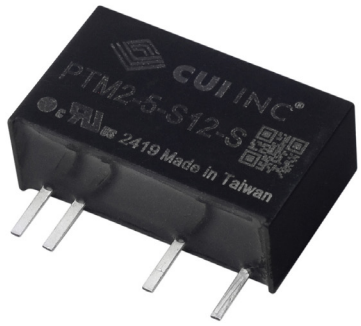
CUI INC
a bel group

SERIES: PTM2-S | DESCRIPTION: DC-DC CONVERTER

FEATURES

- 2 W isolated output
- industry standard SIP package
- single/dual regulated outputs
- 6,000 Vdc isolation voltage
- reinforced insulation, 300 Vdc working voltage
- continuous short circuit protection
- -40~95 °C operating temperature with derating
- certified to UL/cUL 62368-1, EN 60601-1, 2xMOOP
- meets EN 55011 Class B



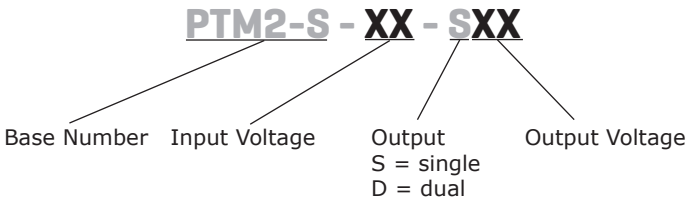
MODEL	input voltage[1]		output voltage	output current	output power	ripple and noise[2]	efficiency[3]
	typ (Vdc)	range (Vdc)	(Vdc)	max (mA)	max (W)	max (mVp-p)	typ (%)
PTM2-3-S3-S	3.3	2.97~3.63	3.3	606	2	100	77.0
PTM2-3-S5-S	3.3	2.97~3.63	5	400	2	100	78.5
PTM2-3-S12-S	3.3	2.97~3.63	12	167	2	100	82.0
PTM2-3-S15-S	3.3	2.97~3.63	15	134	2	100	83.0
PTM2-3-D5-S	3.3	2.97~3.63	±5	±200	2	100	81.0
PTM2-3-D12-S	3.3	2.97~3.63	±12	±84	2	100	85.0
PTM2-3-D15-S	3.3	2.97~3.63	±15	±67	2	100	84.0
PTM2-5-S3-S	5	4.5~5.5	3.3	606	2	100	77.0
PTM2-5-S5-S	5	4.5~5.5	5	400	2	100	79.0
PTM2-5-S12-S	5	4.5~5.5	12	167	2	100	83.0
PTM2-5-S15-S	5	4.5~5.5	15	134	2	100	84.0
PTM2-5-D5-S	5	4.5~5.5	±5	±200	2	100	81.0
PTM2-5-D12-S	5	4.5~5.5	±12	±84	2	100	82.0
PTM2-5-D15-S	5	4.5~5.5	±15	±67	2	100	85.5
PTM2-12-S3-S	12	10.8~13.2	3.3	606	2	100	77.0
PTM2-12-S5-S	12	10.8~13.2	5	400	2	100	80.0
PTM2-12-S12-S	12	10.8~13.2	12	167	2	100	84.0
PTM2-12-S15-S	12	10.8~13.2	15	134	2	100	83.0
PTM2-12-D5-S	12	10.8~13.2	±5	±200	2	100	82.0
PTM2-12-D12-S	12	10.8~13.2	±12	±84	2	100	83.0
PTM2-12-D15-S	12	10.8~13.2	±15	±64	2	100	84.0
PTM2-24-S3-S	24	21.6~26.4	3.3	606	2	100	79.0
PTM2-24-S5-S	24	21.6~26.4	5	400	2	100	81.0
PTM2-24-S9-S	24	21.6~26.4	9	222	2	100	84.0
PTM2-24-S12-S	24	21.6~26.4	12	167	2	100	85.0
PTM2-24-S15-S	24	21.6~26.4	15	134	2	100	85.0

MODEL

MODEL	input voltage[1] typ (Vdc)	input voltage[1] range (Vdc)	output voltage (Vdc)	output current max (mA)	output power max (W)	ripple and noise[2] max (mVp-p)	efficiency[3] typ (%)
PTM2-24-D5-S	24	21.6~26.4	±5	±200	2	100	82.0
PTM2-24-D12-S	24	21.6~26.4	±12	±84	2	100	85.0
PTM2-24-D15-S	24	21.6~26.4	±15	±67	2	100	84.0

Note: 1. ±10%
2. Measured at 20 MHz bandwidth, nominal input voltage.
3. The efficiency is test by nominal input and max full load at 25°C.
4. All specifications are measured at Ta=25°C, nominal input voltage and full output load unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage			±10		%
filter	internal capacitors				

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	3.3 & 5 Vdc output models			1,000	µF
	9 Vdc output models			470	µF
	12 & 15 Vdc output models			330	µF
	±5 Vdc output models			680	µF
	±12 & ±15 Vdc output models			150	µF
line regulation	input voltage from low to high, full load		1.2		%
load regulation	0% to full load				
	3.3 & 5 Vdc output models			15	%
	all other output models			12	%
switching frequency	at full load, nominal input voltage	20			KHz
voltage accuracy			±5		%

PROTECTIONS

parameter	conditions/description	min	typ	max	units
short circuit protection	continuous				

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute	6,000			Vdc
isolation capacitance			25		pF
safety approvals[5]	certified to 62368-1: UL certified to 60601-1: EN				
EMI	EN 55011 Class B				
ESD	EN 61000-4-2, Air ±15 kV; Contact ±8 kV, perf. Criteria B				
EFT/burst	EN 61000-4-4, ± 2 kV, perf. Criteria A				

Note: 5. 2xMOOP

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
surge	EN61000-4-5, ± 1 kV, perf. Criteria A				
vibration	MIL-STD-202G				
MTBF	as per MIL-HDBK-217F	12,900,000			hours
RoHS compliant	yes				

ENVIRONMENTAL

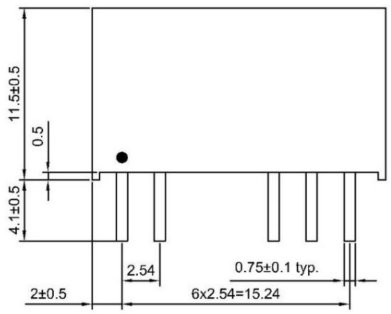
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve PTM2-12-S12-S & PTM2-12-D12-S all other models	 -40 -40		 90 95	 °C °C
storage temperature		-55		125	°C
maximum temperature case				105	°C
storage humidity	non-condensing	5		95	%

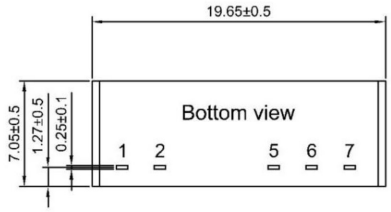
MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	19.65 x 7.05 x 11.5				mm
weight			2.8		g
case material	UL94V-0 black plastic				
potting material	silicone (UL94V-0)				

MECHANICAL DRAWING

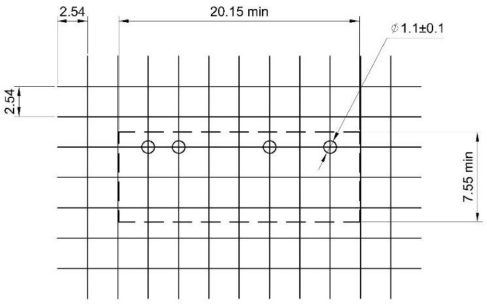
units: mm
tolerance: ±0.25 mm





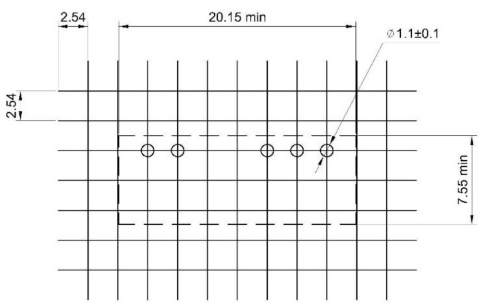
PIN CONNECTIONS		
PIN	Single output	Dual output
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	no pin	Com.
7	+Vout	+Vout

Single output



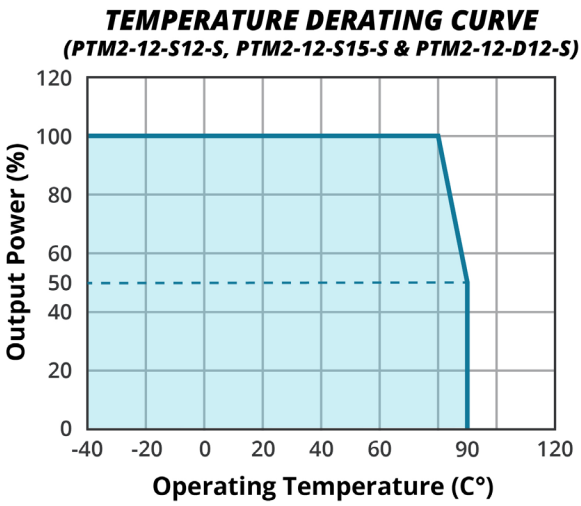
Footprint (Top view)

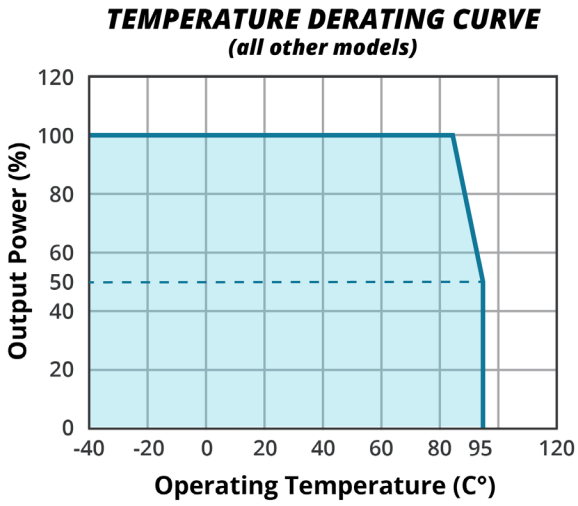
Dual output



Footprint (Top view)

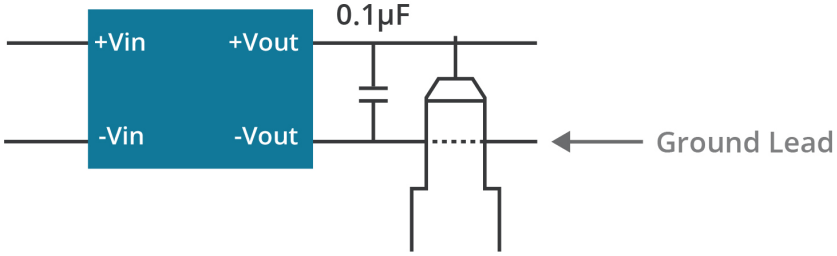
DERATING CURVES





RIPPLE AND NOISE MEASURE

Figure 1



EMC RECOMMENDED CIRCUIT - CLASS B

Figure 2

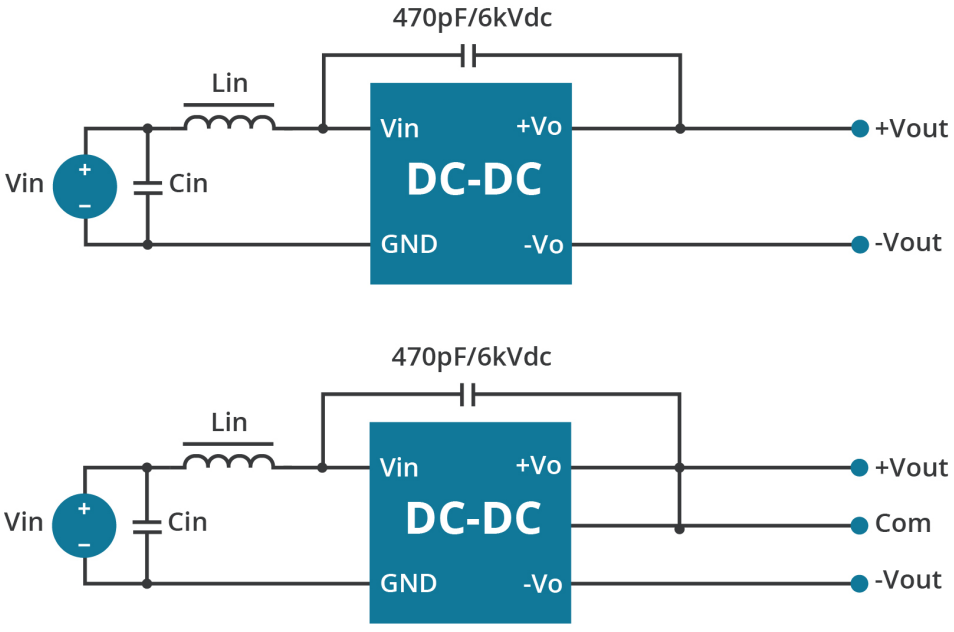


Table 1

Input voltage (V)	Inductance / Capacitance (Lin/Cin)
3.3	47µH/22µF
5	47µH/22µF
12	47µH/10µF
24	100µH/22µF

Note: The External Filter for meet EN55032 Class B

REVISION HISTORY

rev.	description	date
1.0	initial release	08/09/2024
1.01	CE certification updated	09/04/2024

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.