

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

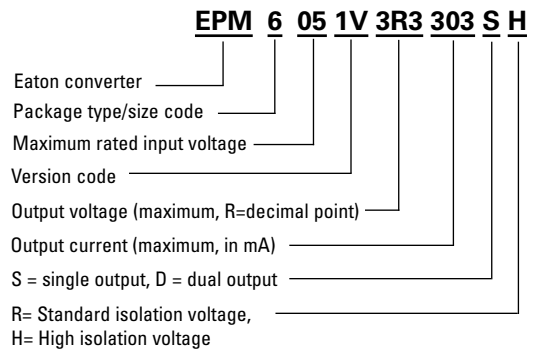
Applications

- 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



Ordering part number



Powering Business Worldwide

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			
	PFFM	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.

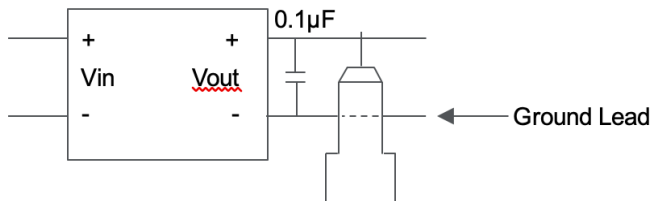
3. The product information and specifications are subject to change without prior notice.

Selection guide

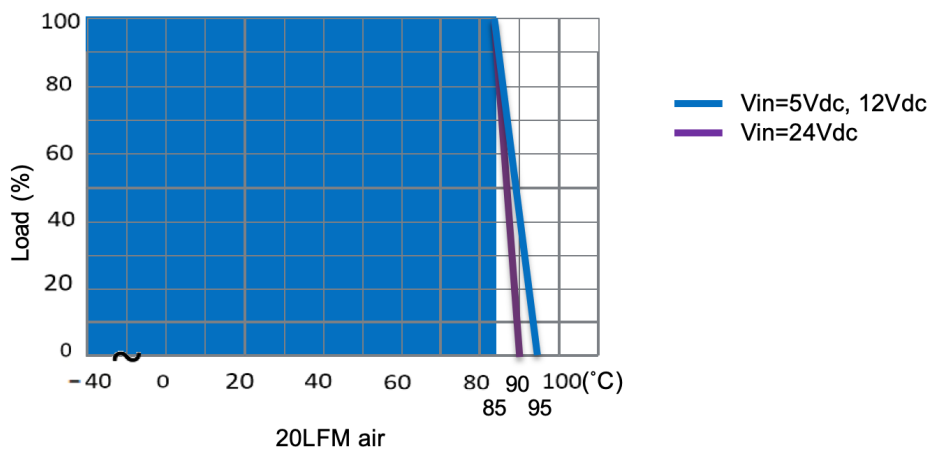
Part number	Input voltage (Vdc)	Output voltage (Vdc)	Output current @ full load (mA)	Efficiency ¹ minimum	Efficiency ¹ typical	Capacitive load ² maximum (µF)
EPM6051V-3R3-303S*	5	3.3	303	71%	74%	1500
EPM6051V-05R-200S*	5	5	200	75%	78%	1500
EPM6051V-12R-084S*	5	12	84	75%	78%	470
EPM6051V-15R-067S*	5	15	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.

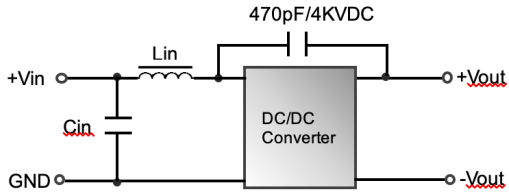
Measure method



Derating curve

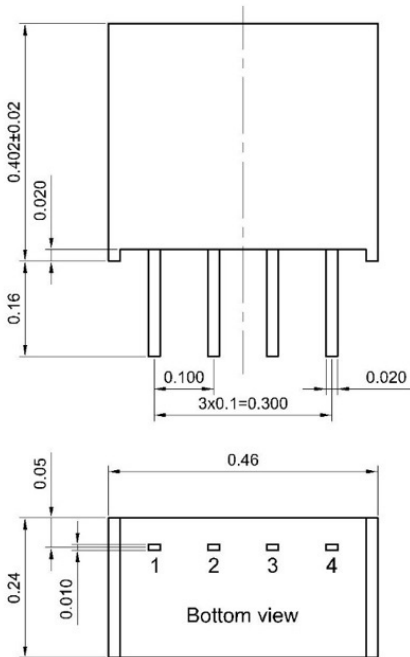


EMC filtering circuit



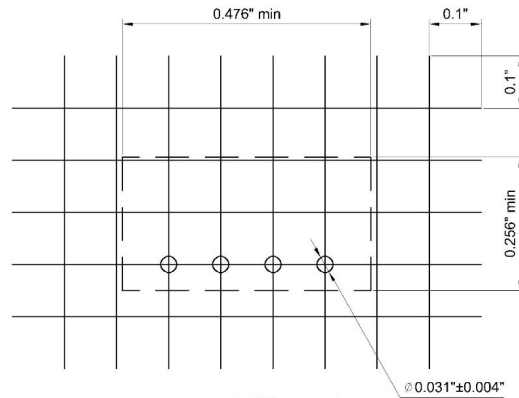
Class	5 Vin	12 Vin	24 Vin
Class A	47 μH/ 2.2 μF	22 μH/ 2.2 μF	22 μH/ 2.2 μF
Class B	47 μH/ 10 μF	22 μH/ 4.7 μF	47 μH/ 4.7 μF

Dimensions - inches

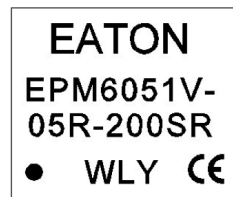


Projection: Third angle projection
Unit: inch
PIN tolerance: ± 0.004
Tolerance: X.XX ± 0.02 X.XXX ± 0.01

Recommended PCB layout



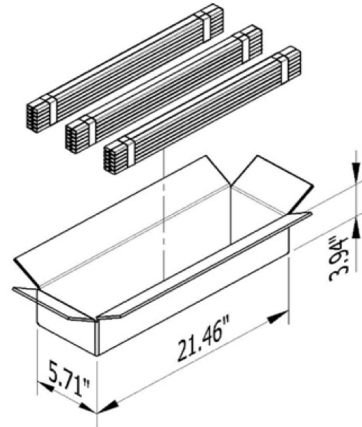
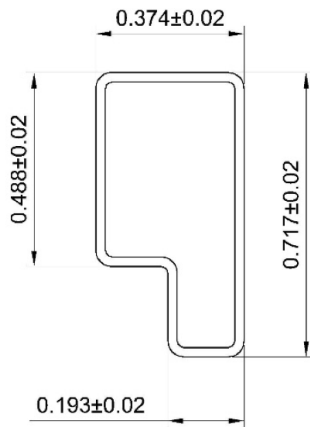
Marking



WLY = lot code

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

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

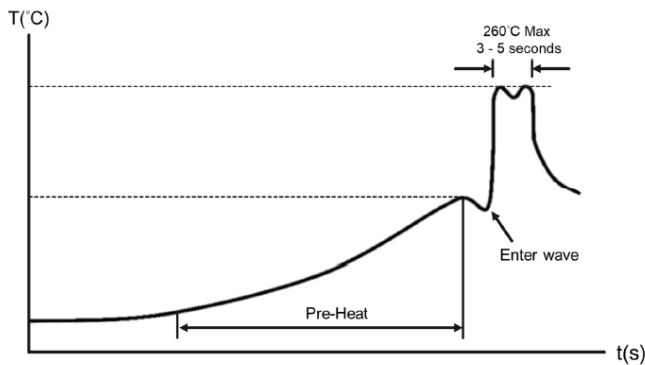
General information

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 temperature of +260 °C maximum.



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