

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

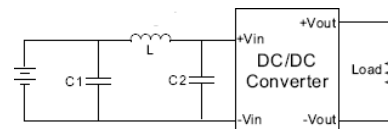
The VM15 and VM15W series is a family of 15W single and dual output DC-DC converters. These converters combine a nickel-coated copper package in a compatible case (50.8 x 25.4 x 10.2 mm) with high performance features such as 1500Vdc or 3500Vdc input/output isolation voltage, continuous short circuit 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, ± 3.3 , ± 5 , ± 7.2 , ± 9 , ± 12 , ± 15 , ± 18 and ± 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 [μ 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 | $\pm 3,3$ | ± 1500 | ± 1000 |
| VM15-xx05D | | $\pm 5,0$ | ± 1500 | ± 1000 |
| VM15-xx7R2D | | $\pm 7,2$ | ± 1041 | ± 680 |
| VM15-xx09D | | $\pm 9,0$ | ± 833 | ± 470 |
| VM15-xx12D | | $\pm 12,0$ | ± 625 | ± 470 |
| VM15-xx15D | | $\pm 15,0$ | ± 500 | ± 330 |
| VM15-xx18D | | $\pm 18,0$ | ± 416 | ± 220 |
| VM15-xx24D | | $\pm 24,0$ | ± 312 | ± 220 |

| 4:1 Input single and dual Output | | | | |
|----------------------------------|---------------------|----------------------|---------------------|----------------------|
| Model Number | Input Voltage [VDC] | Output Voltage [VDC] | Output Current [mA] | Cap. Load [μ 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 | $\pm 5,0$ | ± 1500 | ± 2200 |
| VM15W-xx7R2D | | $\pm 7,2$ | ± 1041 | ± 470 |
| VM15W-xx09D | | $\pm 9,0$ | ± 833 | ± 470 |
| VM15W-xx12D | | $\pm 12,0$ | ± 625 | ± 470 |
| VM15W-xx15D | | $\pm 15,0$ | ± 500 | ± 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 μ H | 330 μ F | 100 μ F |
| VM15W-Series | 12 μ H | 47 μ F | 33 μ F |

V i t e c POWER GmbH

Hans Kudlich Gasse 12/3, A-2230 Gänserndorf, Austria, Tel.: +43/2282/3144, Fax.: +43/2282/60494, Email: office@vitecpower.com

www.vitecpower.com

VM15 VM15W SERIES

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



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 ⁹ 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"

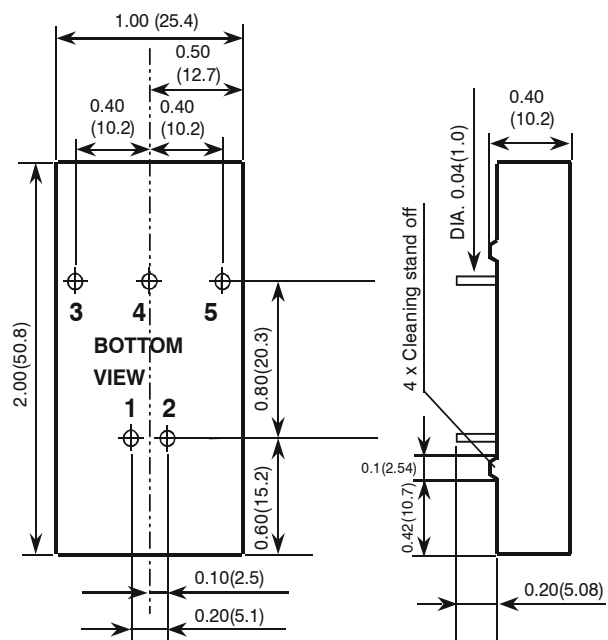
(only for VM15W-Series)
Control voltage referenced to negative (-) input
ON 2,5 to 5,5 Vdc or open circuit
OFF -0,7 to 0,8 Vdc or Short circuit Pin2 and Pin6
(OFF idle current 2,5mA typ.)

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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