



## Single and Dual Output 6W DC-DC Converters



| Features                     | Benefits                                           |
|------------------------------|----------------------------------------------------|
| • 60601-1 approval           | • Easier system approval                           |
| • I/O isolation 5kVAC, 2MOPP | • Patient protection at 250VAC rms working voltage |
| • 0.25 $\mu$ A low leakage   | • Wide range of medical applications               |
| • 4:1 Wide input range       | • Less parts to inventory                          |

| Specification                                           |                                                                                                                                   |               |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------|
| Model                                                   | PXC-M06 (W)                                                                                                                       |               |
| Rated input voltage range                               | 24V nominal: 9-36VDC, 48V nominal: 18-75VDC                                                                                       |               |
| Input surge voltage (max 3 seconds)                     | 24V Nom : 50VDC   48V Nom: 100VDC                                                                                                 |               |
| Switching frequency                                     | 250kHz                                                                                                                            |               |
| Maximum input current (no load)                         | See Table                                                                                                                         |               |
| Fusing                                                  | No internal fuse                                                                                                                  |               |
| Max output power (W)                                    | 6                                                                                                                                 |               |
| Voltage accuracy                                        | Single/Dual $\pm$ 1%                                                                                                              |               |
| Voltage adjustment (Note 1)                             | Single output 3.3V, 5V & 12V: $\pm$ 10%, 15V & 24V: -10%/+20%<br>Dual output $\pm$ 5V, $\pm$ 12V & $\pm$ 15V: $\pm$ 10%           |               |
| Line regulation (LL to HL at full load)                 | Single output $\pm$ 0.2%, Dual output $\pm$ 0.5%                                                                                  |               |
| Ripple and noise (Note 7)                               | Measured with a 20MHz bandwidth - see table                                                                                       |               |
| Start up time (Nominal Vin and constant resistive load) | Power on: 30ms, Remote ON/OFF: 30ms                                                                                               |               |
| Start up voltage                                        | 24Vin(nom) 9V, 48V(nom) 18V                                                                                                       |               |
| Shutdown voltage                                        | 24Vin(nom) 8V, 48V(nom) 16V                                                                                                       |               |
| Remote on/off (option) (Note 1 & Note 6)                | DC ON: OPEN or 0 to 1.2VDC<br>DC OFF: 2.2 to 12VDC                                                                                |               |
| Efficiency                                              | See Table                                                                                                                         |               |
| Over current protection, factory set                    | Hiccup, 150% of rated full load                                                                                                   |               |
| Short circuit protection (Note 2)                       | Continuous, auto recovery                                                                                                         |               |
| Overvoltage protection                                  | 3.3V output                                                                                                                       | 3.7 to 5V     |
|                                                         | 5V output                                                                                                                         | 5.6 to 7.0V   |
|                                                         | 12V output                                                                                                                        | 13.5 to 16V   |
|                                                         | 15V output                                                                                                                        | 18.3 to 22.0V |
|                                                         | 24V output                                                                                                                        | 29.1 to 34.5V |
|                                                         | 5V/5V output                                                                                                                      | 5.6 to 7.0V   |
|                                                         | 12V/12V output                                                                                                                    | 13.5 to 18.2V |
| 15V/15V output                                          | 17.0 to 22.0V                                                                                                                     |               |
| Operating temperature                                   | -40°C ~ +88°C (without derating), +88°C ~ +105°C (with derating - see curve)                                                      |               |
| Storage temperature                                     | -55°C ~ +125°C                                                                                                                    |               |
| Thermal shock                                           | MIL-STD-810F                                                                                                                      |               |
| Relative humidity (non condensing)                      | 5% to 95% RH                                                                                                                      |               |
| Transient response (25% step load change)               | 250 $\mu$ S                                                                                                                       |               |
| Isolation voltage (1 minute) (Note8)                    | 5kVAC                                                                                                                             |               |
| Isolation capacitance (max)                             | 17pF                                                                                                                              |               |
| MTBF MIL-HDBK-217F (Note 3)                             | 644,400 hrs                                                                                                                       |               |
| Vibration                                               | MIL-STD-810F                                                                                                                      |               |
| Conducted and radiated emissions (Note 4)               | EN55011, EN55022, Class A and FCC part 18<br>EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6:<br>Perf. Criteria A |               |
| Immunity (Note 5)                                       | IEC60601-1, ANSI/AAMI ES60601-1, EN60601-1, CE Mark                                                                               |               |
| Safety                                                  | IEC60601-1, ANSI/AAMI ES60601-1, EN60601-1, CE Mark                                                                               |               |
| Size (H x W x D)                                        | 10.2 x 20.3 x 31.8 mm                                                                                                             |               |
| Weight                                                  | 14g                                                                                                                               |               |
| Connector                                               | PCB mount                                                                                                                         |               |
| Cooling                                                 | Convection                                                                                                                        |               |
| Warranty yrs                                            | 2                                                                                                                                 |               |

Notes: See page 2

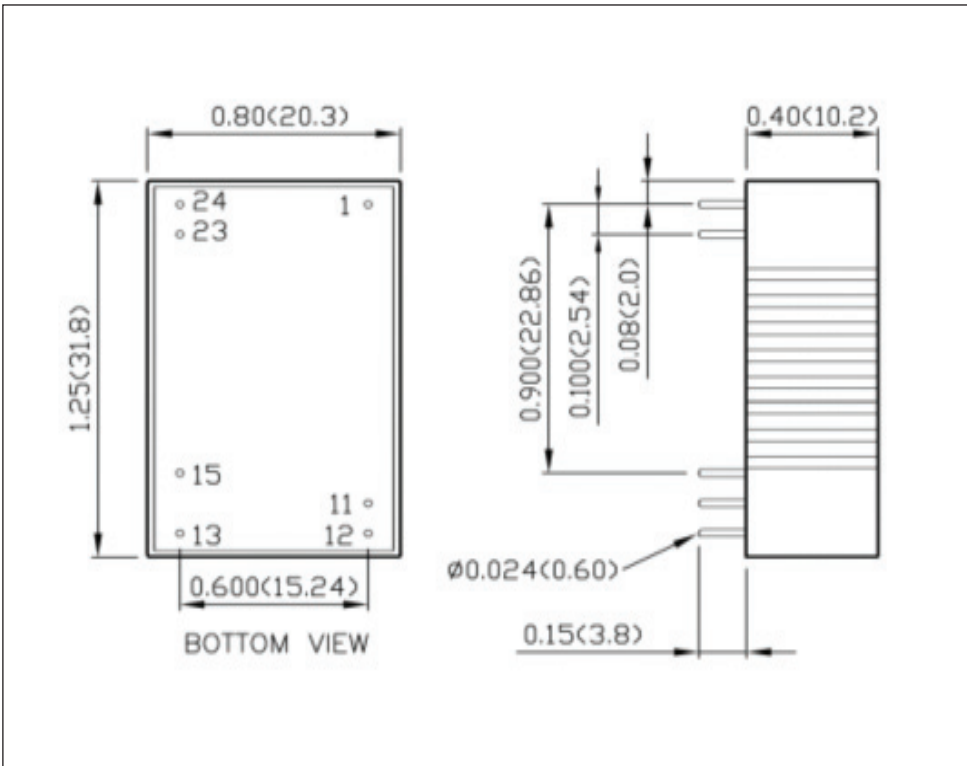
### Model Selector

| Model           | Input Voltage (VDC) | Output Voltage (VDC) | Output Current Full Load (mA) | Output <sup>(7)</sup> Ripple & Noise (mV) | Input Current No Load mA | Efficiency % <sup>(2)</sup> | Maximum Capacitive Load <sup>(2)</sup> |
|-----------------|---------------------|----------------------|-------------------------------|-------------------------------------------|--------------------------|-----------------------------|----------------------------------------|
| PXC-M06-24WS3P3 | 9 ~ 36              | 3.3                  | 1800                          | 30                                        | 6                        | 83                          | 2100                                   |
| PXC-M06-24WS05  | 9 ~ 36              | 5                    | 1200                          | 30                                        | 6                        | 86                          | 1500                                   |
| PXC-M06-24WS12  | 9 ~ 36              | 12                   | 500                           | 40                                        | 6                        | 89                          | 260                                    |
| PXC-M06-24WS15  | 9 ~ 36              | 15                   | 400                           | 40                                        | 6                        | 89                          | 210                                    |
| PXC-M06-24WS24  | 9 ~ 36              | 24                   | 250                           | 50                                        | 6                        | 88.5                        | 75                                     |
| PXC-M06-24WD05  | 9 ~ 36              | ±5                   | ±600                          | 30                                        | 6                        | 85                          | ± 860                                  |
| PXC-M06-24WD12  | 9 ~ 36              | ±12                  | ±250                          | 40                                        | 6                        | 88.5                        | ± 150                                  |
| PXC-M06-24WD15  | 9 ~ 36              | ±15                  | ±200                          | 40                                        | 6                        | 88.5                        | ± 110                                  |
| PXC-M06-48WS3P3 | 18 ~ 75             | 3.3                  | 1800                          | 30                                        | 4                        | 82.5                        | 2100                                   |
| PXC-M06-48WS05  | 18 ~ 75             | 5                    | 1200                          | 30                                        | 4                        | 86.5                        | 1500                                   |
| PXC-M06-48WS12  | 18 ~ 75             | 12                   | 500                           | 40                                        | 4                        | 88                          | 260                                    |
| PXC-M06-48WS15  | 18 ~ 75             | 15                   | 400                           | 40                                        | 4                        | 88.5                        | 210                                    |
| PXC-M06-48WS24  | 18 ~ 75             | 24                   | 250                           | 50                                        | 4                        | 88                          | 75                                     |
| PXC-M06-48WD05  | 18 ~ 75             | ±5                   | ±600                          | 30                                        | 4                        | 85                          | ± 860                                  |
| PXC-M06-48WD12  | 18 ~ 75             | ±12                  | ±250                          | 40                                        | 4                        | 88                          | ± 150                                  |
| PXC-M06-48WD15  | 18 ~ 75             | ±15                  | ±200                          | 40                                        | 4                        | 87                          | ± 110                                  |

**Notes**

1. Not available for A type pin configuration
2. Typical value at nominal input voltage and full load.
3. MIL-HDBK-217F Notice2 @Ta=25 °C, Full load (Ground Benign, controlled environment).
4. Built in Class A filter. Class B can be achieved with the addition of external components for further information contact your local TDK-Lambda sales office
5. Meeting EN61000-4-4 and 61000-4-5 requires additional input electrolytic capacitor: 5V input - 1000µF/25V, 12V & 24V input - 470µF/50V and 48V input - 330µF/100V
6. The ON/OFF control pin voltage is referenced to -Vin. The ctrl pin input current is <1mA. Remote off input current is typically 2.5mA
7. For R & N, measure the 24V output with a 4.7µF/50V X7R MLCC. All other outputs use a 10µF/25V X7R MLCC. Nominal input, full load at +25°C
8. Reinforced insulation 8mm at 250VAC

### Outline Drawing PXC-M06 (W)



## Pin Assignment PXC-M06 (W)

| PIN | Single                   | Dual                     |
|-----|--------------------------|--------------------------|
| 1   | CtrlL (Option) / No pin* | CtrlL (Option) / No pin* |
| 2   | -Vin                     | -Vin                     |
| 10  | Trim (option) / No Pin*  | Trim (option) / No Pin*  |
| 11  | No Pin / NC **           | -Vout                    |
| 14  | +Vout                    | +Vout                    |
| 16  | -Vout                    | Common                   |
| 22  | +Vin                     | +Vin                     |
| 23  | +Vin                     | +Vin                     |

### NOTES:

\* If the Ctrl or Trim option is not selected there will be no pin fitted in the corresponding pin number position.

\*\* Pin 11 is "No pin" for PXC-M06-xxWSxxx-T, PXC-M06-xxWSxxx-PT

Pin 11 is "NC" for: PXC-M06-xxWSxxx, PXC-M06-xxWSxxx-P

## Options

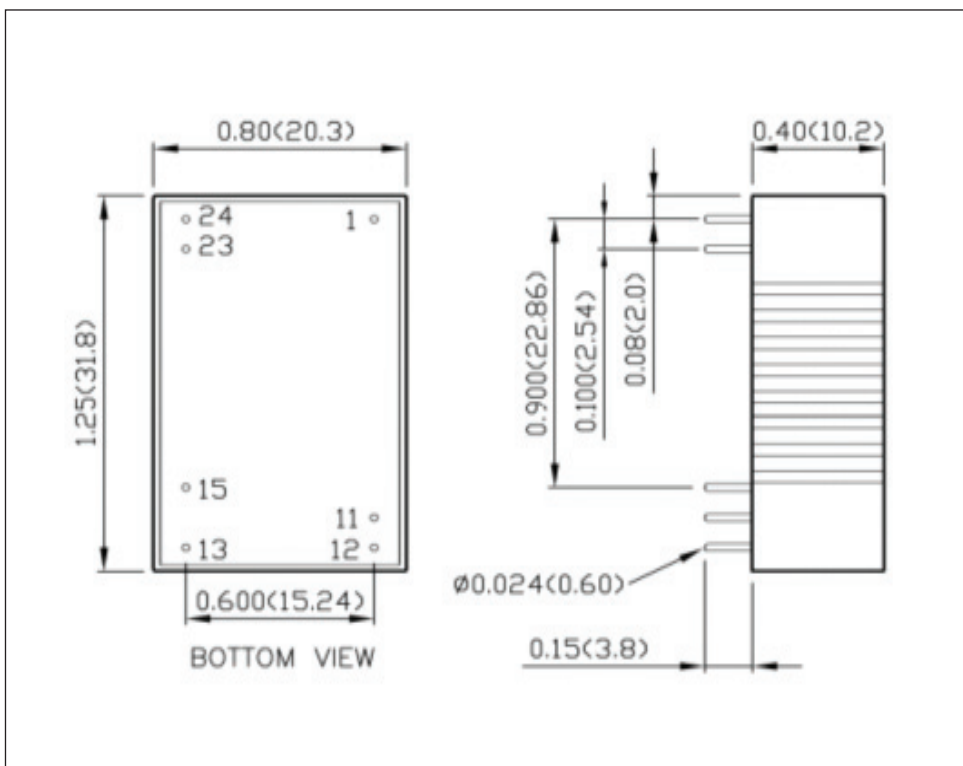
| Suffix | Description           |
|--------|-----------------------|
| P      | Positive Logic        |
| T      | Trim                  |
| PT     | Positive Logic & Trim |

Standard part is no suffix. Add P, T, or PT as required

## External Output Trimming

The output of the PXC-M06 (W) can be adjusted by connecting an external resistor. See application note on the website.

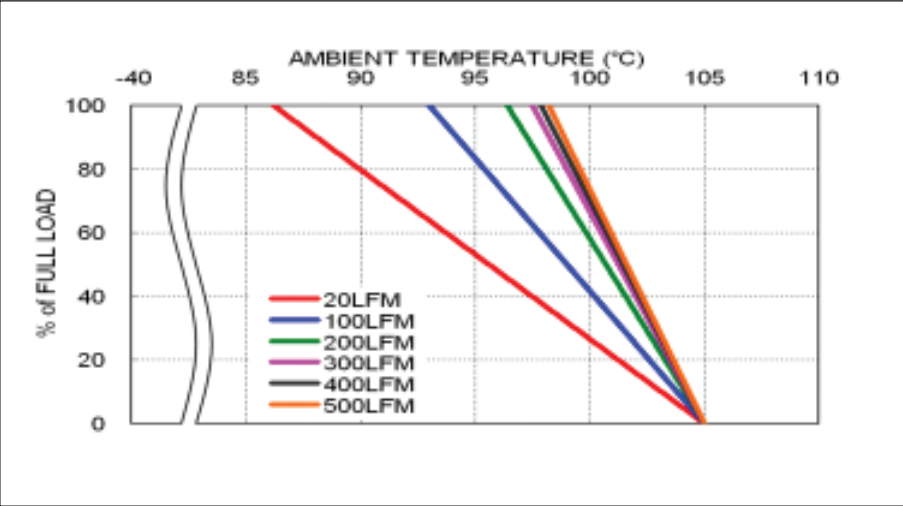
## Outline Drawing PXC-M06 (W) A-type



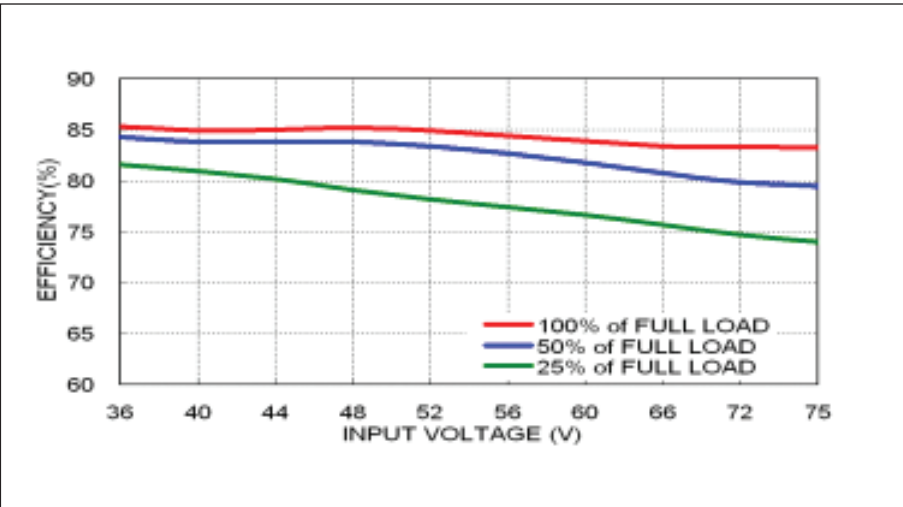
## Pin Assignment PXC-M06 (W) A-type

| PIN | Single | Dual   |
|-----|--------|--------|
| 1   | +Vin   | +Vin   |
| 11  | No Pin | Common |
| 12  | -Vout  | No Pin |
| 13  | +Vout  | -Vout  |
| 15  | No Pin | +Vout  |
| 23  | -Vin   | -Vin   |
| 24  | -Vin   | -Vin   |

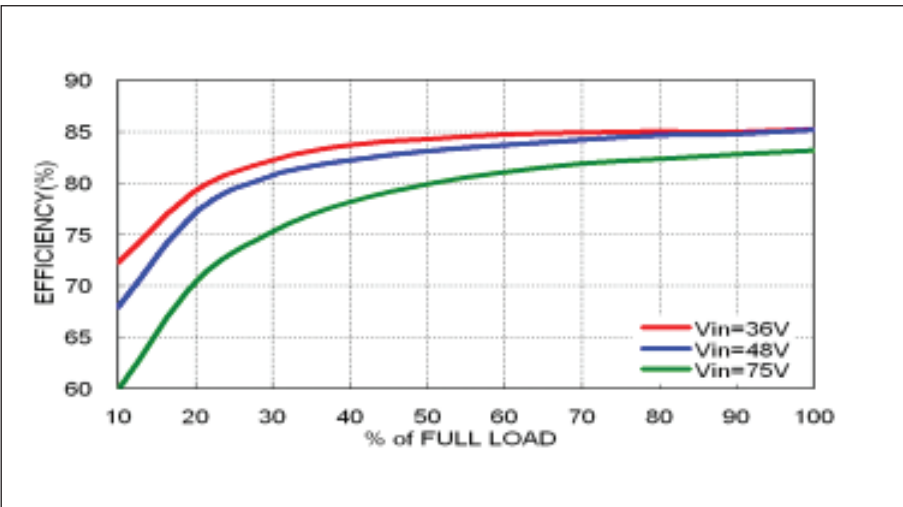
PXC-M06-48WS05A Derating curve



PXC-M06-48WS05A Efficiency Vs Input Voltage



PXC-M06-48WS05A Efficiency Vs Output Voltage





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