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

FEATURES

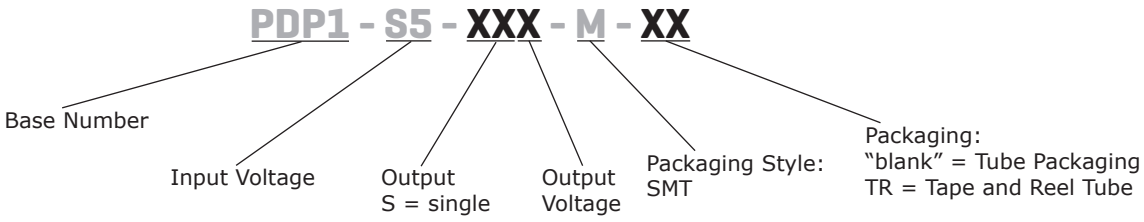
- 1W isolated output
- 1500 Vdc isolation
- compact SMD package
- continuous short circut protection
- no-load input current as low as 5mA
- wide temperature range: -40°C to +105°C
- high efficiency up to 83%
- UL 62368 certified
- designed to meet EN/BS EN 62368

MODEL

MODEL	input voltage typ (Vdc)	input voltage range (Vdc)	output voltage (Vdc)	output current min (mA)	output current max (mA)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency 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 10~100% load, 20 MHz bandwidth.

PART NUMBER KEY



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
line regulation	Vin change ±1% 3.3 Vdc output other outputs			1.5 1.2	% %
load regulation	10% ~ 100% load 3.3 Vdc output 5 Vdc output 9 Vdc output 12 Vdc output		15 10 8 7	20 15 10 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	1500			Vdc
isolation resistance	input-output insulation at 500 Vdc	1000			MΩ
isolation capacitance	input-output capacitance at 100 KHz / 0.1 V		20		pF
safety approvals	certified to 62368: UL designed to meet 62368: EN/BS EN				
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

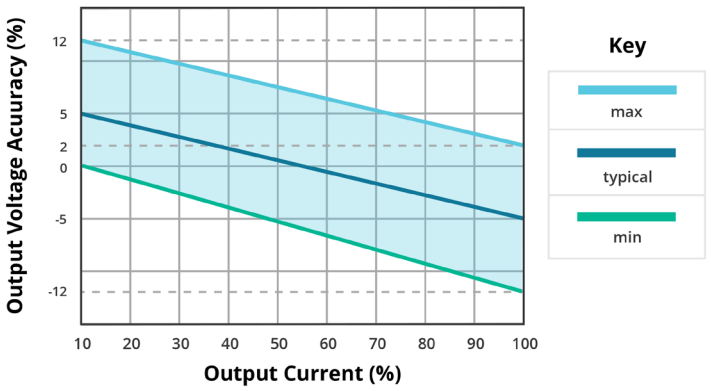
parameter	conditions/description	min	typ	max	units
operating temperature		-40		105	°C
storage temperature		-55		125	°C
humidity	non-condensing	5		95	%

SOLDERABILITY

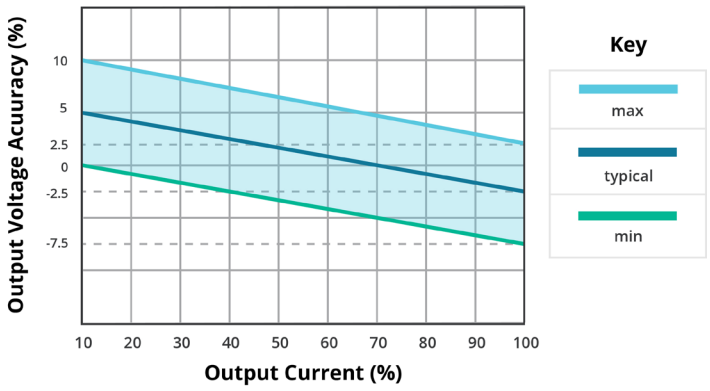
parameter	conditions/description	min	typ	max	units
reflow soldering	60 s max over 217°C			245	°C

DERATING CURVES

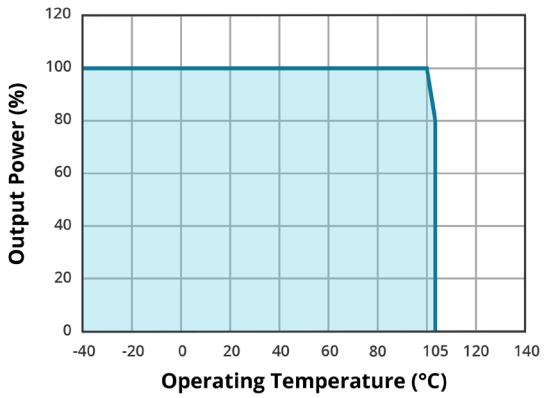
OUTPUT REGULATION CURVE
3.3 Vdc output model
(nominal input)



OUTPUT REGULATION CURVE
all other output models
(nominal input)



TEMPERATURE DERATING CURVE



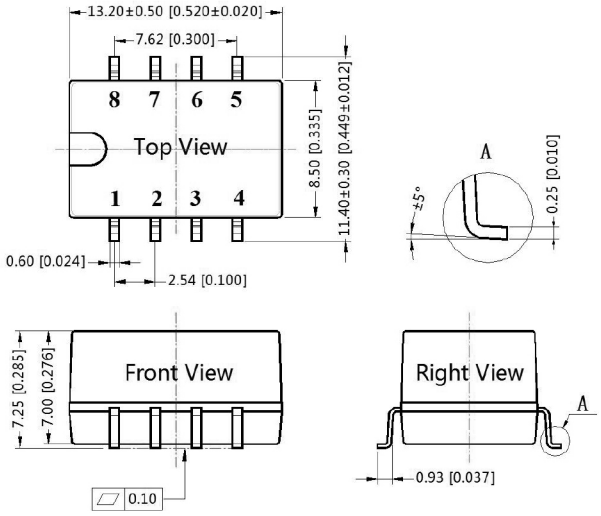
MECHANICAL

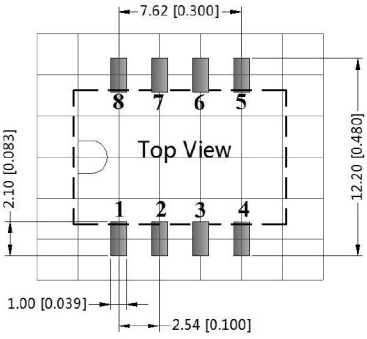
parameter	conditions/description	min	typ	max	units
dimensions	13.20 x 11.40 x 7.25				mm
case material	Black plastic; flame-retardant and heat-resistant (UL94 V-0)				
weight			1.3		g

MECHANICAL DRAWING

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

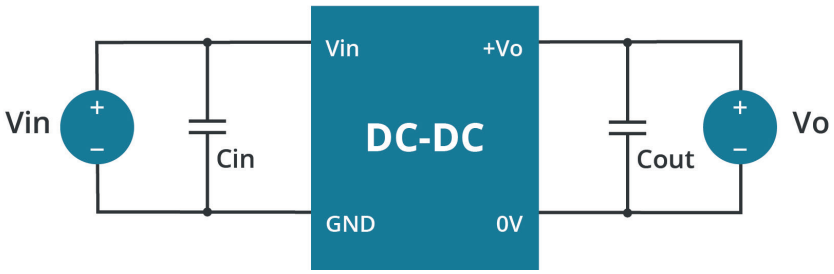
PIN CONNECTIONS	
PIN	FUNCTION
1	GND
2	Vin
4	0V
5	+Vo
3, 6, 7, 8	NC





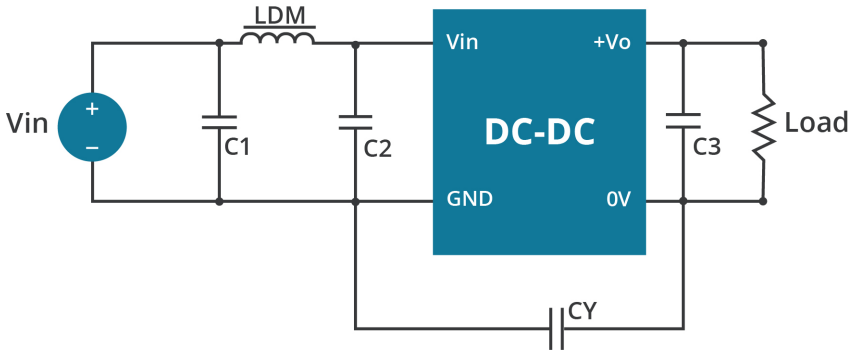
Note: Grid 2.54*2.54mm

RECOMMENDED CIRCUITS



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

EMC COMPLIANCE CIRCUITS



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

Note: To further improve EMI performance, we recommend the use a Y-capacitor CY

REVISION HISTORY

rev.	description	date
1.0	initial release	03/28/2020
1.01	derating curves and circuit figures updated	06/30/2021
1.02	measurements corrected in the mechanical section	01/10/2022
1.03	CE removed	11/04/2022
1.04	pn key updated	05/16/2023

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

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