

**SERIES:** PEM1A-S | **DESCRIPTION:** DC-DC CONVERTER

**FEATURES**

- up to 1 W isolated output
- industry standard SIP 7 package
- 1:1 input range
- single unregulated output
- 4,000 Vdc isolation voltage
- -40 to 85°C temperature range
- efficiency up to 70%
- UL/cUL safety approval

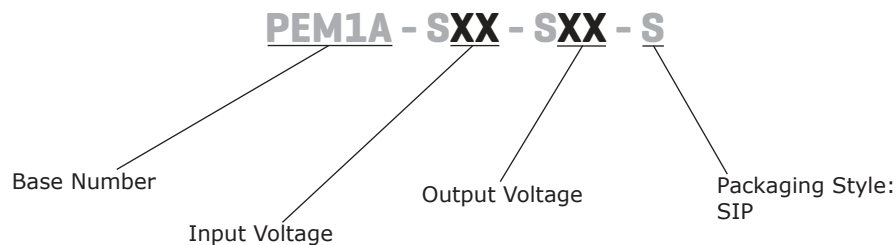


**MODEL**

MODEL	input voltage		output voltage	output current	output power	ripple & noise <sup>1</sup>	efficiency
	typ (Vdc)	range (Vdc)	(Vdc)	max (mA)	max (W)	max (mVp-p)	typ (%)
PEM1A-S5-S5-S	5	4.5~5.5	5	200	1	100	70

Notes: 1. At full load, nominal input, 20 MHz bandwidth oscilloscope, output terminated with a 0.1 μF multilayer low ESR ceramic capacitor.  
2. All specifications measured at Ta=25°C, nominal input voltage, rated output load, and after warm up unless otherwise specified.

**PART NUMBER KEY**



## INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage		4.5	5	5.5	Vdc

## OUTPUT

parameter	conditions/description	min	typ	max	units
maximum capacitive load <sup>1</sup>				1200	µF
voltage accuracy	at full load, Vin nominal, see tolerance envelope curves			±5	%
line regulation	for Vin change of 1% measured from low to high line, full load		±1.2		%
load regulation	measured from 10~100% load		±12	±15	%
switching frequency	at Vin nominal	50	65	105	kHz

Note: 1. Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage.

## SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 second		4,000		Vdc
isolation resistance	at 500 Vdc	1,000			MΩ
isolation capacitance				75	pF
safety approvals	UL/cUL (60950-1, 2nd Edition)				
MTBF	as per MIL-HDBK-217F, full load, 25°C	850,000			hours
	as per MIL-HDBK-217F, full load, 85°C	123,000			hours
RoHS	2011/65/EU				

## ENVIRONMENTAL

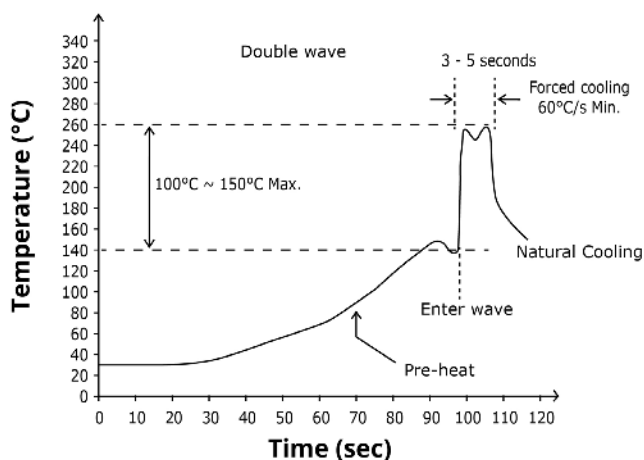
parameter	conditions/description	min	typ	max	units
operating temperature		-40		85	°C
storage temperature		-55		125	°C
operating humidity	non-condensing			95	%

## SOLDERABILITY

parameter	conditions/description	min	typ	max	units
wave soldering	see wave solder profile			260	°C

Note: 2. The wave solder profile is measured on lead temperature.  
3. Need to keep the solder parts internal temperature less than about 210°C.

### WAVE SOLDERING PROFILE (Lead-free)



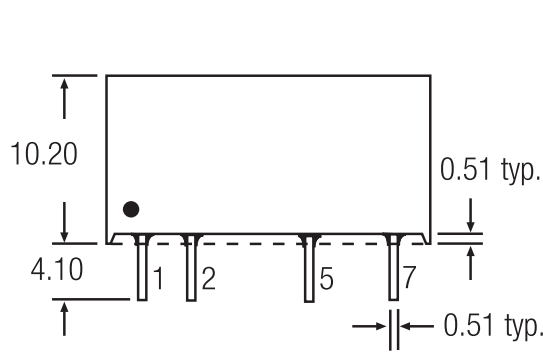
## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	19.60 x 7.05 x 10.20				mm
case material	non-conductive black plastic (UL94V-0)				
weight			2.7		g

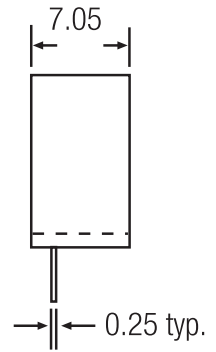
## MECHANICAL DRAWING

units: mm  
 tolerance: X.X = ±0.5 mm  
 X.XX = ±0.25 mm

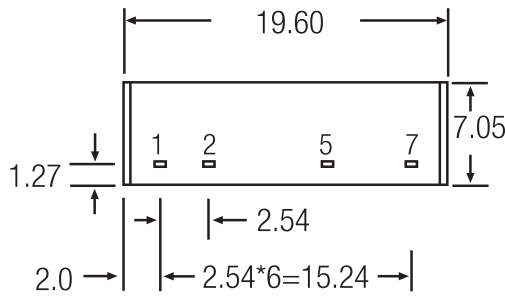
PIN CONNECTIONS	
PIN	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout



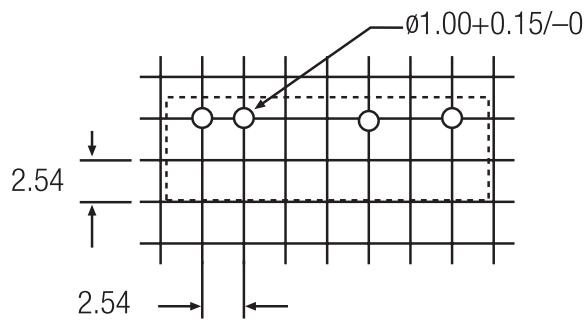
Front View



Side View



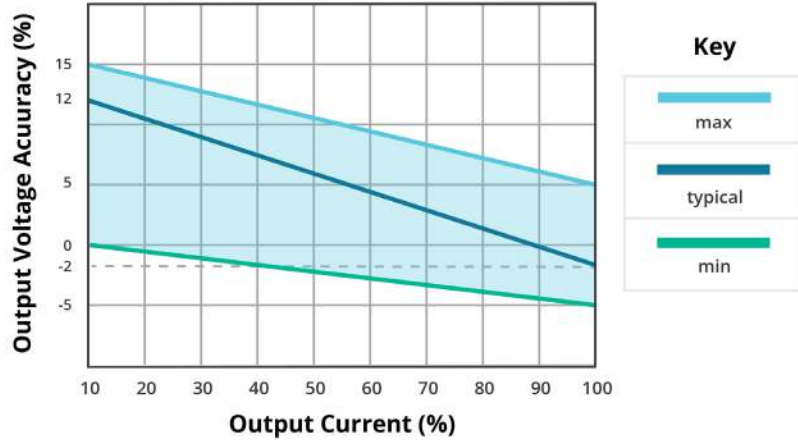
Bottom View



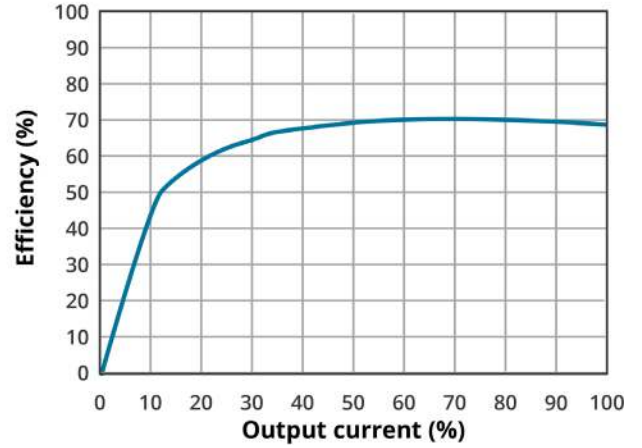
Recommended PCB Layout  
 Top View

## PERFORMANCE CURVES

**OUTPUT REGULATION CURVE  
(nominal input)**



**EFFICIENCY VS OUTPUT LOAD**

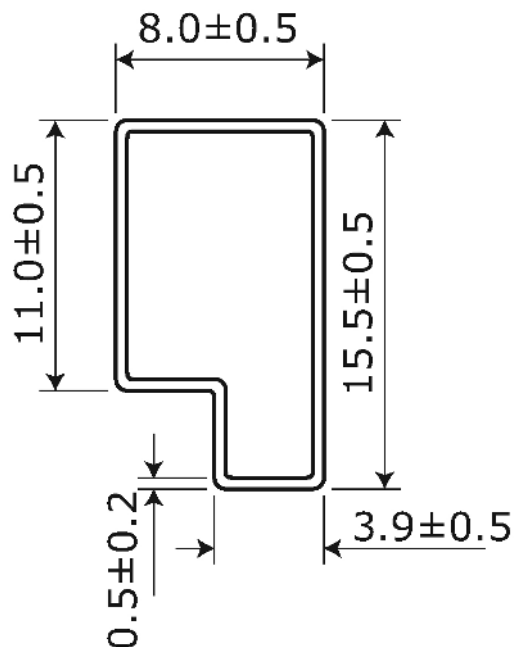


## PACKAGING

units: mm

Tube Size: 15.5 x 8 x 520 mm

QTY: 25 pcs



## REVISION HISTORY

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rev.	description	date
1.0	initial release	07/25/2016
1.01	company logo updated	03/30/2021
1.02	performance curves updated	07/08/2021

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



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