Technical Data **ELX1162** Effective March 2022

EPM6-1V

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 84%
- Isolation voltage: 1 kVdc and 2 kVdc
- SIP4 package
- Operating ambient temperature from -40 °C to +90 °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

RoHS

Ordering part number

EPM 6 05 1V 3R3 303 S H

- Eaton converter
- Package type/size code
- Maximum rated input voltage
- Version code
- Output voltage (maximum, R=decimal point)
- Output current (maximum, in mA)
- S = single output, D = dual output
- R= Standard isolation voltage, H= High isolation voltage

Powering Business Worldwide

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Specifications

	Parameter	Conditions	Minimum	Typical	Maximum	Unit
Input	Input filter			Internal capacitors		
	Input voltage range		-10		+10	%
Output	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[1]				100	mVp-p
Environment	Operating temperature (with derating)	Vin = 5 Vdc, 12 Vdc	-40		+95	°C
		Vin = 24 Vdc	-40		+90	°C
	Storage temperature		-55		+125	°C
	Relative humidity		5		95	%RH
	Vibration			MIL-STD-202G		
Function	Isolation voltage 1 min., Input to Output	R	1			kVdc
		H	2			kVdc
	Isolation resistance		10			GΩ
	Isolation capacitance			20		pF
	MTBF (MIL-HDBK-217F)	+25 °C		13,100		khours
		+85 °C		8,100		khours
	Certification			IEC62368-1/ EN55032&35		
Physical	Dimension			0.457 x 0.402 x 0.236 inch		
	Weight			1.4 g		
	Case material			UL94V-0 black plastic		
	Potting material			Epoxy (UL94V-0)		
EMC	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, 10 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, 10 Vrms		Criteria A		
	PFMF	IEC 61000-4-8, 1 A/m		Criteria A		

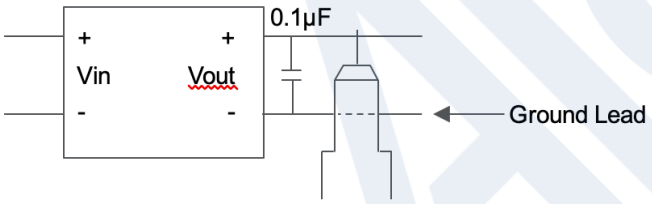
1. The ripple & noise are measured with 0.1 µF capacitor at 20 MHz BW.
2. All specifications valid at nominal input, full load and +25 °C after warm-up time unless otherwise stated.
3. The product information and specifications are subject to change without prior notice.

Selection guide

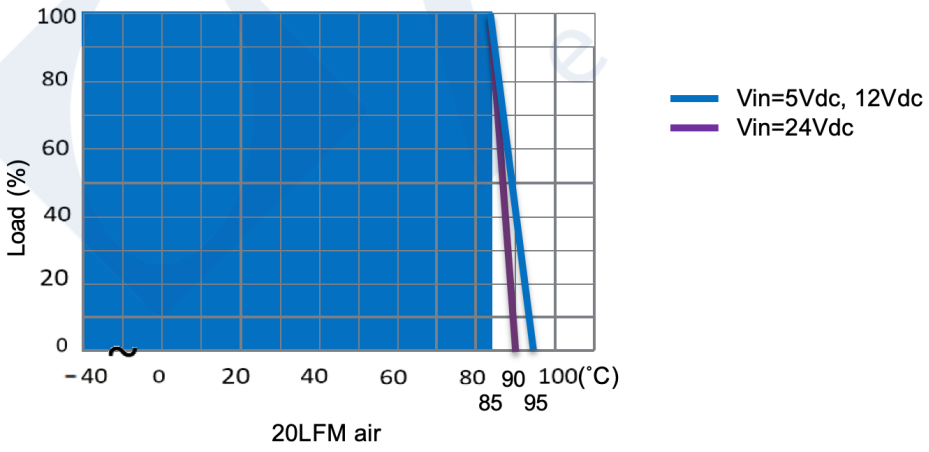
Part number	Input voltage (Vdc)	Output voltage (Vdc)	Output current @ full load (mA)	Efficiency[1] minimum	Efficiency[1] typical	Capacitive load[2] maximum (µF)
EPM6051V-3R3-303S*	5	3.3	303	71%	74%	1500
EPM6051V-05R-200S*	5	5	200	75%	78%	1500
EPM6051V-12R-084S*	5	12	84	75%	78%	470
EPM6051V-15R-067S*	5	15	67	80%	83%	220
EPM6121V-3R3-303S*	12	3.3	303	76%	79%	1500
EPM6121V-05R-200S*	12	5	200	79%	82%	1500
EPM6121V-12R-084S*	12	12	84	77%	80%	470
EPM6121V-15R-067S*	12	15	67	78%	81%	220
EPM6241V-3R3-303S*	24	3.3	303	75%	78%	1500
EPM6241V-05R-200S*	24	5	200	76%	79%	1500
EPM6241V-12R-084S*	24	12	84	77%	80%	470
EPM6241V-15R-067S*	24	15	67	81%	84%	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.
4. *= Isolation option, R is for standard isolation voltage, H is for higher isolation voltage.

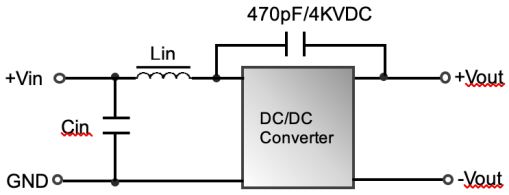
Measure method



Derating curve

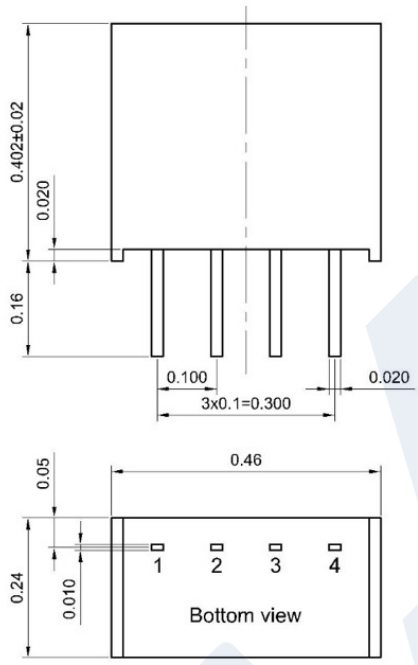


EMC filtering circuit



Class	5 Vin	12 Vin	24 Vin
Class A	47 µH/ 2.2 µF	22 µH/ 2.2 µF	22 µH/ 2.2 µF
Class B	47 µH/ 10 µF	22 µH/ 4.7 µF	47 µH/ 4.7 µF

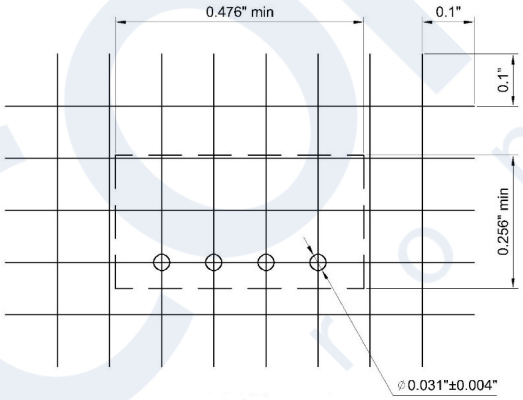
Dimensions - inches



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

Pin	Single
1	-Vin
2	+Vin
3	-Vout
4	+Vout

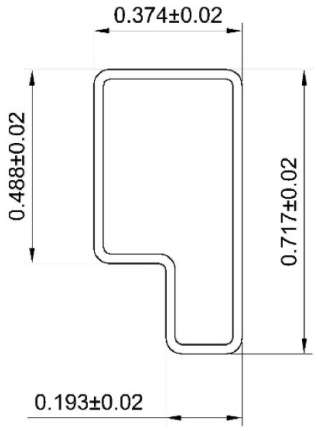
Recommended PCB layout

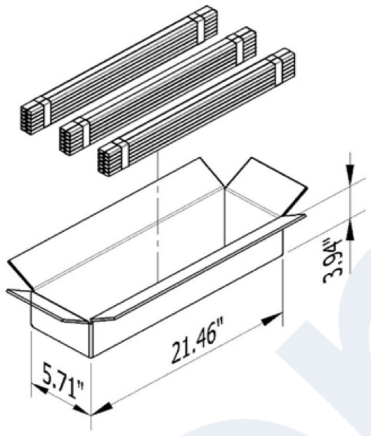


Marking

WLY = lot code

Packaging- Inches





Unit: inch
1 tube = 41 pieces
Length: 20.47 ± 0.08

Carton = 21.46*5.71*3.94 inch
41 (pieces/tube)*12(tube/bundle)*3(bundle) = 1476 pieces

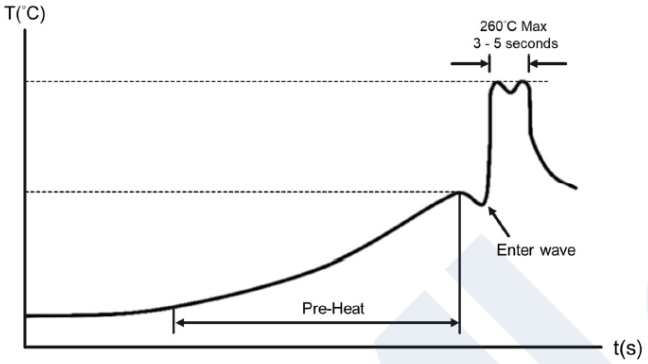
General information

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 temperture of +260 °C maximum.



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