

date 03/28/2020 **page** 1 of 6

SERIES: PDP1-M | **DESCRIPTION:** DC-DC CONVERTER

FEATURES

- 1W isolated output
- 1500 Vdc isolation
- compact SMD package
- continuous short circut protection
- no-load input current as low as 5mA
- wide temperature range: -40°C to +105°C
- high efficiency up to 83%
- UL62368/EN62368/IEC62368 Approval

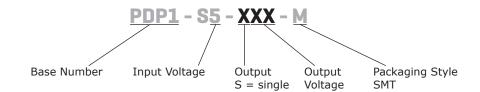




MODEL		put tage	output voltage		put rent	output power	ripple and noise¹	efficiency
	typ (Vdc)	range (Vdc)	(Vdc)	min (mA)	max (mA)	max (W)	max (mVp-p)	typ (%)
PDP1-S5-S3-M	5	4.5~5.5	3.3	30	303	1	75	74
PDP1-S5-S5-M	5	4.5~5.5	5	20	200	1	75	82
PDP1-S5-S9-M	5	4.5~5.5	9	12	111	1	75	83
PDP1-S5-S12-M	5	4.5~5.5	12	9	84	1	75	83

Notes: 1. Ripple & noise testing condition at nominal input voltage and $10\sim100\%$ load, 20 MHz bandwidth.

PART NUMBER KEY



Additional Resources: Product Page | 3D Model | PCB Footprint

CUI Inc | SERIES: PDP1-M | DESCRIPTION: DC-DC CONVERTER date 03/28/2020 | page 2 of 6

INPUT

parameter	conditions/description	min	typ	max	units
input voltage		4.5	5	5.5	Vdc
surge voltage	for maximum of 1 second	-0.7		9	Vdc
filter	capacitance filter				
current	full load/no load 3.3/5 Vdc input models 9/12 Vdc input models		270/5 241/12	286/10 254/20	mA mA

OUTPUT

parameter	conditions/description	min	typ	max	units
	Vin change ±1%				
line regulation	3.3 Vdc output			1.5	%
	other outputs			1.2	%
	10% ~ 100% load				
	3.3 Vdc output		15	20	%
load regulation	5 Vdc output		10	15	%
	9 Vdc output		8	10	%
	12 Vdc output		7	10	%
set-point accuracy	see regulation curve				
switching frequency	full load, nominal input		270		kHz
temperature coefficient	full load			±0.02	%/°C

PROTECTIONS

parameter	conditions/description	min	typ	max	units
short circuit protection	Continuous, self-recovery				

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input-output electric strength test for 1 minute	ic strength test for 1 minute 1500			Vdc
isolation resistance	input-output insulation at 500 Vdc	input-output insulation at 500 Vdc 1000			МΩ
isolation capacitance	input-output capacitance at 100 KHz / 0.1 V	input-output capacitance at 100 KHz / 0.1 V			pF
safety approvals	UL62368/EN62368/IEC62368				
EMC	CISPR32/EN55032 Class B (see recommended circuit)				
ESD	IEC/EN61000-4-2, Air ±8kV, Contact ±4kV, perf. Criteria B				
RoHS	yes				
MTBF	MIL-HDBK-217F @ 25°C	3500			kHours

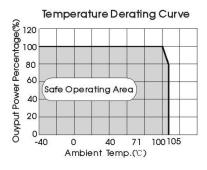
ENVIRONMENTAL

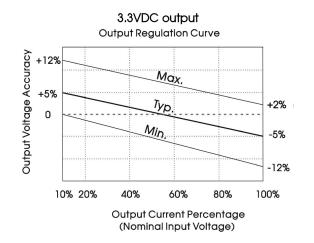
parameter	conditions/description	min	typ	max	units
operating temperature		-40		105	°C
storage temperature		-55		125	°C
humidity	non-condensing	5		95	%

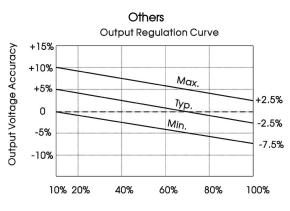
SOLDERABILITY

parameter	conditions/description	min	typ	max	units
reflow soldering	60 s max over 217°C			245	°C

DERATING CURVES







Output Current Percentage (Nominal Input Voltage)

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CUI Inc | SERIES: PDP1-M | DESCRIPTION: DC-DC CONVERTER

date 03/28/2020 | page 4 of 6

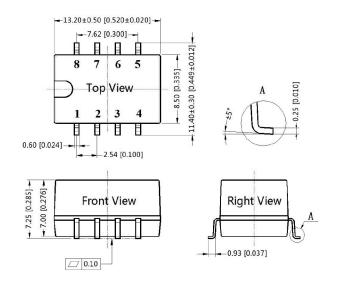
MECHANICAL

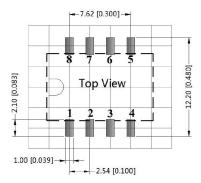
parameter	conditions/description	min	typ	max	units
dimensions	13.20 x 11.40 x 7.25				mm
case material	Black plastic; flame-retardant and heat-resistar	nt (UL94 V-0)			
weight			1.3		g

MECHANICAL DRAWING

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

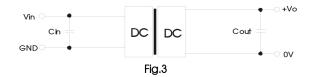
PIN CONNECTIONS				
PIN	FUNCTION			
1	GND			
2	Vin			
4	0V			
5	+Vo			
3, 6, 7, 8	NC			





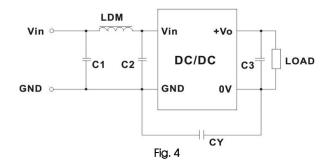
Note: Grid 2.54*2.54mm

RECOMMENDED CIRCUITS



recommended input & output capacitor values					
Vin (Vdc) Cin (μF) Vo (Vdc) Cout (μF)					
	5 4.7	3.3/5	10		
5		9	4.7		
		12	2.2		

EMC COMPLIANCE CIRCUITS



Recommended EMC Filter Values							
	Output Voltage (Vdc)		3.3/5/9	12			
Input voltage 5 Vdc		C1/C2	47μF / 25V	47μF / 25V			
	Emmissions	CY		1nF/2KVDC HEC C1206X102K202T JOHANSON 202R18W102KV4E			
		C3	refer to the Cout in table 1				
		LDM	6.8µH	6.8µH			

lote: To further improve EMI performance, we recommend the use a Y-capacitor C

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CUI Inc | SERIES: PDP1-M | DESCRIPTION: DC-DC CONVERTER date 03/28/2020 | page 6 of 6

REVISION HISTORY

rev.	description	date
1.0	initial release	03/28/2020

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.

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