

# EPM25-2V 60 W

## 60 Watt isolated DC-DC converter



### Product features

- 60 Watt isolated DC-DC converter
- Input voltage: 9 Vdc - 36 Vdc  
18 Vdc - 75 Vdc
- 2.0" x 1.0" package
- Efficiency up to 92%
- Isolation voltage: 1.6 kVdc
- EMI class A without external circuit
- Operating ambient temperature from -40 °C to +105 °C
- No minimum load required
- EN62368-1/ IEC62368-1 certified
- Remote On/OFF

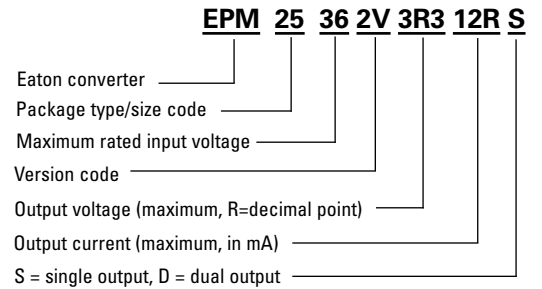
### Applications

- 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

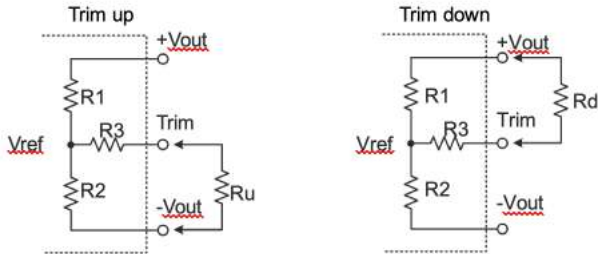




Part number	Input voltage (Vdc)	Output voltage (Vdc)	Output current @ full load (mA)	Efficiency <sup>1</sup> minimum	Efficiency <sup>1</sup> typical	Capacitive load <sup>2</sup> maximum (µF)
EPM25362V-3R3-12RS	9-36 Nominal 24	3.3	12000	88%	89%	28000
EPM25362V-05R-12RS	9-36 Nominal 24	5	12000	90%	91%	28000
EPM25362V-12R-5R0S	9-36 Nominal 24	12	5000	90%	91%	5850
EPM25362V-15R-4R0S	9-36 Nominal 24	15	4000	91%	92%	3900
EPM25362V-24R-2R5S	9-36 Nominal 24	24	2500	91%	92%	2000
EPM25362V-12R-2R5D	9-36 Nominal 24	±12	±2500	90%	91%	±3900
EPM25362V-15R-2R0D	9-36 Nominal 24	±15				

## Application information

### Single external output voltage trimming



Formula for trim resistor:

$$\text{UP: } R_u = \frac{aR_2}{R_2 - a} - R_3 \quad a = \frac{V_{ref}}{V_0' - V_{ref}} \cdot R_1$$

$$\text{DOWN: } R_d = \frac{bR_1}{R_1 - b} - R_3 \quad b = \frac{V_0' - V_{ref}}{V_{ref}} \cdot R_2$$

1. Ru, Rd is mean trim resistor, please check the formula.
2. a & b: user define parameter, no actual meanings.
3.  $V_0'$  is mean trim up/down voltage.
4. Value for R1, R2, R3 and  $V_{ref}$  Refer to the table below.

Input voltage	Output voltage	R1	R2	R3	Vref
24 V	3.3 V	8.5 kΩ	5.1 kΩ	27.0 kΩ	1.24 V
	5 V	10.0 kΩ	10.0 kΩ	35.7 kΩ	2.5 V
	12 V	38.0 kΩ	10.0 kΩ	68.0 kΩ	2.5 V
	15 V	50.0 kΩ	10.0 kΩ	73.2 kΩ	2.5 V
	24 V	86.0 kΩ	10.0 kΩ	75.0 kΩ	2.5 V
48 V	3.3 V	8.5 kΩ	5.1 kΩ	27.0 kΩ	1.24 V
	5 V	15.47 kΩ	5.1 kΩ	33.0 kΩ	1.24 V
	12 V	38.0 kΩ	10.0 kΩ	68.0 kΩ	2.5 V
	15 V	50.0 kΩ	10.0 kΩ	73.2 kΩ	2.5 V
	24 V	86.0 kΩ	10.0 kΩ	75.0 kΩ	2.5 V

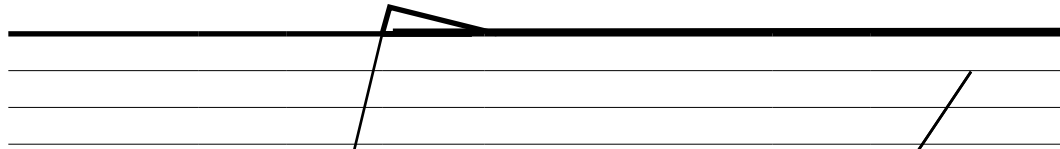
**Trim up**

**3R3-12RS**

trim (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	3.333	3.366	3.399	3.432	3.465	3.498	3.531	3.564	3.597	3.63
Ru (k $\Omega$ )	373.25	150.64	87.15	57.1	39.57	28.09	19.98	13.96	9.3	5.6

**EPM25362V-05R-12RS**

trim (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	5.05	5.1	5.15	5.2	5.25	5.3	5.35	5.4	5.45	5.5
Ru (k $\Omega$ )	464.3	214.3	130.97	89.3	64.3	47.63	35.73	26.8	19.86	14.3



**Trim down**

**3R3-12RS**

trim (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	3.267	3.234	3.201	3.168	3.135	3.102	3.069	3.036	3.003	2.97
Ru (kΩ)	407.36	206.24	130.75	91.18	66.83	50.33	38.41	29.4	22.35	16.68

**EPM25362V-05R-12RS**

trim (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	4.5
Ru (kΩ)	454.3	204.3	120.97	79.3	54.3	37.63	25.73	16.8	9.86	4.3

**EPM25752V-05R-12RS**

trim (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	4.5
Ru (kΩ)	1085.06	525.75	336.03	240.54	183.05	144.63	117.15	96.52	80.45	67.6

**12R-5R0S**

trim (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	11.88	11.76	11.64	11.52	11.4	11.28	11.16	11.04	10.92	10.8
Ru (kΩ)	2902.33	1398.17	896.78	646.08	495.67	395.39	323.76	270.04	228.26	194.83

**15R-4R0S**

trim (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	13.5
Ru (kΩ)	4043.47	1960.13	1265.69	918.47	710.13	571.24	472.04	397.63	339.76	293.47

**24R-2R5S**

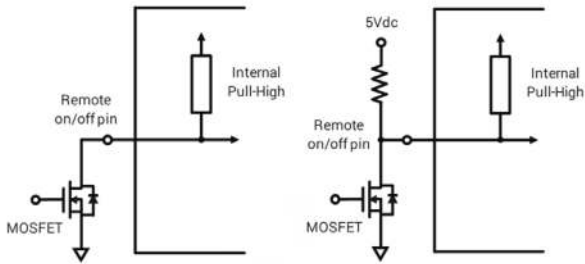
trim (%)	1	2	3	4	5	6	7	8	9	10
Vout (V)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
Ru (kΩ)	7543.17	3691.08	2407.06	1765.04	1379.83	1123.03	939.6	802.02	695.02	609.42

### CTRL pin setting

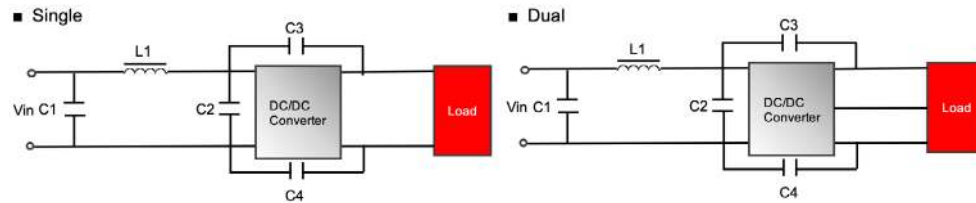
Remote ON/OFF	DC-DC ON	Open or 3 - 12 Vdc
	DC-DC OFF	Short or 0 - 1.2 Vdc

If not using CTRL function, leave CTRL pin floating.

If using CTRL pin to control module to turn on and off; use either external circuit as shown below.

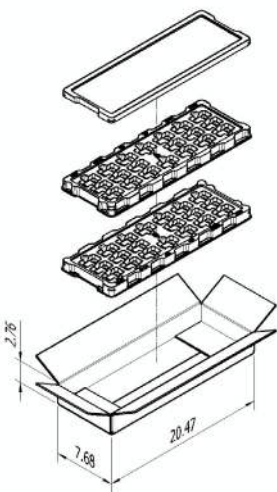


### EMC filtering circuit

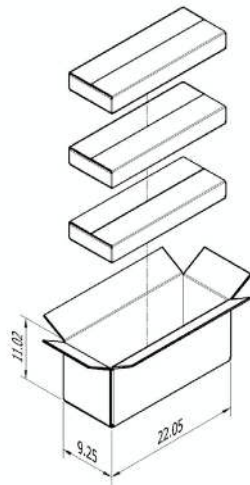


Class B	C1	L1	C2	C3	C4
24 Vin	10 $\mu$ F	1.5 $\mu$ H	10 $\mu$ F	2200 pF	2200 pF
48 Vin	4.7 $\mu$ F	3.3 $\mu$ H	4.7 $\mu$ F	2200 pF	2200 pF

### Packaging- Inches



Unit:inch

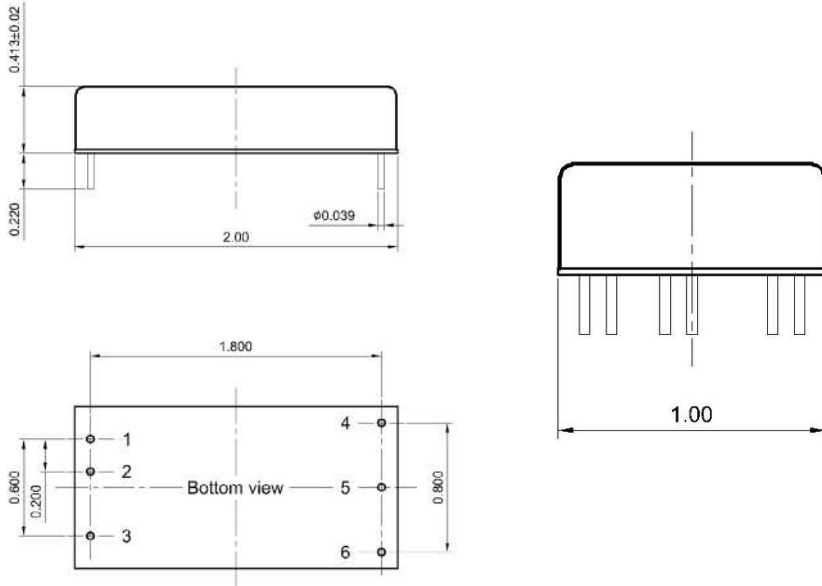


Box accomodates  
2 tray 40 converters per box

Carton accomodates  
3 boxes 120 converters per carton



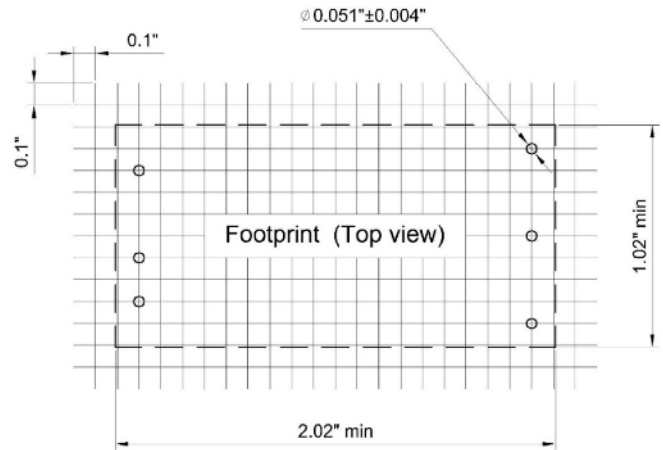
**Dimensions - inches**



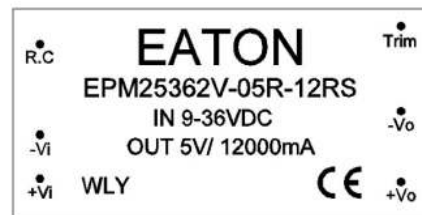
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	CTRL	CTRL
4	+Vout	+Vout
5	-Vout	Common
6	Trim	-Vout

Unit: inch  
PIN tolerance: ± 0.004  
Tolerance: X.XX ± 0.02 X.XXX ± 0.015

**Recommended PCB layout**



**Marking**



WLY = lot code

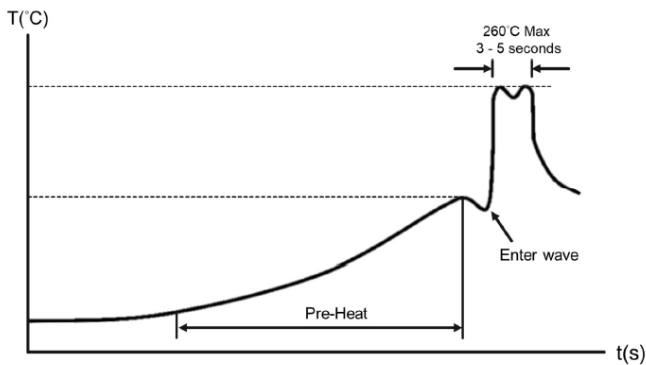
## General information

### 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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