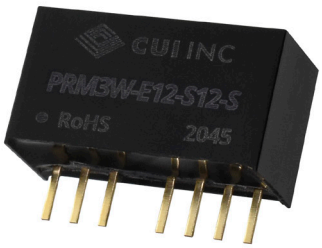
CUI INC
a bel group

SERIES: PRM3W-S | DESCRIPTION: DC-DC CONVERTER

FEATURES

- 3 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 79%
- designed to meet EN 62368



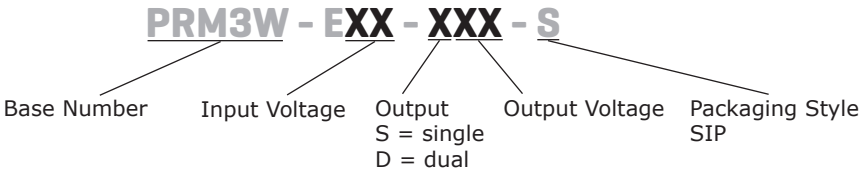
RoHS

MODEL

MODEL	input voltage typ (Vdc)	input voltage range (Vdc)	output voltage (Vdc)	output current max (mA)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency typ[2] (%)
PRM3W-E12-S5-S	12	4.5~36	5	600	3.0	100	77
PRM3W-E12-S12-S	12	4.5~36	12	250	3.0	100	79
PRM3W-E12-S15-S	12	4.5~36	15	200	3.0	100	79
PRM3W-E12-D5-S	12	4.5~36	±5	±300	3.0	100	77
PRM3W-E12-D12-S	12	4.5~36	±12	±125	3.0	100	79
PRM3W-E12-D15-S	12	4.5~36	±15	±100	3.0	100	79

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 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 other output models		324/8 316/8	334/16 325/16	mA mA

OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation	min to max Vin +Vo -Vo			±0.5 ±1	% %
load regulation	5% ~ 100% load +Vo -Vo			±1 ±1.5	% %
set-point accuracy	0% ~ 100% load		±1	±3	%
switching frequency	PWM mode		300		kHz
transient response	25% load step change 5 Vdc/±5 Vdc output models other output models		±5 ±3	±8 ±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)/CLASS A (see Fig.4 for recommended circuit)				
ESD	IEC/EN61000-4-2 Contact ±4KV 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

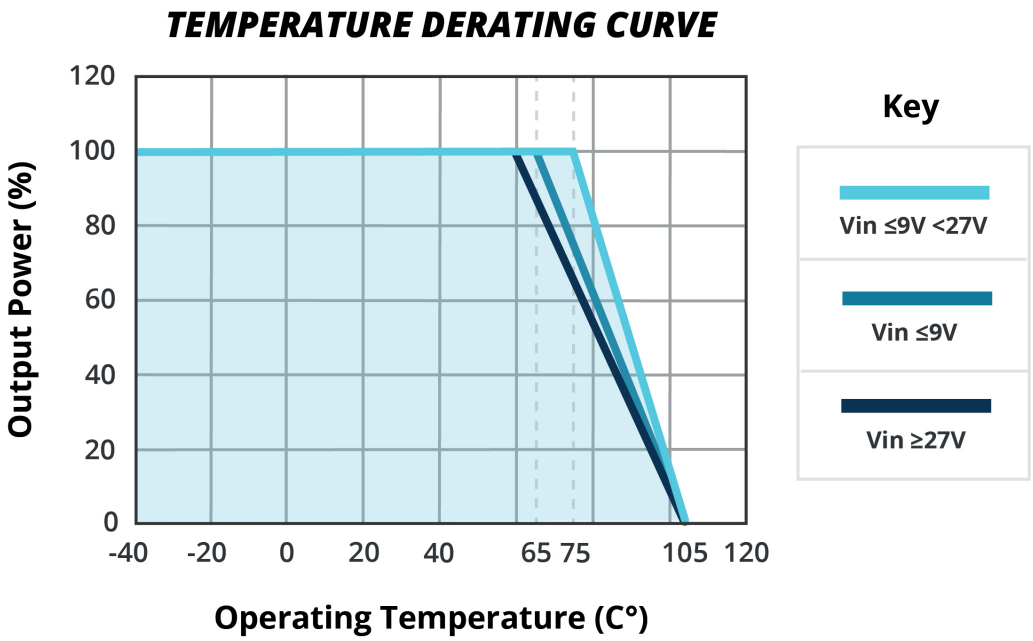
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		105	°C
storage temperature		-55		125	°C
humidity	non-condensing	5		95	%

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

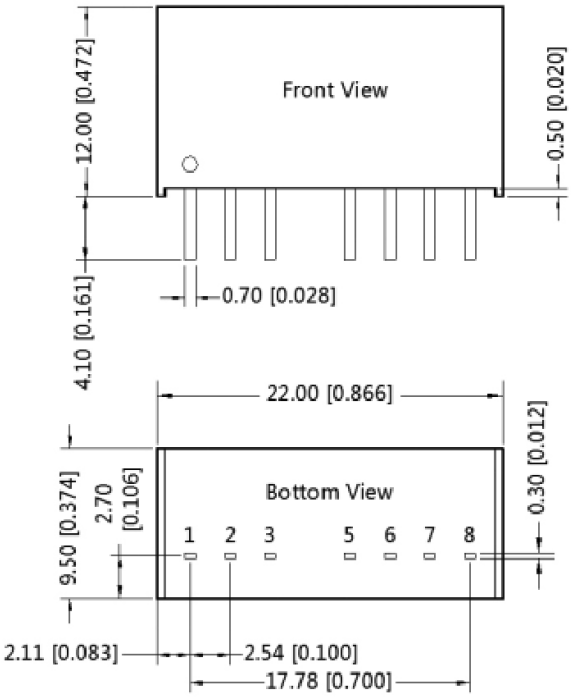
parameter	conditions/description	min	typ	max	units
dimensions	22.00 × 9.50 ×12.00				mm
case material	Black plastic; flame-retardant and heat-resistant (UL94-V0)				
weight			4.5		g

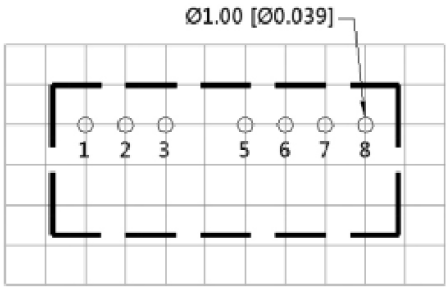
MECHANICAL DRAWING

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.

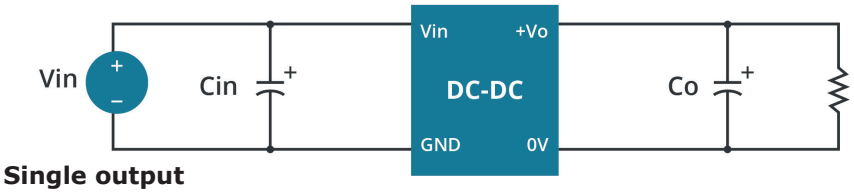




Note: Grid 2.54*2.54mm

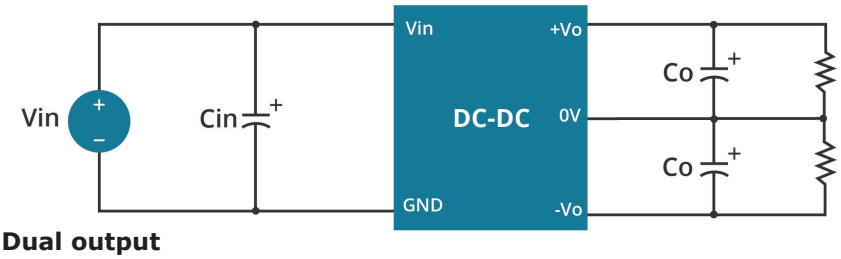
RECOMMENDED CIRCUITS

Figure 2



Single output

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

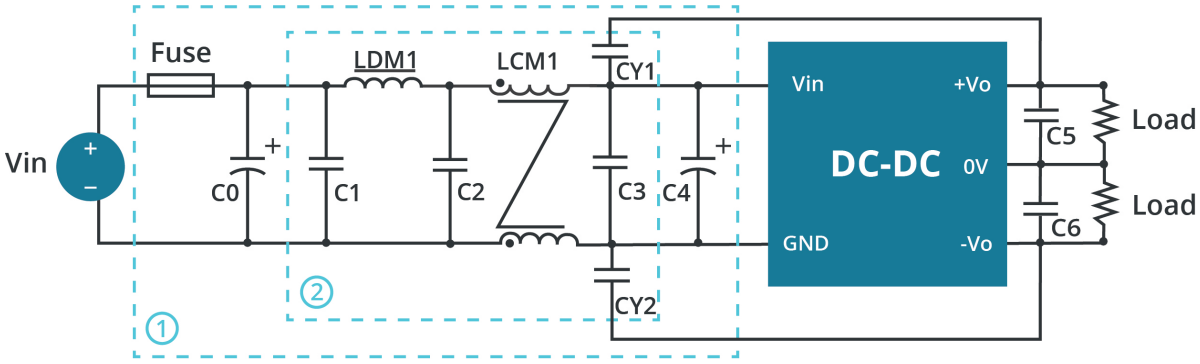


Dual output

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

EMC COMPLIANCE CIRCUITS

Figure 3

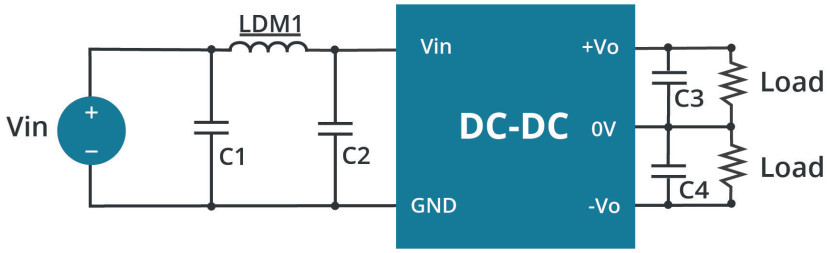


Note: For EMC tests was used Part①in Figure 3 for immunity and Part②for emissions test. Selecting based on needs.

Parameter Description	
FUSE	Select fuse value according to actual input current
C0	1000μF/50V
C4	330μF/50V
C1/C2/C3	10μF/50V
LCM1	3.3mH
LDM1	4.7μH
CY1/CY2	1nF/3KV
C5/C6	Refer to the Cout in Figure 2

EMC COMPLIANCE CIRCUITS (CONTINUED)

Figure 4



Parameter Description	
FUSE	Select fuse value according to actual input current
C1/C2	10μF/50V
LDM1	22μH
C3/C4	Refer to the Cout in Figure 4

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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