

# EPM7-1V

## 1 Watt isolated DC-DC converter



### Product features

- 1 Watt isolated DC-DC converter
- Input voltage: 5 Vdc, 12 Vdc, and 24 Vdc
- Efficiency up to 82%
- Isolation voltage: 4 kVdc
- SIP7 (4 and 5 pin) package
- Operating ambient temperature from -40 °C to +100 °C
- No minimum load required
- IEC62368-1/ EN55032&35 certified

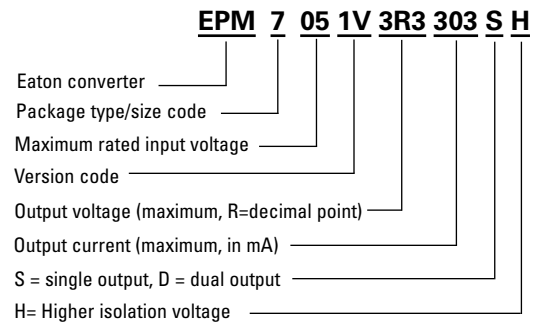
### Applications

- Computing/telecom
- Distributed power architectures
- Servers and workstations
- LAN /WAN applications
- Data processing applications
- Industrial IoT equipment, sensors
- Power supply, battery backup
- Wireless TX/RX modules
- Renewable energy products

### Environmental compliance



### Ordering part number



Powering Business Worldwide

## Specifications

	Parameter	Conditions	Minimum	Typical	Maximum	Unit	
<b>Input</b>	Input filter			Internal capacitors			
	Input voltage range		-10		+10	%	
<b>Output</b>	Efficiency			Selection guide			
	Minimum load		0			%	
	Line regulation	LL-HL at 100% load		1.2% typ. @1% of Vin			
	Load regulation (10-100% Load)	Vout = 3.3 Vdc, 5 Vdc			15		%
		Vout = 12 Vdc, 15 Vdc			10		%
	Voltage accuracy		-5		+5		%
	Operating frequency	100% Load at Nominal Vin	50				kHz
Ripple & noise <sup>1</sup>				100		mVp-p	
<b>Environment</b>	Operating temperature (with derating)		-40		+100	°C	
	Storage temperature		-55		+125	°C	
	Relative humidity		5		95	%RH	
	Vibration			MIL-STD-202G			
<b>Function</b>	Isolation voltage 1 min., Input to Output		4			kVdc	
	Isolation resistance		10			GΩ	
	Isolation capacitance			80		pF	
	MTBF (MIL-HDBK-217F)	+25 °C			17,100		khours
		+85 °C			10,400		khours
Certification				IEC62368-1/ EN55032&35			
<b>Physical</b>	Dimension			0.774 x 0.402 x 0.278 inch			
	Weight			2.8 g			
	Case material			UL94V-0 black plastic			
	Potting material			Epoxy (UL94V-0)			
<b>EMC</b>	EMI	EN 55032		Class A/B with external circuit			
	ESD	IEC 61000-4-2 Air ± 8 kV; Contact ± 6 kV		Criteria A			
	RS	IEC 61000-4-3, 3 V/m		Criteria A			
	EFT	IEC 61000-4-4, ± 0.5 kV		Criteria A			
	Surge	IEC 61000-4-5, ± 0.5 kV		Criteria A			
	CS	IEC 61000-4-6, 3 Vrms		Criteria A			
	PfMF	IEC 61000-4-8, 1 A/m		Criteria A			

1. The ripple & noise are measured with 0.1 µF capacitor at 20 MHz BW.

2. All specifications valid at nominal input, full load and +25 °C after warm-up time unless otherwise stated.

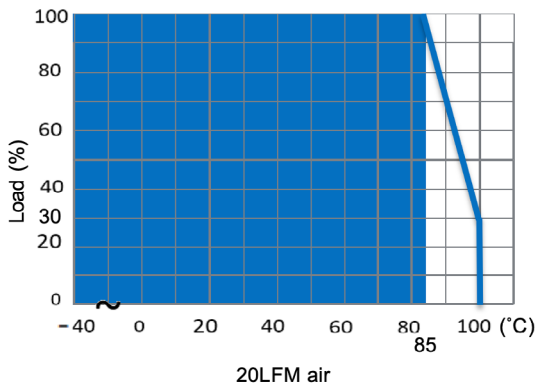
3. The product information and specifications are subject to change without prior notice.

**Selection guide**

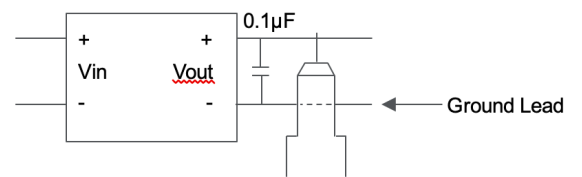
Part number	Input voltage (Vdc)	Output voltage (Vdc)	Output current @ full load (mA)	Efficiency <sup>1</sup> minimum	Efficiency <sup>1</sup> typical	Capacitive load <sup>2</sup> maximum (μF)
EPM7051V-3R3-303SH	5	3.3	303	71%	74%	1500
EPM7051V-05R-200SH	5	5	200	76%	79%	1500
EPM7051V-12R-084SH	5	12	84	75%	78%	470
EPM7051V-15R-067SH	5	15	67	82%	85%	220
EPM7051V-3R3-152DH	5	±3.3	±152	72%	75%	±470
EPM7051V-05R-100DH	5	±5	±100	74%	77%	±470
EPM7051V-12R-042DH	5	±12	±42	77%	80%	±220
EPM7051V-15R-034DH	5	±15	±34	77%	80%	±220
EPM7121V-3R3-303SH	12	3.3	303	76%	79%	1500
EPM7121V-05R-200SH	12	5	200	79%	82%	1500
EPM7121V-12R-084SH	12	12	84	77%	80%	470
EPM7121V-15R-067SH	12	15	67	78%	81%	220
EPM7121V-3R3-152DH	12	±3.3	±152	77%	80%	±470
EPM7121V-05R-100DH	12	±5	±100	73%	76%	±470
EPM7121V-12R-042DH	12	±12	±42	77%	80%	±220
EPM7121V-15R-034DH	12	±15	±34	78%	81%	±220
EPM7241V-3R3-303SH	24	3.3	303	75%	78%	1500
EPM7241V-05R-200SH	24	5	200	76%	79%	1500
EPM7241V-12R-084SH	24	12	84	76%	79%	470
EPM7241V-15R-067SH	24	15	67	77%	80%	220
EPM7241V-3R3-152DH	24	±3.3	±152	73%	76%	±470
EPM7241V-05R-100DH	24	±5	±100	77%	80%	±470
EPM7241V-12R-042DH	24	±12	±42	77%	80%	±220
EPM7241V-15R-034DH	24	±15	±34	78%	81%	±220

1. Efficiency is nominal input voltage and full load @ +25 °C.
2. Capacitive load is tested at minimum input voltage and a constant resistive load.
3. All specifications valid at nominal input voltage, full load and +25 °C after warm-up time unless otherwise stated.

**Derating curve**

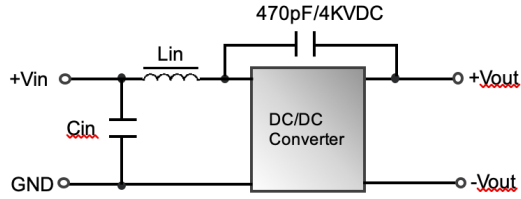


**Measure method**



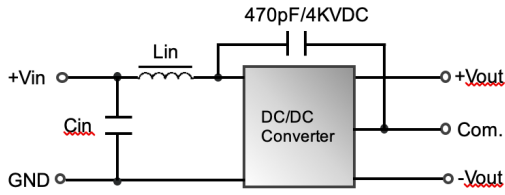
EMC filtering circuit

Single



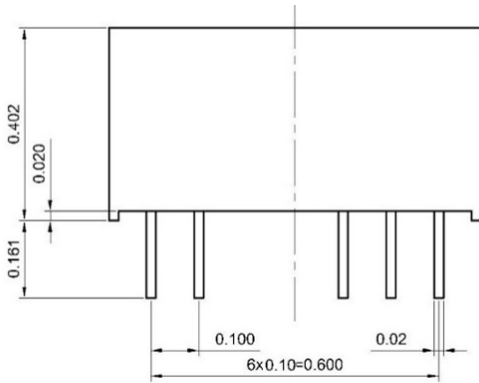
Class	5 Vin	12 Vin	24 Vin
Class A	47 $\mu$ H/ 2.2 $\mu$ F	22 $\mu$ H/ 2.2 $\mu$ F	10 $\mu$ H/ 2.2 $\mu$ F
Class B	47 $\mu$ H/ 10 $\mu$ F	22 $\mu$ H/ 4.7 $\mu$ F	22 $\mu$ H/ 4.7 $\mu$ F

Dual



Class	5 Vin	12 Vin	24 Vin
Class A	22 $\mu$ H/ 2.2 $\mu$ F	22 $\mu$ H/ 2.2 $\mu$ F	10 $\mu$ H/ 2.2 $\mu$ F
Class B	100 $\mu$ H/ 4.7 $\mu$ F	22 $\mu$ H/ 4.7 $\mu$ F	47 $\mu$ H/ 2.2 $\mu$ F

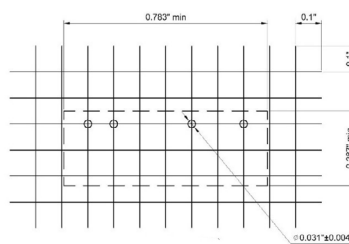
Dimensions - inches



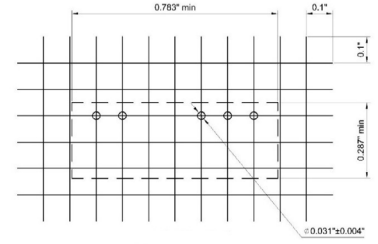
Projection: Third angle projection  
Unit: inch  
PIN tolerance:  $\pm 0.004$   
Tolerance: X.XX  $\pm 0.02$  X.XXX  $\pm 0.01$

Recommended PCB layout

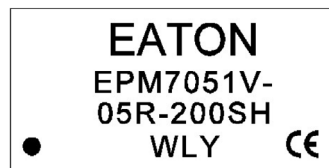
Single



Dual



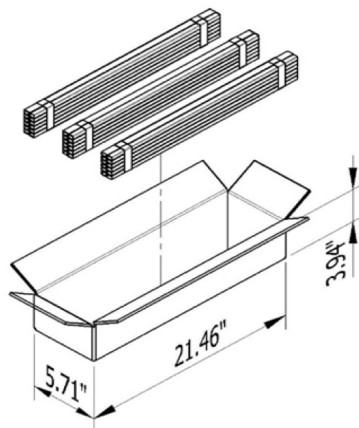
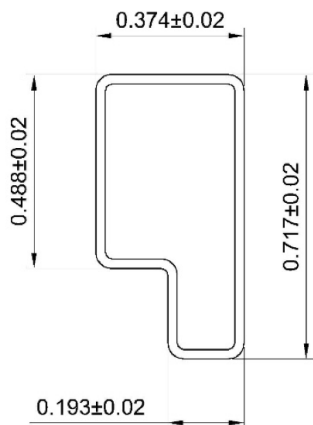
Marking



WLY = lot code

Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No pin	Common
7	+Vout	+Vout

Packaging- Inches



Unit: inch  
1 tube = 25 pieces  
Length:  $20.47 \pm 0.08$

Carton =  $21.46 * 5.71 * 3.94$  inch  
 $25$  (pieces/tube) \*  $12$  (tube/bundle) \*  $3$  (bundle) =  $900$  pieces

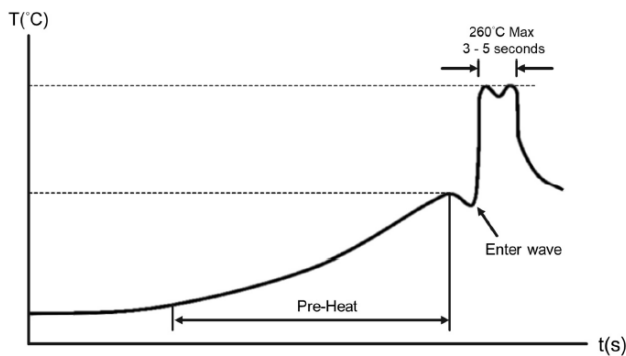
## General information

### Storage and handling

The shelf life will be a minimum of 36 months, when stored at the following conditions: < +40 °C, < 90% RH.

### Wave solder profile

The wave solder profile is measured based on lead temperature. The recommended PCB pre-heat temperature is +80 °C to +100 °C, and the preheat rate of 1.5 to 2.5 °C/sec. The underside PCB temperature at the last pre-heat zone should be approximately +150 °C. The internal temperature of the solder parts should not exceed +210 °C. The duration of solder dwell time should be between 3 to 5 seconds, and not to exceed 10 seconds at a temperature of +260 °C maximum.



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