

**SERIES:** PQDE6W-DIN | **DESCRIPTION:** DC-DC CONVERTER**FEATURES**

- industry standard footprint
- high efficiency up to 88%
- single and dual output models available
- DIN rail mounted
- 1500 Vdc isolation
- industrial operating temp -40~+85 °C
- 4:1 wide input range
- input under voltage protection & over voltage protection
- over current protection
- EN 62368-1



MODEL	input voltage		output voltage (Vdc)	output current		output power max (W)	ripple & noise <sup>1</sup> max (mVp-p)	efficiency <sup>2</sup> typ (%)
	typ (Vdc)	range (Vdc)		min (mA)	max (mA)			
PQDE6W-Q24-S3-DIN	24	10~36	3.3	0	1500	4.95	85	79
PQDE6W-Q24-S5-DIN	24	10~36	5	0	1200	6	85	83
PQDE6W-Q24-S9-DIN	24	10~36	9	0	667	6	85	85
PQDE6W-Q24-S12-DIN	24	10~36	12	0	500	6	85	87
PQDE6W-Q24-S15-DIN	24	10~36	15	0	400	6	85	88
PQDE6W-Q24-S24-DIN	24	10~36	24	0	250	6	85	88
PQDE6W-Q24-D5-DIN	24	10~36	±5	0	±600	6	85	83
PQDE6W-Q24-D12-DIN	24	10~36	±12	0	±250	6	85	87
PQDE6W-Q24-D15-DIN	24	10~36	±15	0	±200	6	85	88
PQDE6W-Q24-D24-DIN	24	10~36	±24	0	±125	6	85	88
PQDE6W-Q48-S3-DIN	48	19~75	3.3	0	1500	4.95	85	79
PQDE6W-Q48-S5-DIN	48	19~75	5	0	1200	6	85	83
PQDE6W-Q48-S12-DIN	48	19~75	12	0	500	6	85	87
PQDE6W-Q48-S15-DIN	48	19~75	15	0	400	6	85	88
PQDE6W-Q48-S24-DIN	48	19~75	24	0	250	6	85	88
PQDE6W-Q48-D5-DIN	48	19~75	±5	0	±600	6	85	83
PQDE6W-Q48-D12-DIN	48	19~75	±12	0	±250	6	85	87
PQDE6W-Q48-D15-DIN	48	19~75	±15	0	±200	6	85	88

Notes: 1. From 5~100% load, nominal input, 20 MHz bandwidth oscilloscope, with 10 µF tantalum and 1 µF ceramic capacitors on the output. From 0~5% load, ripple and noise is <5% Vo.

2. Measured at nominal input voltage, full load.

3. All specifications are measured at Ta=25°C, humidity < 75%, nominal input voltage, and rated output load unless otherwise specified.



**OUTPUT (CONTINUED)**

parameter	conditions/description	min	typ	max	units
transient response deviation	25% load step change, nominal input voltage		±5	±8	%
	3.3, 5, ±5 Vdc output models all other models		±3	±5	%
temperature coefficient	at full load			±0.03	%/°C

**PROTECTIONS**

parameter	conditions/description	min	typ	max	units
over voltage protection		110		160	%
over current protection		110	140	190	%
short circuit protection	continuous, self recovery				

**SAFETY AND COMPLIANCE**

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute at 1 mA	1,500			Vdc
isolation resistance	input to output at 500 Vdc	1,000			MΩ
isolation capacitance	input to output, 100 kHz / 0.1 V		1,000		pF
safety approvals	certified to 62368-1: EN certified to 60950-1: UL				
conducted emissions	CISPR22/EN55022, class A (no external circuit); class B (external circuit required, see Figure 3-b)				
radiated emissions	CISPR22/EN55022, class A (no external circuit); class B (external circuit required, see Figure 3-b)				
ESD	IEC/EN61000-4-2, contact ± 4kV, class B				
radiated immunity	IEC/EN61000-4-3, 10V/m, class A				
EFT/burst	IEC/EN61000-4-4, ± 2kV, class B (external circuit required, see Figure 3-a)				
surge	IEC/EN61000-4-5, line-line ± 2kV, class B (external circuit required, see Figure 3-a)				
conducted immunity	IEC/EN61000-4-6, 3 Vr.m.s, class A				
voltage dips & interruptions	IEC/EN61000-4-29, 0%-70%, class B				
MTBF	as per MIL-HDBK-217F, 25°C	1,000,000			hours
RoHS	2011/65/EU				

**ENVIRONMENTAL**

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		85	°C
storage temperature		-55		125	°C
storage humidity	non-condensing	5		95	%
vibration	10~55 Hz for 30 minutes on each axis		10		G

## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	76.00 x 31.50 x 25.80 [2.992 x 1.240 x 1.016 inch]				mm
case material	aluminum alloy				
weight			56		g

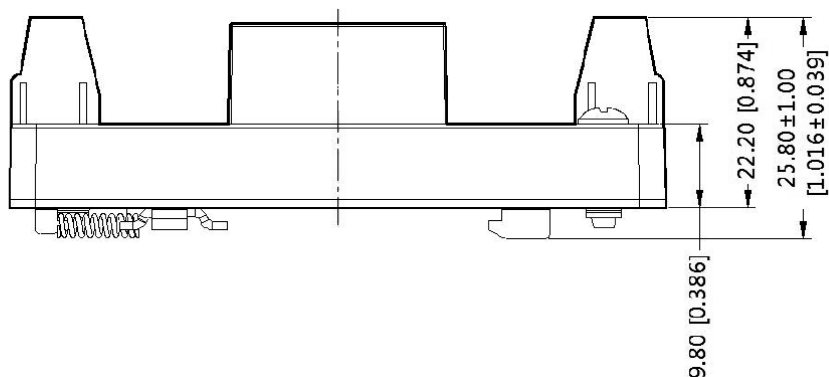
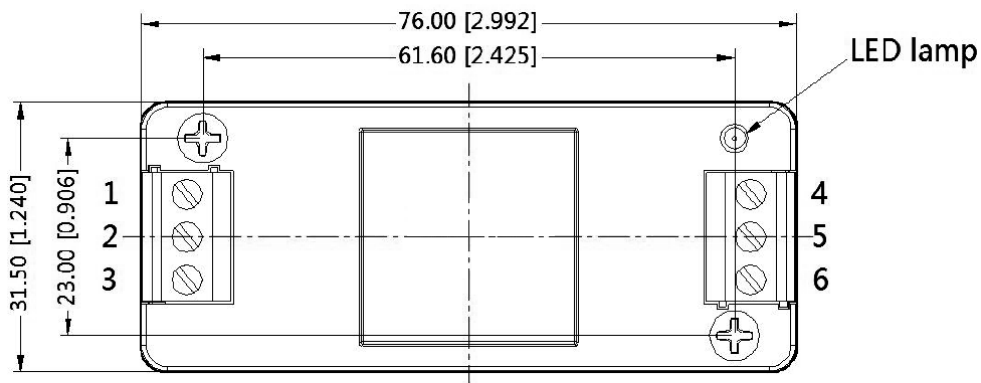
## MECHANICAL DRAWING

units: mm [inch]  
tolerance: ±0.50[±0.020]

installed on DIN rail TS35  
wire range: 24~12 AWG  
tightening torque: max 0.4 N\*m

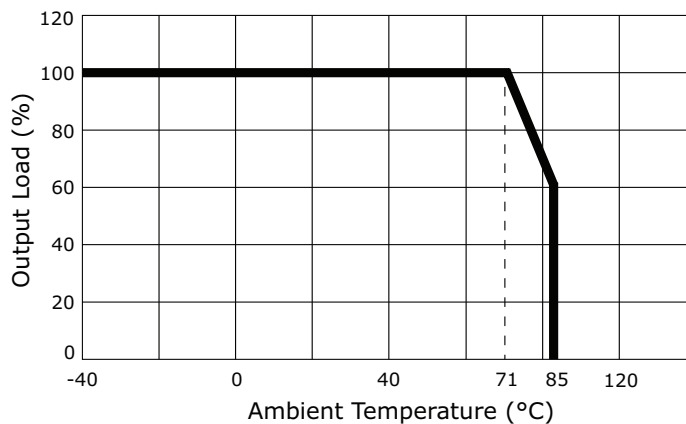
PIN CONNECTIONS		
PIN	Function	
	Single	Dual
1	NC	NC
2	GND	GND
3	Vin	Vin
4	0V	-Vout
5	NC	0V
6	+Vout	+Vout

NC=no connection



## DERATING CURVE

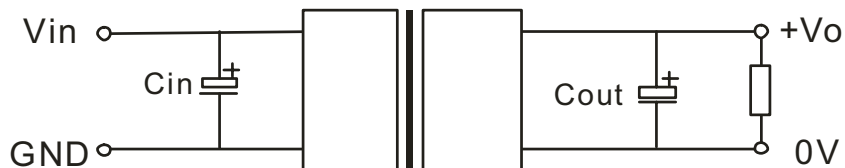
Temperature Derating Curve  
(Natural Convection)



## APPLICATION CIRCUIT

This series has been tested according to the following recommended circuits (Figures 1 & 2) before leaving the factory. If you want to further reduce the input and output ripple, you can increase the input and output capacitors or select capacitors of low equivalent impedance provided that the capacitance is less than the maximum capacitive load of the model.

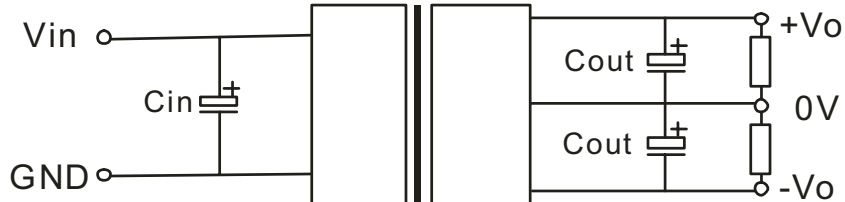
**Figure 1**  
Single Output Models



**Table 1**

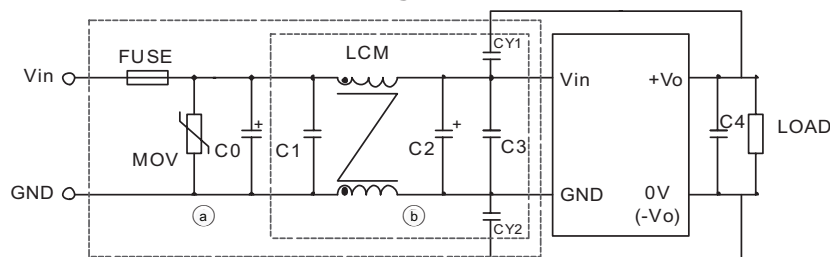
Vin (Vdc)	Cin (μF)	Cout (μF)
24	100	10
48	10~47	10

**Figure 2**  
Dual Output Models



## EMC RECOMMENDED CIRCUIT

**Figure 3**



**Table 2**

Recommended External Circuit Components		
Vin (Vdc)	24	48
FUSE	choose according to actual input current	
MOV	S20K30	S14K60
C0	680 μF / 50 V	680 μF / 100 V
C1	1 μF / 50 V	1 μF / 100 V
C2	330 μF / 50 V	330 μF / 50 V
C3	4.7 μF / 50 V	4.7 μF / 100 V
C4	10 μF	
LCM	4.7 mH	
CY1, CY2	1 nF / 2 kV	

## REVISION HISTORY

---

rev.	description	date
1.0	initial release	02/20/2018
1.01	updated datasheet	08/07/2018
1.02	features and safety line updated, packaging removed	01/14/2021

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



**CUI INC**  
a bel group

**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.