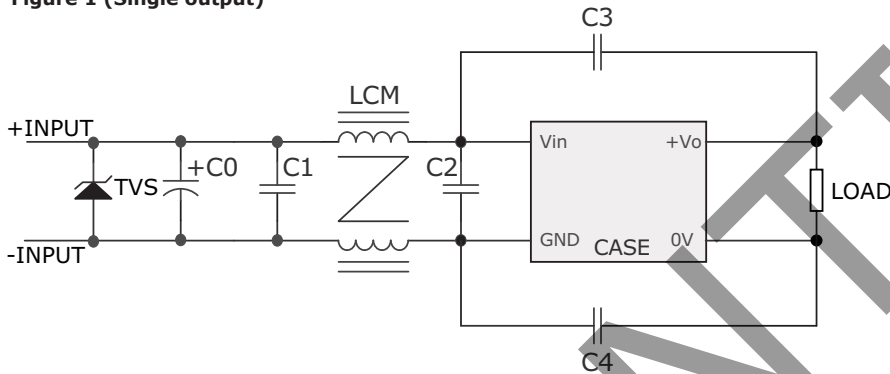
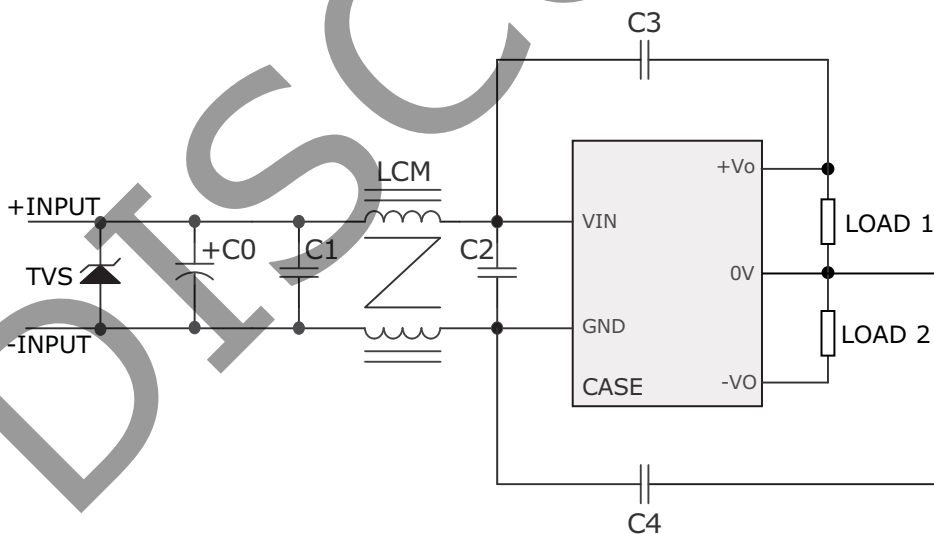


Figure 2 (Dual output)



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.



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