


CUI INC

a bel group

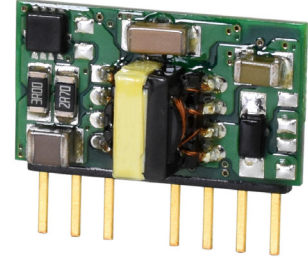
date 11/10/2022

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SERIES: PQQC3-OS | DESCRIPTION: DC-DC CONVERTER

FEATURES

- 3W isolated output
- single regulated output
- compact, open-frame design
- 1,500 Vdc isolation
- input under-voltage, output over-current and short circuit protection
- remote on/off control
- EN/BS EN 62368 certified

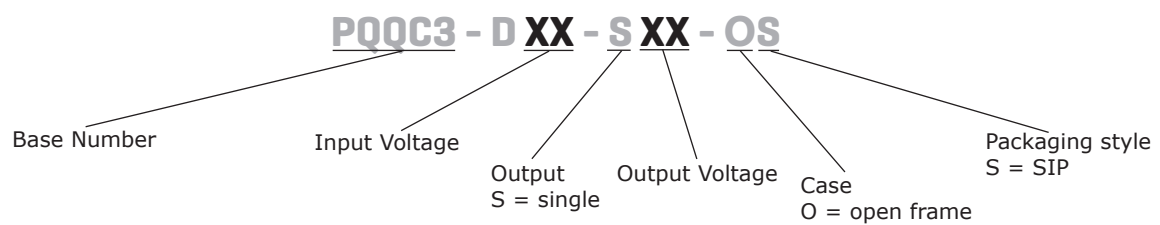


MODEL

MODEL	input voltage		output voltage	output current		output power	ripple & noise ¹	efficiency ²
	typ (Vdc)	range (Vdc)	(Vdc)	min (mA)	max (mA)	max (W)	max (mVp-p)	typ (%)
PQQC3-D48-S5-OS	48	36 ~ 75	5	0	600	3	200	80
PQQC3-D48-S12-OS	48	36 ~ 75	12	0	250	3	200	81
PQQC3-D48-S15-OS	48	36 ~ 75	15	0	200	3	200	82
PQQC3-D48-S24-OS	48	36 ~ 75	24	0	125	3	200	82

Notes: 1. Ripple and noise are measured at 20 MHz BW, 5%~100% load.
2. At full load.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage		36	48	75	Vdc
start-up voltage				36	Vdc
surge voltage	for maximum of 1 second	-0.7		80	Vdc
current	full load / no load		78/4	80/12	mA
start-up current				500	mA
under voltage protection		25	28		Vdc
input filter	capacitance filter				
CTRL	module on: CTRL pin open or pulled high (3.5~12 Vdc) module off: CTRL pin pulled low to GND (0~1.2 Vdc) CTRL pin current when pulled low		3	10	mA

OUTPUT

parameter	conditions/description	min	typ	max	units
maximum capacitive load	5 Vdc output			1,000	μF
	12 Vdc output			470	μF
	15 Vdc output			330	μF
	24 Vdc output			100	μF
voltage accuracy	5%~100% load		±1	±3	%
line regulation	input voltage from low to high, full load		±0.5	±1	%
load regulation ³	5%~100% load		±0.5	±1.5	%
switching frequency ⁴	PWM mode		460		kHz
transient recovery time	25% load step change, nominal input voltage		300	500	μs
transient response deviation	25% load step change, nominal input voltage				
	5 Vdc output		±5	±8	%
	all other outputs		±2.5	±5	%
temperature coefficient	at full load			±0.03	%/°C

Notes: 3. Load regulation for 0%~5% load is ±3%.

4. Measured at full load. The module reduces the switching frequency for light load (below 50%) efficiency improvement.

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over current protection		110	160	250	%
short circuit protection	continuous, auto recovery				

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output, for 1 minute, 1 mA max	1,500			Vdc
isolation resistance	input to output at 500 Vdc	1,000			MΩ
isolation capacitance	input to output, 100 kHz / 0.1 V		2,200		pF
safety approvals	certified to 62368-1: EN, BS EN				
conducted emissions	CISPR32/EN55032 CLASS B (see Fig. 2-2 for recommended circuit)				
radiated emissions	CISPR32/EN55032 CLASS B (see Fig. 2-2 for recommended circuit)				
ESD	IEC/EN61000-4-2 Contact ±4kV, perf. Criteria B				
radiated immunity	IEC/EN61000-4-3 10V/m, perf. Criteria A				
EFT/burst	IEC/EN61000-4-4 ±2kV (see Fig. 2-1 for recommended circuit), perf. Criteria B				
surge	IEC/EN61000-4-5 ±2kV (see Fig. 2-1 for recommended circuit), perf. Criteria B				
conducted immunity	IEC/EN61000-4-6 3 Vr.m.s, perf. Criteria A				
MTBF	as per MIL-HDBK-217F, 25°C	1,000			K hours
RoHS	yes				

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	10-150Hz, 5G, 0.75mm. along X, Y and Z				

SOLDERABILITY

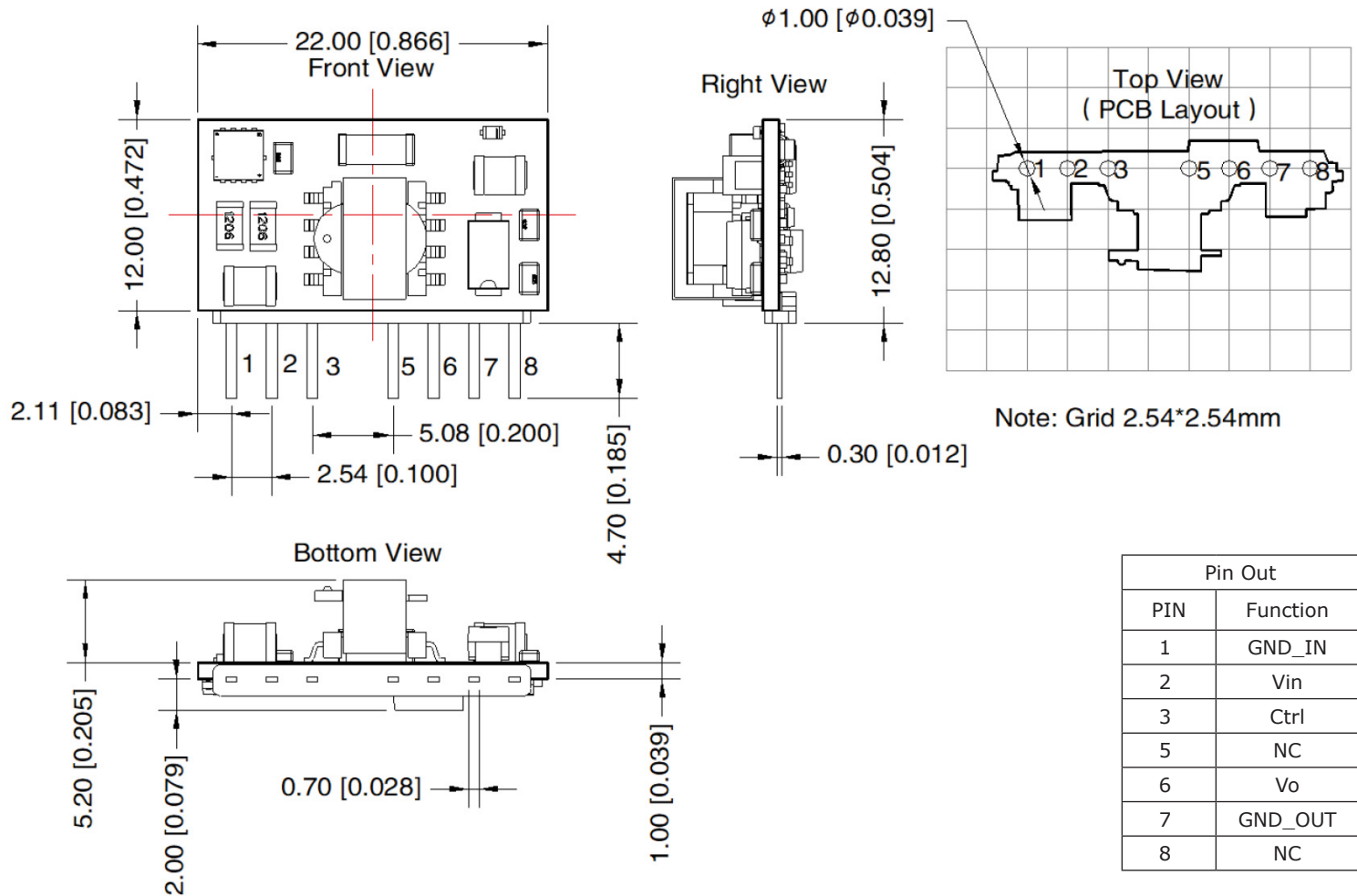
parameter	conditions/description	min	typ	max	units
pin soldering resistance temperature	1.5 mm away from case for 10 seconds			260	°C

MECHANICAL

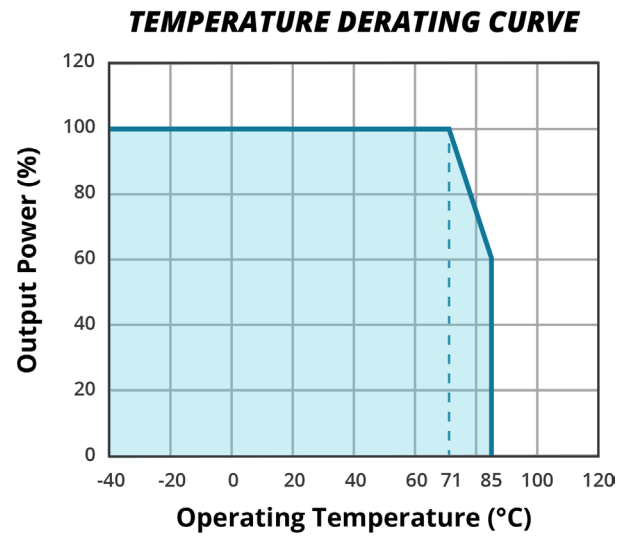
parameter	conditions/description	min	typ	max	units
dimensions	22.00 × 8.20 × 12.80 [0.866 × 0.323 × 0.504 inch]				mm
weight			2.2		g
cooling method	natural convection				

MECHANICAL DRAWING

units: mm [inch]

general tolerance: $\pm 0.50 [\pm 0.020]$ 

DERATING CURVE



APPLICATION CIRCUIT

All the DC/DC converters of this series are tested before delivery using the recommended circuit shown in Fig. 1. Input and/or output ripple can be further reduced by appropriately increasing the input & output capacitor values C_{in} and C_{out} and/or by selecting capacitors with a low ESR (equivalent series resistance). Also make sure that the capacitance is not exceeding the specified max. capacitive load value of the product.

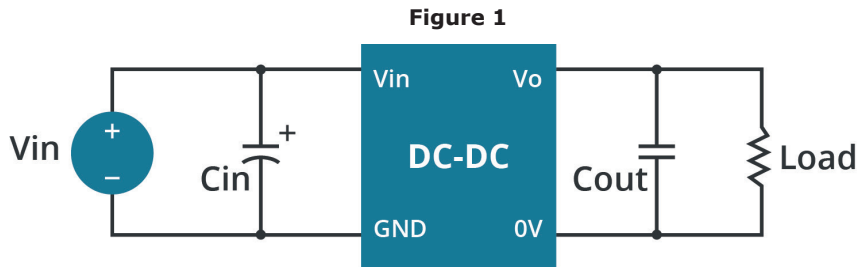
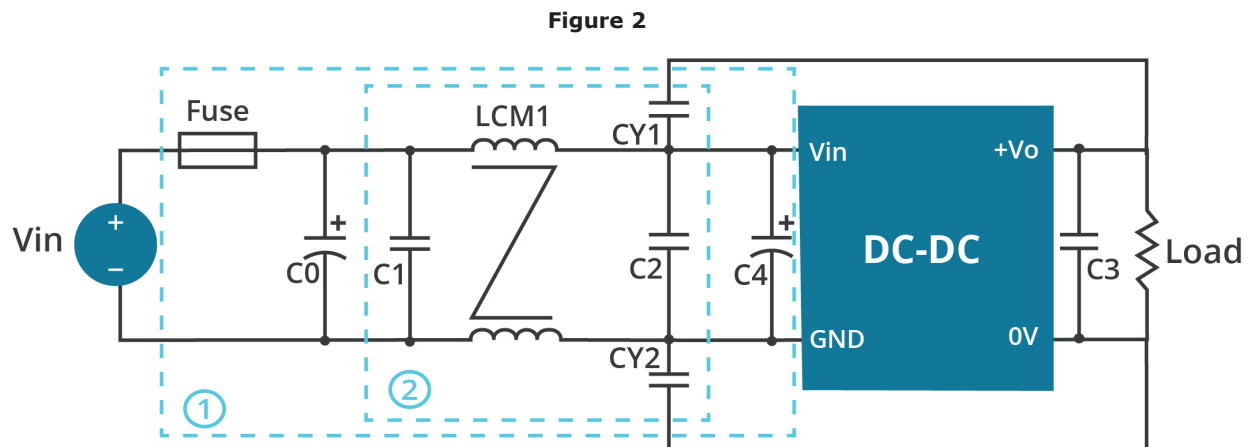


Table 1

C_{in} ($\mu F/V$)	C_o ($\mu F/V$)
100 μF / 100 V	22 μF / 50 V

EMC RECOMMENDED CIRCUIT



Note: For EMC tests part ① was used for immunity and part ② for emissions test. Selecting based on needs.

Table 2

Model	Vin:48V
FUSE	Choose according to actual input current
C0, C4	470 μF /100V
C1, C2	10 μF /100V
C3	22 μF /100V
LCM1	4.22mH
CY1, CY2	1nF/400Vac

REVISION HISTORY

rev.	description	date
1.0	initial release	11/10/2022

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



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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.