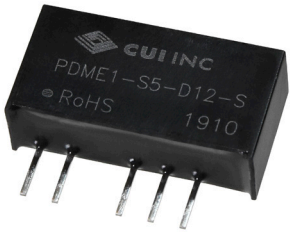
CUI INC®

SERIES: PDME1-S | **DESCRIPTION:** DC-DC CONVERTER

FEATURES

- 1 W isolated output
- unregulated output
- compact SIP package
- single/dual output models
- continuous short circuit protection
- extended temperature range (-40~105°C)
- 1500 Vdc isolation
- no load input current as low as 5 mA
- UL 62368 approval
- efficiency up to 85%

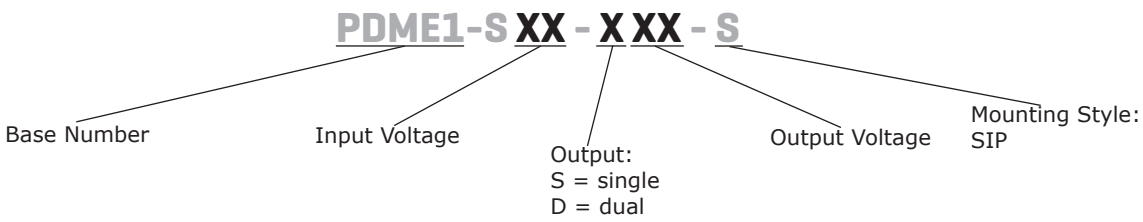


RoHS c UL us CE

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 (%)
PDME1-S5-S3-S	5	4.5~5.5	3.3	30	303	1	75	74
PDME1-S5-S5-S	5	4.5~5.5	5	20	200	1	75	82
PDME1-S5-S9-S	5	4.5~5.5	9	12	111	1	75	83
PDME1-S5-S12-S	5	4.5~5.5	12	9	84	1	75	83
PDME1-S5-S15-S	5	4.5~5.5	15	7	67	1	75	83
PDME1-S5-S24-S	5	4.5~5.5	24	4	42	1	100	85
PDME1-S5-D3-S[3]	5	4.5~5.5	±3.3	±15	±152	1	75	74
PDME1-S5-D5-S	5	4.5~5.5	±5	±10	±100	1	75	82
PDME1-S5-D9-S	5	4.5~5.5	±9	±6	±56	1	75	83
PDME1-S5-D12-S	5	4.5~5.5	±12	±5	±42	1	75	83
PDME1-S5-D15-S	5	4.5~5.5	±15	±4	±34	1	75	83
PDME1-S5-D24-S	5	4.5~5.5	±24	±3	±21	1	100	85

Notes:
1. Measured at nominal input, 20 MHz bandwidth oscilloscope, with 10 µF tantalum and 1 µF ceramic capacitors on the output.
2. Measured at nominal input voltage, full load.
3. Model is not UL or CE certified.
4. All specifications are measured at Ta=25°C, humidity < 75%, nominal input voltage, and rated output load unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage		4.5	5	5.5	Vdc
surge voltage	for maximum of 1 second	-0.7		9	Vdc
current	3.3, 5 Vdc output models 9, 12 Vdc output models all other models			286 254 254	mA mA mA
filter	filter capacitor				

OUTPUT

parameter	conditions/description	min	typ	max	units
maximum capacitive load[5]	3.3, 5 Vdc output models 9 Vdc output models 12, 15 Vdc output models 24, ±12, ±15 Vdc output models ±3.3, ±5 Vdc output models ±9 Vdc output models all other models			2,400 1,000 560 220 1,200 470 100	µF µF µF µF µF µF µF
voltage accuracy	see tolerance envelope curves				
line regulation	for Vin change of 1% 3.3 Vdc output models all other models			 ±1.5 ±1.2	 % %
load regulation	from 10% to full load 3.3 Vdc output models 5 Vdc output models all other models			 ±20 ±15 ±10	 % % %
switching frequency	100% load, nominal input voltage		270		kHz
temperature coefficient	at full load		±0.02		%/°C

Note: 5. Tested at input voltage range and full load.

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 to output for 1 minute at 1 mA	1,500			Vdc
isolation resistance	input to output at 500 Vdc	1,000			MΩ
isolation capacitance	input to output, 100 kHz / 0.1 V		20		pF
safety approvals[6]	UL 62368-1, EN 62368-1				
conducted emissions	CISPR32/EN55032, class B (external circuit required, see Figure 3)				

Note: 6. Model PDME1-S5-D3-S does not have UL or CE certification.

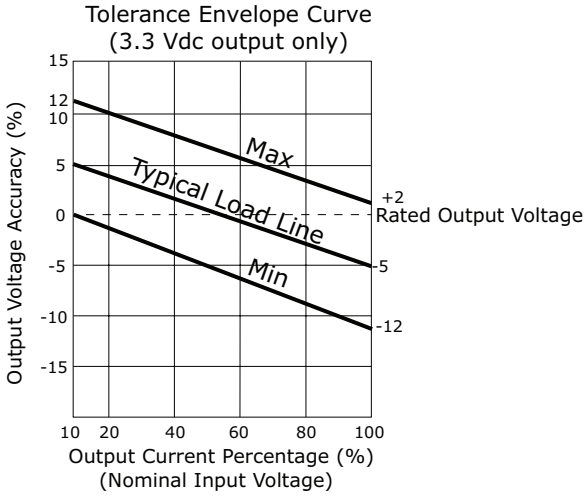
SAFETY AND COMPLIANCE (CONTINUED)

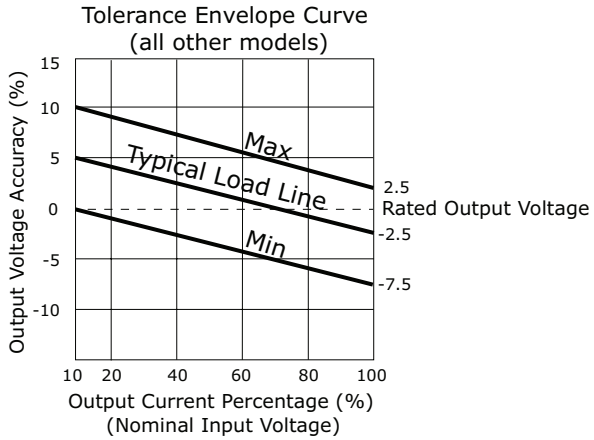
parameter	conditions/description	min	typ	max	units
radiated emissions	CISPR32/EN55032, class B (external circuit required, see Figure 3)				
ESD	IEC/EN61000-4-2, air ± 8 kV; contact ± 4 kV, class B				
MTBF	as per MIL-HDBK-217F, 25°C	3,500,000			hours
RoHS	yes				

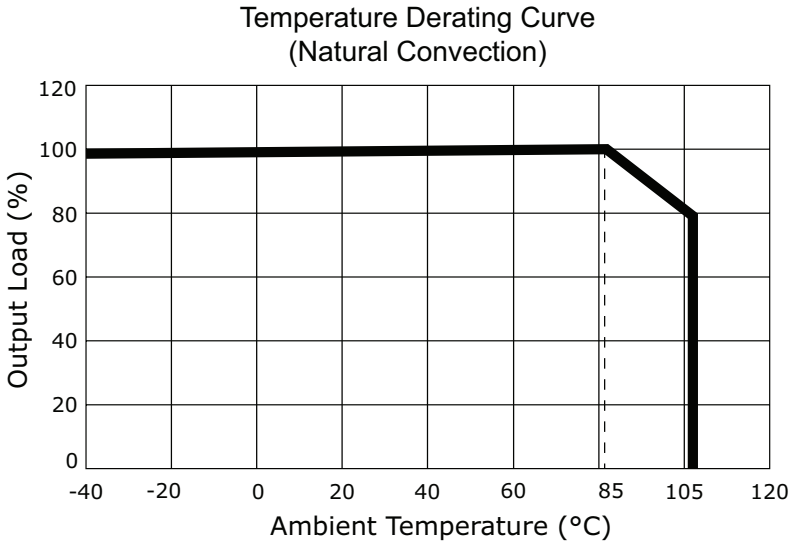
ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-40		105	°C
storage temperature		-55		125	°C
storage humidity	non-condensing			95	%
case temperature rise	3.3 Vdc output model at 25°C all other models at 25°C		25 15		°C °C

DERATING CURVES

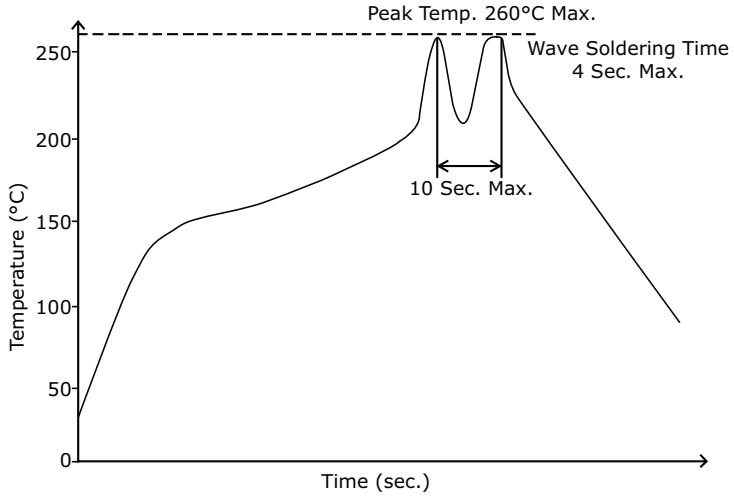






SOLDERABILITY

parameter	conditions/description	min	typ	max	units
hand soldering	1.5 mm from case for 10 seconds			300	°C
wave soldering	see wave soldering profile			260	°C



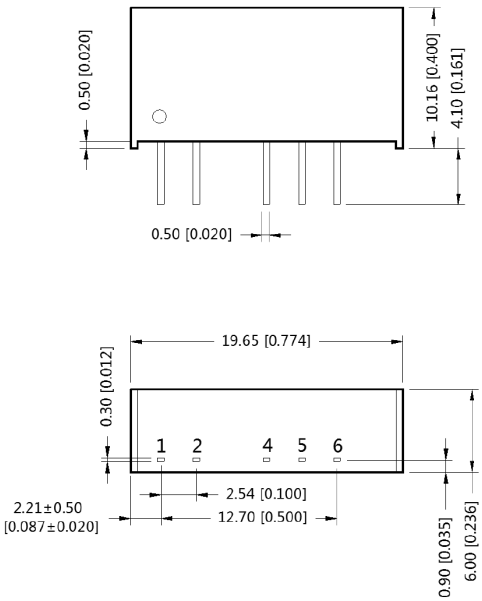
MECHANICAL

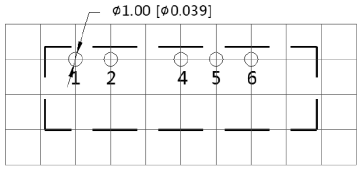
parameter	conditions/description	min	typ	max	units
dimensions	19.65 x 6.00 x 10.16[0.774 x 0.236 x 0.400 inch]				mm
case material	black flame-retardant and heat-resistant plastic (UL94V-0)				
weight			2.1		g

MECHANICAL DRAWING

units: mm [inch]
tolerance: ±0.25[±0.010]
pin section tolerance: ±0.10[±0.004]

PIN CONNECTIONS		
PIN	Function	
	Single	Dual
1	Vin	Vin
2	GND	GND
4	0V	-Vout
5	No Pin	0V
6	+Vout	+Vout





Note : Grid 2.54*2.54mm
Recommended PCB Layout
Top View

APPLICATION CIRCUIT

If you want to further reduce the input and output ripple, a filter capacitor may be connected to the input and output terminals (Figures 1 & 2) provided that the capacitance is less than the maximum capacitive load of the model, otherwise start-up problems may be caused if the capacitance is too large.

Figure 1
Single Output Models

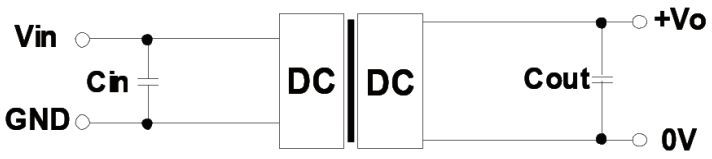


Table 1

Vin (Vdc)	Cin (µF)	Vo (Vdc)	Cout (µF)
5	4.7	3.3, 5	10
		9, 12	2.2
		15, 24	1

Figure 2
Dual Output Models

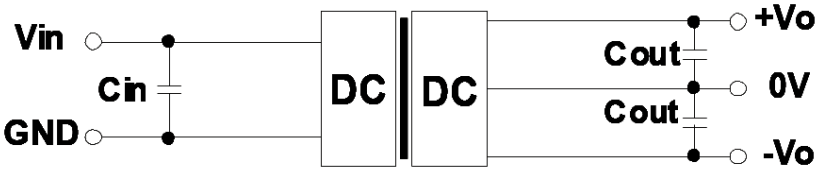


Table 2

Vin (Vdc)	Cin (µF)	Vo (Vdc)	Cout (µF)
5	4.7	±3.3, ±5	4.7
		±9, ±12	1
		±15, ±24	0.47

EMC RECOMMENDED CIRCUIT

Figure 3

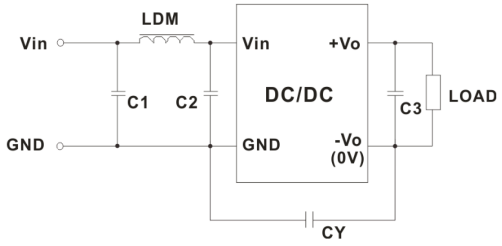


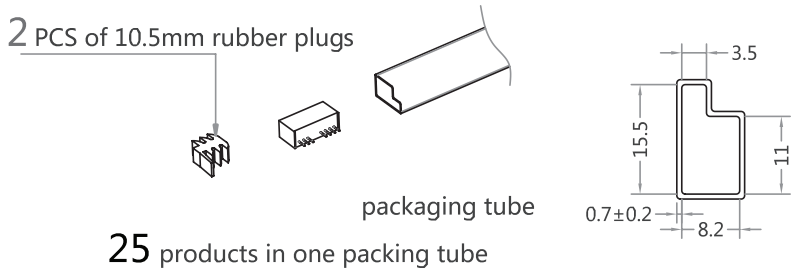
Table 3

Recommended External Circuit Components		
Vo (Vdc)	3.3, 5, 9	12, 15, 24
CY	--	1 nF / 4 kVdc
C3	refer to Cout in Tables 1, 2	
C1, C2	4.7 µF / 25 V	4.7 µF / 25 V
LDM	6.8 µH	6.8 µH

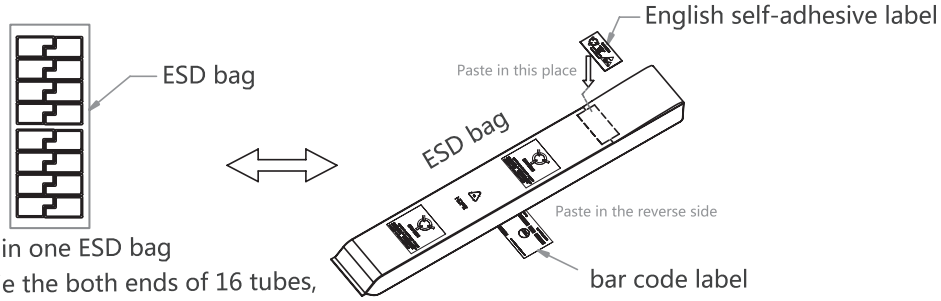
PACKAGING

units: mm

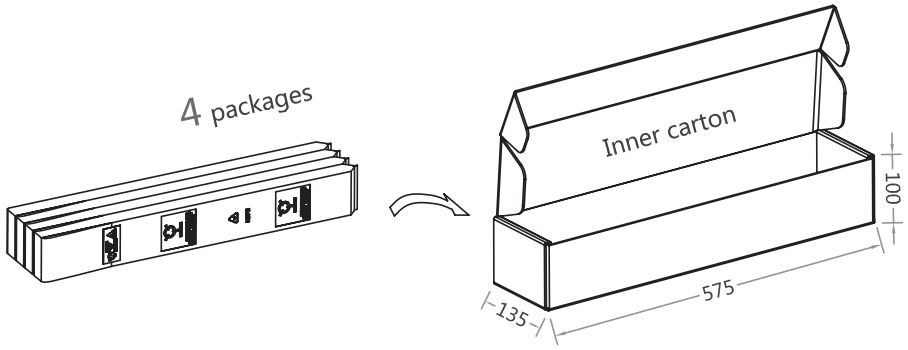
Tube Size: 16.9 x 9.6 mm
Inner Carton Size: 575 x 135 x 100 mm
Outer Carton Size: 610 x 285 x 125 mm
Outer Carton QTY: 3,200 pcs

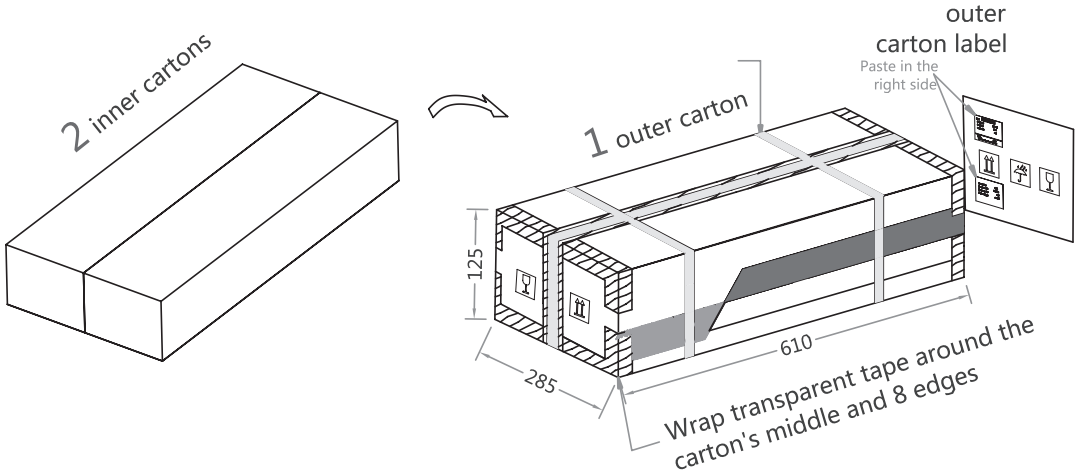


25 products in one packing tube



16 tubes in one ESD bag
Using rubber bands to tie the both ends of 16 tubes, then put into the ESD bag





REVISION HISTORY

rev.	description	date
1.0	initial release	05/10/2019

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

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