

# VM15 VM15W SERIES

15 Watt DC/DC Converter  
Single and Dual Output  
1500 and 3500 VDC Isolation

**vitec**  
dc conversion

## FEATURES AND APPLICATIONS

- 2:1 & 4:1 Input Range
- High Efficiency up to 87%
- 1500 Vdc Isolation, 3500Vdc on request
- Continuous Short Circuit Protection
- Low Ripple and Noise
- Optional Remote ON/OFF
- RoHS ✓

## GENERAL DESCRIPTION

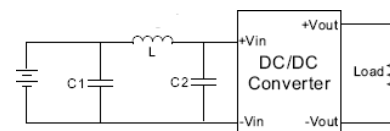
The VM15 and VM15W series is a family of 15W single and dual output DC-DC converters. These converters combine a nickel-coated copper package in a compatible case (50.8 x 25.4 x 10.2 mm) with high performance features such as 1500Vdc or 3500Vdc input/output isolation voltage, continuous short circuit protection with automatic restart and tight line and load regulation. The wide range VM15 devices operate over 2:1 input voltage range providing stable output voltage. The VM15W devices operate over a 4:1 ultra wide input range.

Models operate with input voltages of 12, 24 and 48Vdc offering output voltage levels of 3.3, 5, 7.2, 9, 12, 15, 18, 24,  $\pm 3.3$ ,  $\pm 5$ ,  $\pm 7.2$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$ ,  $\pm 18$  and  $\pm 24$ Vdc. Cooling is by free-air convection.

2:1 Input single and dual Output				
Model Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Cap. Load [ $\mu$ F]
VM15-xx3R3S	9-18 18-36 36-72	3,3	3000	3300
VM15-xx05S		5,0	3000	3300
VM15-xx7R2S		7,2	2083	2200
VM15-xx09S		9,0	1666	1000
VM15-xx12S		12,0	1250	1000
VM15-xx15S		15,0	1000	680
VM15-xx18S		18,0	833	470
VM15-xx24S		24,0	625	470
VM15-xx3R3D	9-18 18-36 36-72	$\pm 3,3$	$\pm 1500$	$\pm 1000$
VM15-xx05D		$\pm 5,0$	$\pm 1500$	$\pm 1000$
VM15-xx7R2D		$\pm 7,2$	$\pm 1041$	$\pm 680$
VM15-xx09D		$\pm 9,0$	$\pm 833$	$\pm 470$
VM15-xx12D		$\pm 12,0$	$\pm 625$	$\pm 470$
VM15-xx15D		$\pm 15,0$	$\pm 500$	$\pm 330$
VM15-xx18D		$\pm 18,0$	$\pm 416$	$\pm 220$
VM15-xx24D		$\pm 24,0$	$\pm 312$	$\pm 220$

4:1 Input single and dual Output				
Model Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Cap. Load [ $\mu$ F]
VM15W-xx3R3S	9-36 18-72	3,3	3000	3300
VM15W-xx05S		5,0	3000	3300
VM15W-xx7R2S		7,2	2083	1000
VM15W-xx09S		9,0	1666	680
VM15W-xx12S		12,0	1250	680
VM15W-xx15S		15,0	1000	470
VM15W-xx05D	9-36 18-72	$\pm 5,0$	$\pm 1500$	$\pm 2200$
VM15W-xx7R2D		$\pm 7,2$	$\pm 1041$	$\pm 470$
VM15W-xx09D		$\pm 9,0$	$\pm 833$	$\pm 470$
VM15W-xx12D		$\pm 12,0$	$\pm 625$	$\pm 470$
VM15W-xx15D		$\pm 15,0$	$\pm 500$	$\pm 330$

xx	nominal Input voltage:
VM15 Series	12 (9 – 18VDC) 24 (18 – 36VDC) 48 (36 – 75VDC)
VM15W Series	24 (9 – 36VDC) 48 (18 – 75VDC)
Suffix H	3.5kVDC isolation (on request)



Suggest adding external input filter to meet conducted emissions (EN55022 Class A)

	L	C1	C2
VM15-Series	12 $\mu$ H	330 $\mu$ F	100 $\mu$ F
VM15W-Series	12 $\mu$ H	47 $\mu$ F	33 $\mu$ F

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Single and Dual Output  
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## ELECTRICAL SPECIFICATIONS

Specifications typical at +25°C, nominal Input voltage, rated output current unless otherwise specified.

### Input Specifications

2:1 Input Voltage Range	12V nominal	9 to 18V
	24V nominal	18 to 36V
<i>VM15 Series</i>	48V nominal	36 to 72V
4:1 Input Voltage Range	24V nominal	9 to 36V
<i>VM15W Series</i>	48V nominal	18 to 72V
Input Filter	Capacitors	
Input Reflected Ripple Currents	35mA pk-pk	
	(measured with a simulated source inductance of 12uH)	

### Output Specifications

Output Voltage Accuracy	±1%, max.
Ripple and Noise (20 MHz BW)	VM15: 100 mVp-p
	VM15W: 75 mVp-p
Line Voltage Regulation	±0,5%
Load Voltage Regulation (10% to 100% Loading)	±0,5%
Temperature Coefficient	±0.02%/°C
Short Circuit Protection	Continuous (Automatic Recovery)

### General Specifications

Efficiency	80% to 87%
Switching Frequency	200 kHz, typ.
Isolation Voltage	1500 VDC, Standard
	3500 VDC, H-Option (on request)
Isolation Resistance	10 <sup>9</sup> Ohms, min.

### PIN Connections

Pin	Standard		P-Option	
	Single Output	Dual Output	Single Output	Dual Output
1	+V Input	+V Input	+V Input	+V Input
2	- V Input	-V Input	-V Input	-V Input
3	+V Output	+V Output	+V Output	+V Output
4	Omitted	Common	Omitted	Common
5	-V Output	-V Output	-V Output	-V Output
6	Omitted	Omitted	Remote On/Off	Remote On/Off

### Remote ON/OFF Control - Option Suffix "P"

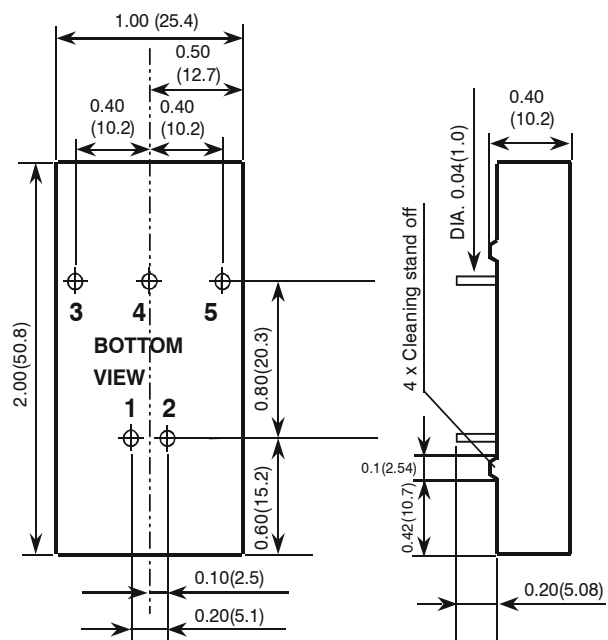
(only for VM15W-Series)  
Control voltage referenced to negative (-) input  
ON 2,5 to 5,5 Vdc or open circuit  
OFF -0,7 to 0,8 Vdc or Short circuit Pin2 and Pin6  
(OFF idle current 2,5mA typ.)

### Environmental Specification (Reference)

Operating Temperature	-40°C to +85°C
VM15	derating above 70°C
VM15W	derating above 60°C
Max. Case Temperature	+100°C
Storage Temperature	-40°C to +105°C
Cooling	Free-air Convection
EMI/RFI	EN55022 Class A with External Input Filter

### Physical Characteristics

Dimensions	50.8 x 25.4 x 10.2 mm
	2.0 x 1.0 x 0.4 inches
Case Material	Nickel-Coated Copper with Non-conductive Base
Weight	30g
Suffix -B	Additional Isolating Baseplate



Specifications can be changed without prior notice

Products are not intended for and must not be used in life support systems, human implantation, nuclear facilities or systems or any other application where product failure or malfunction of the component could lead to loss of life or catastrophic property damage

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