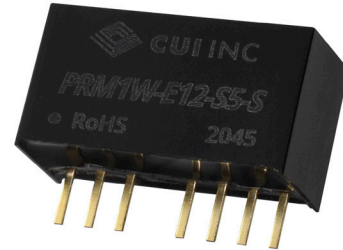


## SERIES: PRM1W-S | DESCRIPTION: DC-DC CONVERTER

### FEATURES

- 1 W isolated output
- 8:1 input range (4.5~36)
- single & dual regulated output
- 3k Vdc isolation
- short circuit, over current, input under voltage protection
- wide operating temperature range -40~105°C
- efficiency up to 74%
- designed to meet EN/BS EN 62368

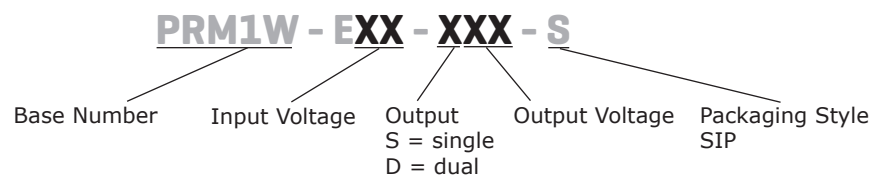


### MODEL

MODEL	input voltage		output voltage (Vdc)	output current max (mA)	output power max (W)	ripple and noise <sup>1</sup> max (mVp-p)	efficiency typ <sup>2</sup> (%)
	typ (Vdc)	range (Vdc)					
PRM1W-E12-S5-S	12	4.5~36	5	200	1.0	100	71
PRM1W-E12-S9-S	12	4.5~36	9	111	1.0	100	72
PRM1W-E12-S12-S	12	4.5~36	12	83	1.0	100	74
PRM1W-E12-S15-S	12	4.5~36	15	67	1.0	100	74
PRM1W-E12-D5-S	12	4.5~36	±5	±100	1.0	100	71
PRM1W-E12-D12-S	12	4.5~36	±12	±42	1.0	100	74
PRM1W-E12-D15-S	12	4.5~36	±15	±33	1.0	100	74

Notes: 1. Ripple & noise testing condition at nominal input voltage and 5%-100% load, the "parallel cable" method is used for ripple and noise test, please refer to DC-DC Converter Application Notes for specific information.  
2. Measured at nominal input voltage and full load.

### PART NUMBER KEY



## INPUT

parameter	conditions/description	min	typ	max	units
input voltage		4.5	12	40	Vdc
start-up voltage				4.5	Vdc
surge voltage	1 second max	-0.7		50	Vdc
filter	capacitance filter				
current	full load/no load				
	5 Vdc/±5 Vdc output models		117/10	123/15	mA
	other output models		114/10	120/15	mA

## OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation	min to max Vin, full load			±0.5	%
	+Vo -Vo			±1	%
load regulation	5% ~ 100% load			±1	%
	+Vo -Vo			±1.5	%
set-point accuracy	0% ~ 100% load		±1	±3	%
switching frequency	PWM mode		300		kHz
transient response	25% load step change		±5	±8	%
	5 Vdc/±5 Vdc output models other output models		±3	±5	%
temperature coefficient	full load			±0.03	%/°C

## PROTECTIONS

parameter	conditions/description	min	typ	max	units
over current protection		110		300	%
short circuit protection	continuous, self-recovery				

## SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output 1mA max for 1 minute	3,000			Vdc
isolation resistance	input to output at 500 Vdc	1,000			MΩ
isolation capacitance	input to output capacitance at 100 KHz / 0.1 V		40		pF
safety approvals	designed to meet 62368: EN, BS EN				
EMC/EMC	CISPR32/EN55032 CLASS B (see Fig.3-2 for recommended circuit)				
ESD	IEC/EN61000-4-2 Contact ±6KV perf. Criteria B				
radiated immunity	IEC/EN61000-4-3 10V/m perf. Criteria A				
EFT/burst	IEC/EN61000-4-4 ±2KV (see Fig.3-1 for recommended circuit) perf. Criteria B				
surge	IEC/EN61000-4-5 line to line ±2KV (see Fig.3-1 for recommended circuit) perf. Criteria B				
conducted immunity	IEC/EN61000-4-6 3 Vr.m.s perf. Criteria A				
RoHS	yes				
MTBF	as per MIL-HDBK-217F at 25°C	1,000			kHours

ENVIRONMENTAL

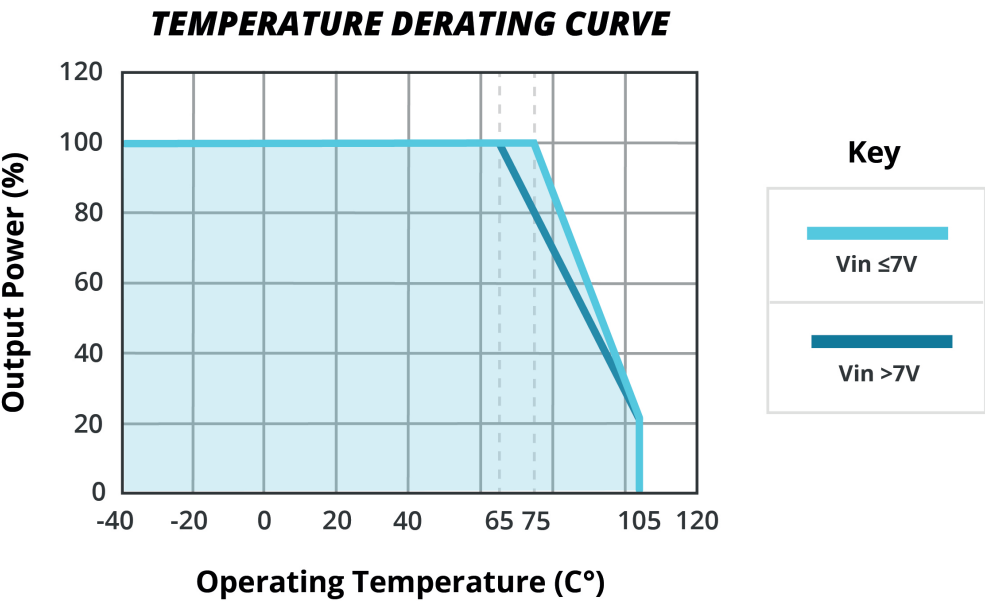
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		105	°C
storage temperature		-55		125	°C
humidity	non-condensing	5		95	%

SOLDERABILITY

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

DERATING CURVE

Figure 1



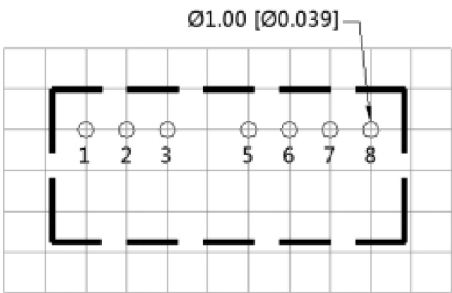
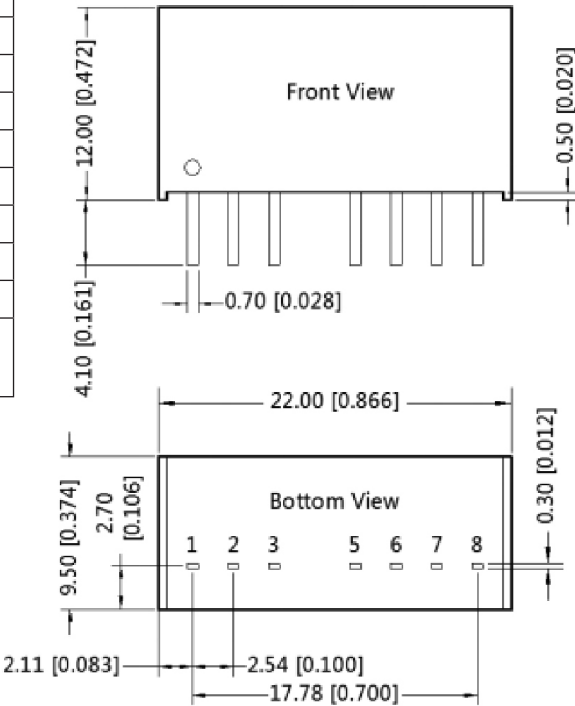
MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	22.00 × 9.50 × 12.00				mm
case material	Black plastic; flame-retardant and heat-resistant (UL94-V0)				
weight			4.6		g

MECHANICAL DRAWING

units: mm [inches]  
pin section tolerance: ±0.10 [±0.004]  
tolerance: ± 0.50 [±0.020]

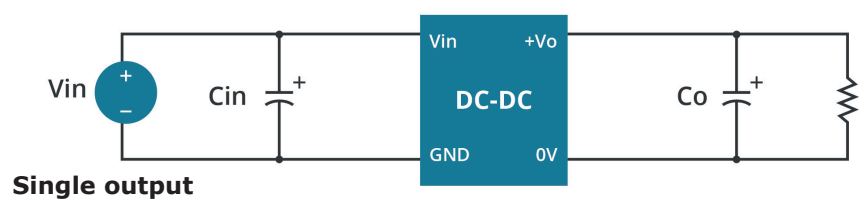
PIN CONNECTIONS		
PIN	Single	Dual
1	GND	GND
2	Vin	Vin
3	NC	NC
5	NC	NC
6	+Vo	+Vo
7	0V	0V
8	NC	-Vo
Note: NC not available for electrical connection.		



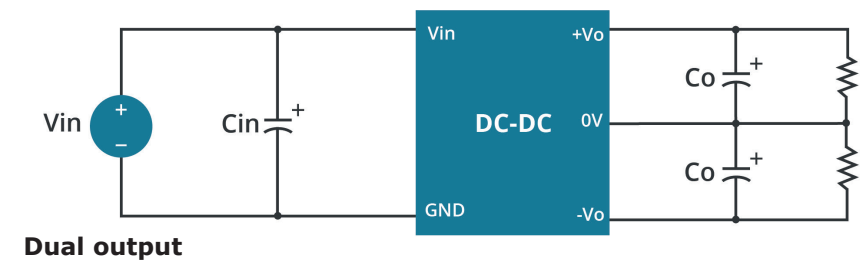
Note: Grid 2.54\*2.54mm

RECOMMENDED CIRCUITS

Figure 2



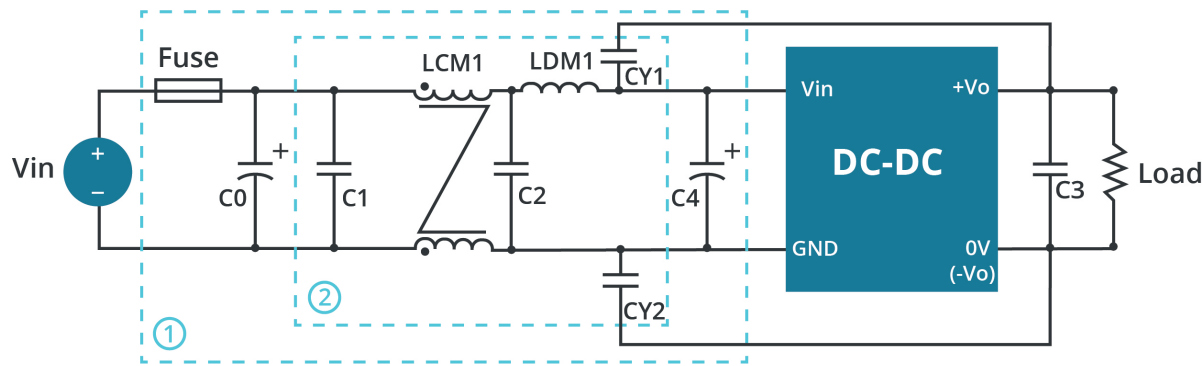
Parameter Description		
Single Vout (Vdc)	Cout (μF)	Cin (μF)
5/9/12/15	22 (25V)	100 (50V)



Parameter Description		
Dual Vout (Vdc)	Cout (μF)	Cin (μF)
±5/±12/±15	22 (25V)	100 (50V)

EMC COMPLIANCE CIRCUITS

Figure 3



Note: For EMC tests was used Part①in Figure 3 for immunity and Part②for emissions test. Selecting based on needs.

Parameter Description	
FUSE	Select fuse value according to actual input current
C0	1000μF/50V
C4	100μF/50V
C1/C2	4.7μF/50V
C3	22μF/50V
LCM1	2.2mH
LDM1	4.7μH
CY1/CY2	1nF/KV

## REVISION HISTORY

rev.	description	date
1.0	initial release	11/23/2020
1.01	CE certification updated	11/25/2022

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.

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