

SERIES: PRQ3W-S | **DESCRIPTION:** DC-DC CONVERTER

FEATURES

- ultra-wide 4:1 input range
- dual positive output with asymmetrical options
- 3000 Vdc isolation
- input under-voltage protection
- output short circuit and over current protection
- wide operating temp: -40°C to +85°C
- EN 62368 approved



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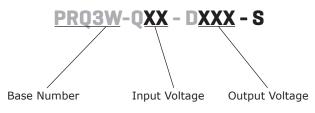
input voltage range	output voltage	output current max	output power max	ripple and noise ¹ max		iency ²
(Vdc)	Vo1/Vo2 (Vdc)	Vo1/Vo2 (mA)	(W)	Vo1/Vo2 (mVp-p)	min (%)	typ (%)
18~75	5/5	300/300	3	150/150	76	78
18~75	5/12	300/125	3	150/150	76	78
18~75	5/24	300/63	3	150/150	76	78
	voltage range (Vdc) 18~75 18~75	voltage range voltage Vol/Vo2 (Vdc) Vol/Vo2 (Vdc) 18~75 5/5 18~75 5/12	voltage range voltage Vol/Vo2 current max Vol/Vo2 (Vdc) Vol/Vo2 (MA) 18~75 5/5 300/300 18~75 5/12 300/125	voltage range voltage current max power max Vo1/Vo2 (Vdc) Vo1/Vo2 (Vdc) Vo1/Vo2 (mA) (W) 18~75 5/5 300/300 3 18~75 5/12 300/125 3	voltage range voltage (Vdc) voltage vol/Vo2 (Vdc) current max power max and noise ¹ max Vol/Vo2 (Vdc) Vol/Vo2 (MA) Vol/Vo2 (W) Vol/Vo2 (mVp-p) 18~75 5/5 300/300 3 150/150 18~75 5/12 300/125 3 150/150	voltage range voltage (Vdc) voltage vol/Vo2 (Vdc) current max power max and noise ¹ max Vo1/Vo2 (Vdc) Vo1/Vo2 (mA) (W) Vo1/Vo2 (mVp-p) min (%) 18~75 5/5 300/300 3 150/150 76 18~75 5/12 300/125 3 150/150 76

Notes: 1. 20MHz bandwidth, nominal input, full load

2. Efficiency is measured In nominal input voltage and rated output load.

PART NUMBER KEY

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INPUT

parameter	conditions/description	min	typ	max	units
input voltage		18	48	80	Vdc
filter	capacitance filter				
current	full load/no load			83/12	mA

OUTPUT

parameter	conditions/description	min	typ	max	units
	5V outputs			680	μF
output capacitance	12V outputs			330	μF
	24V outputs			220	μF
	low line to high line				
line regulation	Vo1		±0.2	±0.5	%
	Vo2		±0.5	±1.0	
	10~100% load				
load regulation	Vo1		±0.5	±1.0	%
-	Vo2		±1.1	±2.0	
	Vo1 / Vo2				
set-point accuracy	10~100% load		$\pm 1/\pm 3$	$\pm 3/\pm 5$	%
	5~10% load		$\pm 2/\pm 4$	±4/ ±6	%
start-up time	nominal input and constant resistance load		10		ms
switching frequency			300		kHz
transiant response				±8	% Vou
transient response				500	μs
temperature coefficient	full load			±0.03	%/°C

PROTECTIONS

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parameter	conditions/description	min	typ	max	units
over current protection		110		250	%Io
short circuit protection	output shutdown, auto recovery				

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SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units	
isolation voltage	input to output output to output	3000 1500			Vdc Vdc	
isolation resistance	input-output resistance at 500 Vdc	1000			MΩ	
isolation capacitance	input-output capacitance at 100 KHz/0.1 V 1000				pF	
safety approvals	EN/IEC 62368					
EMI/EMC	EN 55032: 2015 Class B (see recommended circuit)					
ESD	IEC/EN61000-4-2, Contact ±4KV, perf. Criteria B					
radiated immunity	IEC/EN61000-4-3, 10 v/m, perf. Criteria A					
EFT/burst	IEC/EN61000-4-4, ±2KV (see recommended circuit), perf. Criteria B					
surge	IEC/EN61000-4-5, line to line ± 2 KV (see recommended circuit), perf. Criteria B					
conducted immunity	IEC/EN61000-4-6, 3 Vr.m.s, perf. Criteria A					
RoHS	yes					
MTBF	MIL-HDBK-217@25°C	1000			kHours	

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature		-40		85	°C
storage temperature		-55		125	°C
humidity	non-condensing 5		95	%	
shock/vibration	10-150Hz, 5G, 0.75mm. along X, Y and Z				

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MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	27.40 x 9.50 x 12.00				mm
case material	Black flame-retardant and heat-resistant	plastic (UL94 V-0)			
weight			5.4		g

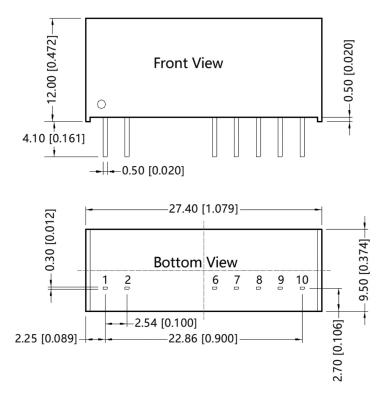
MECHANICAL DRAWING

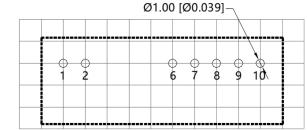
units: mm [inches] tolerance: ± 0.50 [±0.020]

PIN CONNECTIONS			
PIN	FUNCTION		
1	GND		
2	Vin		
6	+Vo1		
7	-Vo1		
8	CS*		
9	-Vo2		
10	+Vo2		

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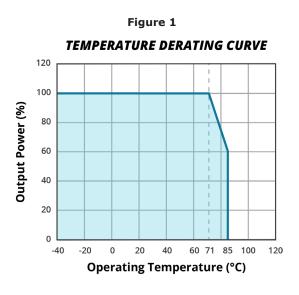
* Connecting a low ESR capacitor between CS & pin 7 may reduce output ripple & noise. Maximum value = 47 μF





Note : Grid 2.54*2.54mm

DERATING CURVES



APPLICATION CIRCUIT

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All the dc-dc converters of this series are tested before delivery using the recommended circuit shown in Fig. 2.

Input and/or output ripple can be further reduced by appropriately increasing the input & output capacitor values Cin and Cout and/or by selecting capacitors with a low ESR (equivalent series resistance). Also make sure that the capacitance is not exceeding the max. capacitive load value of the product.

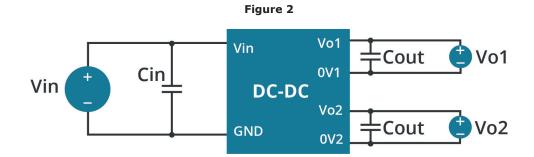


Table :

output voltage (Vdc)	Cin (uF)	Cout (uF)
5	47	
12	22	100
24	22	

EMC RECOMMENDED CIRCUITS

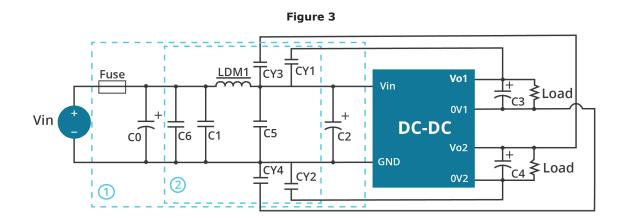


Table 2

List of Components	
Model	Vin:48V
FUSE	Choose according to actual input current
CO	680µF/100V
C1/C5/C6	4.7µF/100V
C2	330µF/100V
C3/C4	Refer to the Cout in Fig.2
LDM1	22µH/0.6A
CY1/CY2/CY4	1nF/3kV
CY3	2.2nF/3kV

REVISION HISTORY

rev.	description	date
1.0	initial release	05/26/2020
1.01	derating curve and circuit figures updated	07/15/2021
1.02	output current units & company address updated	01/22/2025

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



Headquarters 15575 SW Sequoia Pkwy #100 Fax 503.612.2383 Portland, OR 97224 800.275.4899

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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.

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