

# WRM Series

PCB mount ultra compact, regulated, high voltage DC-DC converter, raised mounting



36 standard products

- Reference: see chart for complete reference
- 3 output voltage ranges (Vout): 0 to 2kV or 2.5kV or 3kV
- 3 input voltage ranges (Vin): 3.6 to 10Vdc [5] or 6 to 15Vdc [12]



## General Description

The WRM Series use an original design involving a high frequency, pulse by pulse regulated PWM regulator (Current Mode) which allows an exceptional wide input voltage range. Thus, those converters are recommended for unregulated supplies such as batteries, solar cells, etc. and too, for systems with versatile sources of power. A pre-regulator is useless and savings are made. Also, the technique allows a tight output regulation and a very low, free of pic, ripple. TC <50ppm/°C.

Parameters	Specifications									
Input voltage Vin (pins 1 & 2)	[5]: absolute maximum 15Vdc, recommended: from 3.6 to 10Vdc [12]: absolute maximum 28Vdc, recommended: from 6 to 15Vdc [24]: absolute maximum 28Vdc, recommended: from 13.5 to 26Vdc									
Input current (room temperature)		[5]			[12]			[24]		
	Vin	3.6Vdc 10.0Vdc	5.0Vdc	10.0Vdc	6.0Vdc	12.0Vdc	15.0Vdc	13.5Vdc	24.0Vdc	26.0Vdc
	Inhibit. Mode	<40µA	<60µA	<150µA	<70µA	<200µA	<300µA	<240µA	<600µA	<650µA
	HV setting = 0V	<6mA	<5mA	<5mA	<2mA	<2.5mA	<3mA	<5mA	<6mA	<6mA
	HV setting = 2.5Vdc, no load	<110mA	<90mA	<55mA	<70mA	<50mA	<40mA	<55mA	<40mA	<40mA
HV setting = 2.5Vdc, full load	<560mA	<440mA	<220mA	<350mA	<180mA	<150mA	<160mA	<95mA	<90mA	
HV output Vout (pin 9)	Programmable voltage: refer to the Selection Guide for voltage ranges									
Polarity	Fixed positive or negative									
HV setting (pins 3, 4)	Via an external voltage source 0 to + 2.5Vdc. An external potentiometer, minimum resistance 2k, can be used associated with the reference voltage (pin5). The input impedance of the HV setting is 1M. Accuracy: +/- 0.2% at rated output voltage.									










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Parameters	Specifications
Max. output current I <sub>out</sub>	Refer to the Selection Guide
Load voltage regulation	±0.01 % for no load to full load
Line voltage regulation	±0.01 % over recommended input voltage range
Residual ripple	0.002 %
Temperature coefficient	<50ppm/°C
Output HV monitoring (pin 6)	0/+ 3,000V, output impedance = 1kΩ Accuracy: +/- 0.2 % at rated output voltage
Output current monitoring (pin 7)	0/+3,000V, output impedance = 1Ω Accuracy: +/- 1 % after compensation (see note)
Output reference voltage (pin 5)	Refer to the Selection Guide
Inhibition mode (pin 8)	±0.01 % for no load to full load
Operating case temperature	-40°C to + 80°C
Storage temperature	-40°C to + 80°C
Safeguards	<ul style="list-style-type: none"><li>• Arc and short circuit protection</li><li>• Soft start feature: the start is guaranteed with no overshoot</li><li>• Protected against reverse Vin (-30Vdc max.)</li><li>• HV</li></ul>

## Marking


**HV out: -3000V -331μA**    **Input:12V** 

 Sup 24V  Sup 0V  0V Signal  Control inp.  Ref output  Vol Monitor

 HV OUT 



53,rue Bourdignon- F 94100 Saint Maur  
Tel : 33 (0)1 84 23 11 10  
<http://www.sdshv.com>

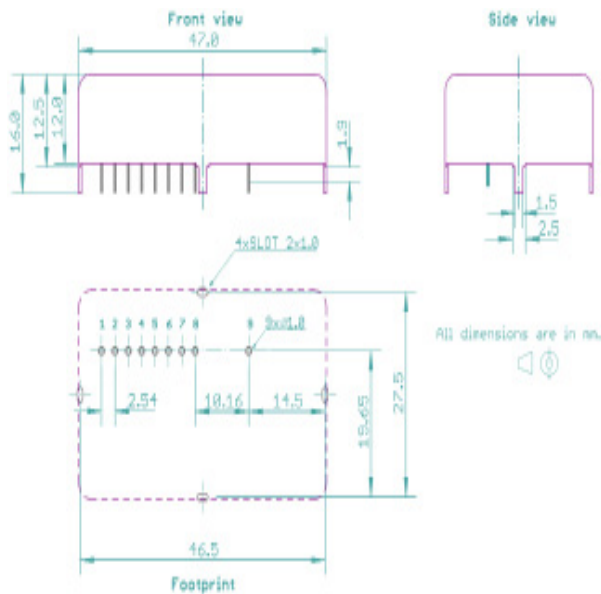
MODEL : WRM12P3-1-C2.5  
Serial number : 20191129  
Made in France 

# WRM Series

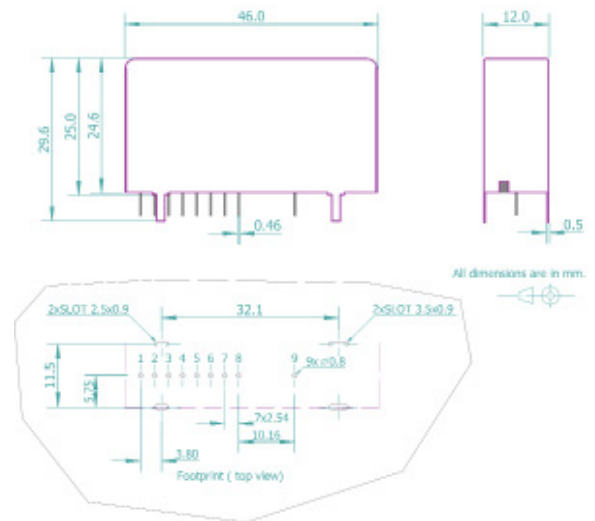
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## Mechanical Dimensions

### WRM Series



### WRV series



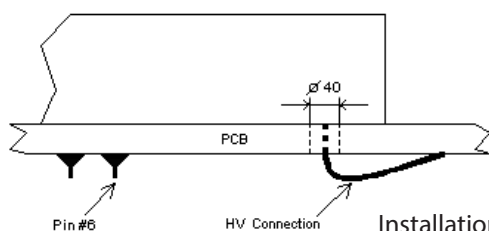
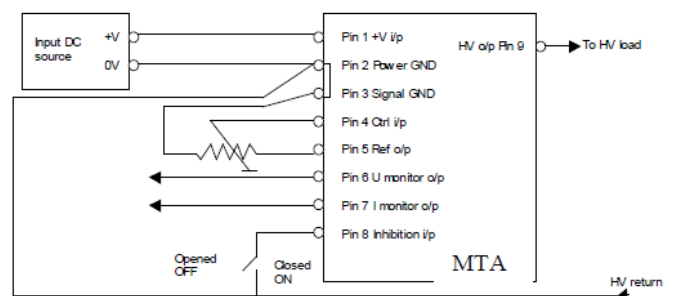
## Package Configuration

Case material	Tin steel plate Thickness 0.5 mm
Case dimensions LxHxW	47.0 x 28.0 x 12.5 mm
Pins	Through 0.46 round pins, length 3 mm, spacing: 2.54 mm, option: flying wire for HV output
PCB mounting	Through 4 mounting tabs length: 5 mm, width: 1.5 mm, thickness : 0.5 mm
Weight	35g
Lead (optional)	Diameter = 2 mm Length = 500 mm
Insulation	Fully potted with an high grade, UL94-V0 listed silicon resin

## Pin Connections

Line input	1. Vin 2. 0V supply
HV setting	3. 0V signal 4. Control input 5. Output reference
HV monitoring	6. Voltage monitoring
I monitoring	7. Current monitoring
Inhibition	8. Inhibition input
HV output	9. Vout

## Functional diagram



Installation with the optional flying lead for HV output



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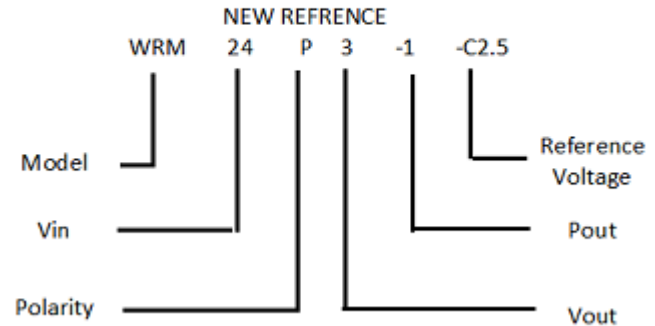
## Ordering information

Model	Name of the series	WRM
Vin	3.6 to 10Vdc	5
	6 to 15Vdc	12
	13 to 26Vdc	24
Polarity	Positive output voltage	P
	Negative output voltage	N
Vout	Output voltage	See ordering code
Pout	Output in Watt	See ordering code
reference voltage	+2.5V control reference voltage	C2.5
Output connector	Flying wire to collect the HV output	L

### Ordering voltage and power code

- The power supplies have a 6-element order code:
  - The first 3 letters refer to the series
  - The first 2 digits indicate the value of the input voltage
  - the following letter indicates the polarity
  - the following number indicates the output voltage in kV
  - the last digit indicates the power in Watt
  - the next digit refers to the control voltage
  - the last digit refers to the output connector

Example WRM Series  
Former reference: MTA24P302331-F



### Ordering example

The ordering code of a +3kV@1W psu under 24Vdc with the 2.5V control reference voltage ahead for the HV output is:  
WRM24P3-1-C2.5-L



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## WRV Series selection guide

Iout/Pout	Vout	Iout/Pout	Polarity	former reference	NEW REFERENCE
[5] 3.6 to 10.0V	3000V	330µA/1W	+	MTA5P302331-F*	WRM5P3-1-C2.5-*
			-	MTA5N302331-F*	WRM5N3-1-C2.5-*
	2500V	400µA/1W	+	MTA5P252401-F*	WRM5P2.5-1-C2.5-*
			-	MTA5N252401-F*	WRM5N2.5-1-C2.5-*
	2000V	500µA/1W	+	MTA5P202501-F*	WRM5P2-1-C2.5-*
			-	MTA5N202501-F*	WRM5N2-1-C2.5-*
[12] 6.0 to 158.0V	3000V	330µA/1W	+	MTA12P302331-F*	WRM12P3-1-C2.5-*
			-	MTA12N302331-F*	WRM12N3-1-C2.5-*
	2500V	400µA/1W	+	MTA12P252401-F*	WRM12P2.5-1-C2.5-*
			-	MTA12N252401-F*	WRM12N2.5-1-C2.5-*
	2000V	500µA/1W	+	MTA12P202501-F*	WRM12P2-1-C2.5-*
			-	MTA12N202501-F*	WRM12N2-1-C2.5-*
[24] 13.5 to 26V	3000V	330µA/1W	+	MTA24P302331-F*	WRM24P3-1-C2.5-*
			-	MTA24N302331-F*	WRM24N3-1-C2.5-*
	2500V	400µA/1W	+	MTA24P252401-F*	WRM24P2.5-1-C2.5-*
			-	MTA24N252401-F*	WRM24N2.5-1-C2.5-*
	2000V	500µA/1W	+	MTA24P202501-F*	WRM24P2-1-C2.5-*
			-	MTA24N202501-F*	WRM24N2-1-C2.5-*

\*specify at the end of the ordering code «L» for a lead for the HV output



This High Voltage power supply satisfies the requirements of EC Directives Safety.

Non contractual document.  
All specifications are subject to change without notice.

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