EPM25-1V 15 W

15 Watt isolated DC-DC converter

Product features

- 15 Watt isolated DC-DC converter
- Input voltage: 9 Vdc - 36 Vdc
  18 Vdc - 75 Vdc
- Efficiency up to 90%
- Isolation voltage: 1.6 kVdc
- 1.0" x 1.0 " package
- Operating ambient temperature from -40 °C to +105 °C
- No minimum load required
- EMI class A without external circuit
- Remote On/OFF
- 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 25 36 1V 3R3 4R0 S

- 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

Powering Business Worldwide

Specifications

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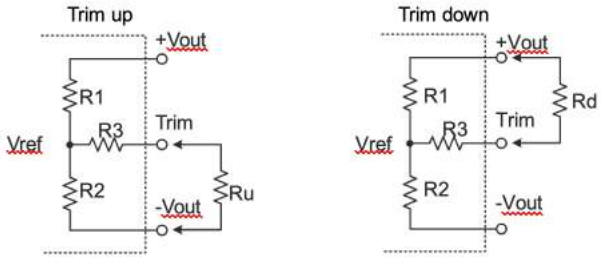
	Parameter	Conditions	Minimum	Typical	Maximum	Unit
Physical	Dimension			1.00 x 1.00 x 0.40 inch		
	Weight			17 g		
	Case material			metal case		
	Base material			FR4 PCB		
	Potting material			Silicone		
EMC	EMI	EN 55032		Class A without external circuit, Class B with external circuit		
	ESD	IEC 61000-4-2 Air ± 8 kV; Contact ± 6 kV		Criteria A		
	RS[2]	IEC 61000-4-3, 3 V/m		Criteria A		
	EFT[2]	IEC 61000-4-4, ± 2 kV		Criteria A		
	Surge[2]	IEC 61000-4-5, ± 2 kV		Criteria A		
	CS[2]	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 1 µF capacitor at 20 MHz BW.
2. Test with E-CAP 220 µF/100 V at input terminal.

Part number	Input voltage (Vdc)	Output voltage (Vdc)	Output current @ full load (mA)	Efficiency[1] minimum	Efficiency[1] typical	Capacitive load[2] maximum (µF)
EPM25361V-3R3-4R0S	9-36 Nominal 24	3.3	4000	84.00%	85.00%	12000
EPM25361V-05R-3R0S	9-36 Nominal 24	5	3000	87.00%	88.00%	6400
EPM25361V-12R-1R2S	9-36 Nominal 24	12	1250	87.50%	88.50%	1200
EPM25361V-15R-1R0S	9-36 Nominal 24	15	1000	88.00%	89.00%	900
EPM25361V-24R-R62S	9-36 Nominal 24	24	625	88.50%	89.50%	240
EPM25361V-12R-R62D	9-36 Nominal 24	±12	±625	86.00%	87.00%	±520
EPM25751V-3R3-4R0S	18-75 Nominal 48	3.3	4000	84.00%	85.00%	

Application information

Single external output voltage trimming



Formula for trim resistor:

UP: $Ru=\frac{aR_2}{R_2-a}-R_3 \quad a=\frac{V_{ref}}{V_o'-V_{ref}}\cdot R_1$

DOWN: $Rd=\frac{bR_1}{R_1-b}-R_3 \quad b=\frac{V_o'-V_{ref}}{V_{ref}}\cdot R_2$

1. Ru, Rd is mean trim resistor, please check the formula.
2. a & b: user define parameter
3. V_o' is mean trim up/down voltage.
4. Value for R1, R2, R3 and V_{ref} Refer to the table below.

Output voltage	R1	R2	R3	Vref
3.3 V	16.6 kΩ	10 kΩ	52.3 kΩ	1.24 V
5 V	10.0 kΩ	10 kΩ	35.7 kΩ	2.5 V
12 V	38.1 kΩ	10 kΩ	48.7 kΩ	2.5 V
15 V	50.1 kΩ	10 kΩ	51.0 kΩ	2.5 V
24 V	86.32 kΩ	10 kΩ	73.2 kΩ	2.5 V

Trim up

3R3-04RS

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 (kΩ)	542.61	252.19	152.31	101.77	71.25	50.82	36.19	25.2	16.63	9.77

05R-3R0S

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 (kΩ)	464.3	214.3	130.97	89.3	64.3	47.63	35.73	26.8	19.86	14.3

12R-1R2S

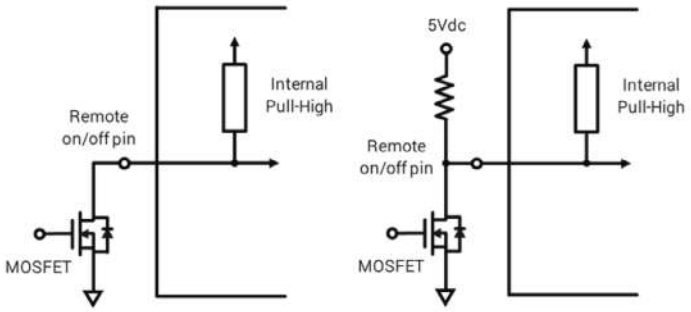
trim (%)										

CTRL pin setting

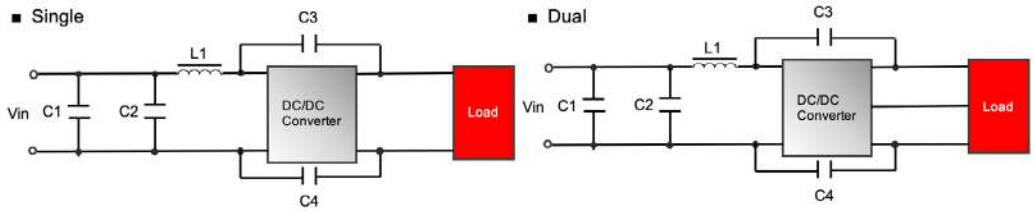
Remote ON/OFF	DC-DC ON	Open or 3.5 - 15 Vdc
	DC-DC OFF	Short or 0 - 1.2 Vdc

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.

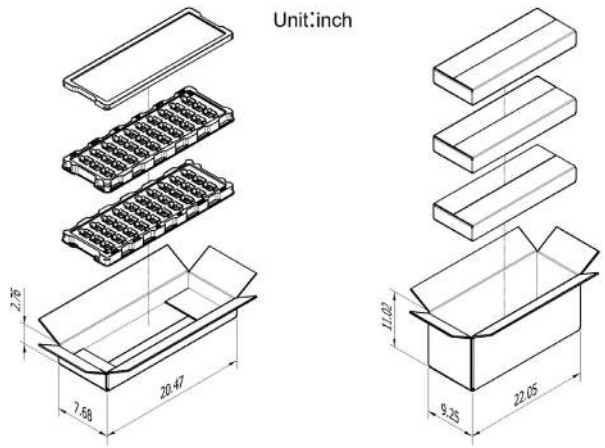


EMC filtering circuit



Class B	C1	C2	L1	C3	C4
24 Vin	2.2 µF	2.2 µF	4.7 µH	1500 pF	1500 pF
48 Vin	2.2 µF	2.2 µF	4.7 µH	1500 pF	1500 pF

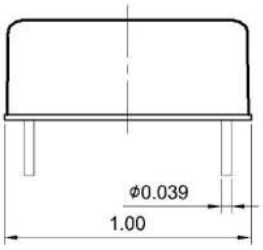
Packaging- Inches

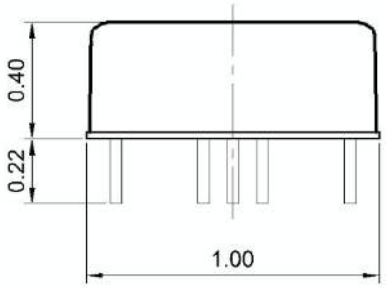


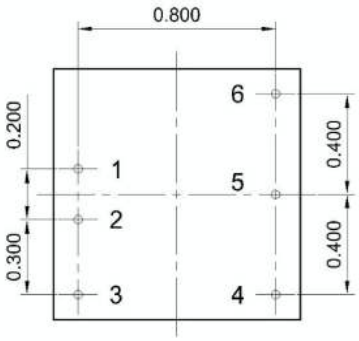
Box accomodates
2 tray 60 converters per box

Carton accomodates
3 boxes 180 converters per carton

Dimensions - inches



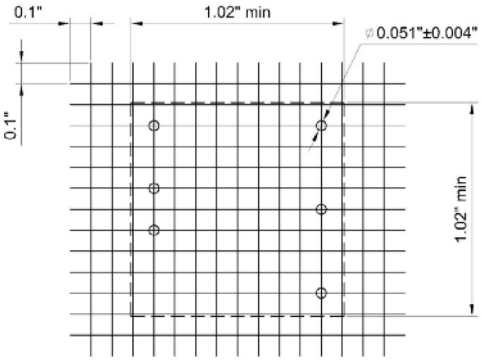




Unit: inch
PIN tolerance: ± 0.004
Tolerance: X.XX ± 0.02 X.XXX ± 0.01

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

Recommended PCB layout



Marking

WLY = lot code

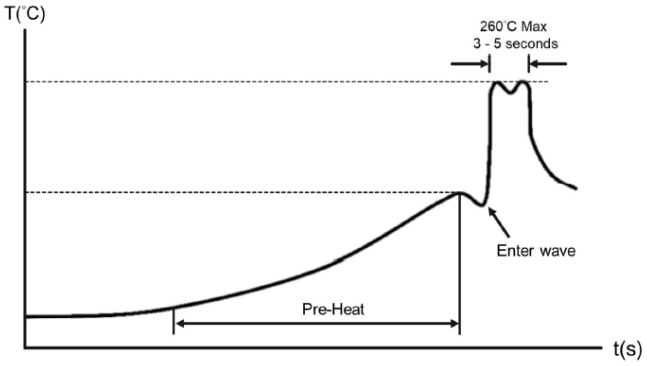
General information

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 temperture of +260 °C maximum.



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