

FEATURES

- 9 Pin SIL Package
- Wide 4:1 Input Range
- 1500 VDC Isolation
- Continuous Short Circuit Protection
- Remote on/off Control
- Cost Effective; RoHS ✓

GENERAL DESCRIPTION

The VMV series is a family of cost effective 3W output regulated DC-DC converters with 1500 VDC isolation. These converters achieve miniature package in a 9-pin SIL compatible case with short circuit protection with automatic restart and tight line/load regulation.

Wide range devices operate over 4:1 input range providing stable output voltage. Models operate with input voltages of 24 and 48 VDC offering output voltages of 3.3, 5, 12, 15, ± 5 , ± 12 and ± 15 VDC.

4:1 Input, SIL 9 Package							
Model Number	Input Voltage [VDC]	Output Voltage [VDC]	Input Current		Full Load Output Current [mA]	max. Capacitor Load [μ F]	Efficiency [%] 24/48
			No-Load [mA] 24/48	Full Load [mA] 24/48			
VMV-xx3R3S3	9-36 18-75	3.3	10/5	125/65	700	2200	77/75
VMV-xx05S3		5	10/5	153/78	600	1000	82/81
VMV-xx12S3		12	10/5	149/75	250	165	84/84
VMV-xx15S3		15	10/5	148/75	200	100	85/84
VMV-xx05D3	9-36 18-75	± 5	10/5	155/78	± 300	± 470	81/81
VMV-xx12D3		± 12	10/5	149/75	± 125	± 100	84/84
VMV-xx15D3		± 15	10/5	149/76	± 100	± 47	84/83

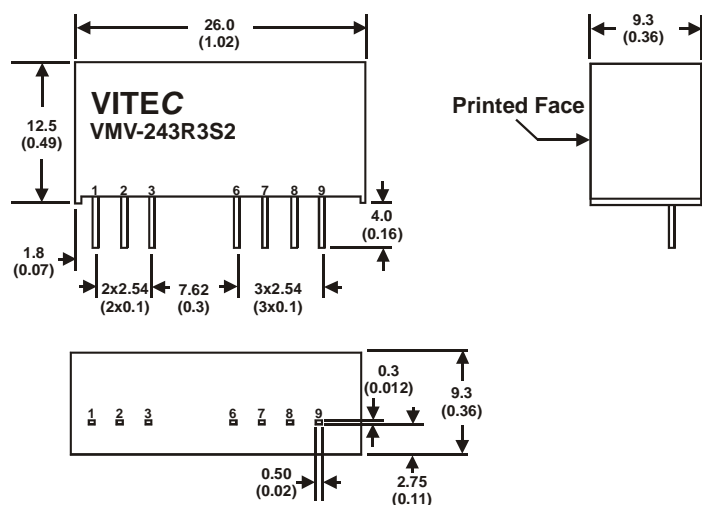
* non standard output voltages on request

xx nominal Input voltage:
24 (9 – 36VDC)
48 (18 – 75VDC)

SIL 9 Package

Pin	Standard	
	Single Output	Dual Output
1	-V Input	-V Input
2	+V Input	+V Input
3	Remote On/Off	Remote On/Off
6	+V Output	+V Output
7	N.C.	Common
8	N.C.	N.C.
9	-V Output	-V Output

N.C...not connected



ELECTRICAL SPECIFICATIONS

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

Input Specifications

4:1 Input Voltage Range	see table
Input Filter	Capacitor
Start up Time	10mS, typ.
Input Current	see table
Input Reflected Ripple Currents	20mA pk-pk *
* measured with a simulated source inductance of 12uH	
Remote ON/OFF Control	
ON	0 to 0.6 Vdc or open circuit
OFF	2.7 to 15 Vdc
	(OFF stand by input current 5mA max.)

General Specifications

Efficiency	75% to 84%, see table
Switching Frequency	250 kHz, typ.
Isolation Voltage	1500 VDC
Isolation Capacitance	500 pF, max.
Isolation Resistance	10 ⁹ Ohms, min.
MTBF (MIL-HDBK-217 F)	>1.212 Mhrs @ 25°C

Physical Characteristics

Dimension SIL9	26.00 x 9.30 x 12.50 mm 1.02 x 0.36 x 0.49 inches
Case Material	Non-conductive blackplastic
Potting Material	Epoxy (UL94V-0 rated)
Pin Material	C5191R-H Solder-coated
Weight	6.5g

Output Specifications

Output Voltage Accuracy	±1%, max.
Ripple and Noise (20 MHz BW)	50 mVp-p, max.
Line Voltage Regulation	±0.5%, max.
Load Voltage Regulation	(0% to 100% Loading) Vout=12V and 15V: ±0.5%, max. Vout=3.3V and 5V: ±1%, max.
Cross Regulation (Dual Output)	±5%, (25% to 100% Loading)
Temperature Coefficient	±0.02%/°C
Short Circuit Protection	Continuous (Automatic Recovery)
Max. Capacitive Load	see table

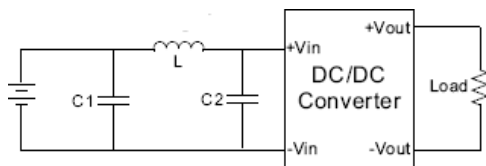
Environmental Specification (Reference)

Operating Temperature	-40°C to +85°C derating above 75°C
Max. Case Temperature	+100°C
Storage Temperature	-40°C to +125°C
Cooling	Free-air Convection
Designed to meet IEC60950 Safety Standard	
EMI/RFI *	EN55022 Class A
ESD	EN61000-4-2, Perf. Criteria B
RS	EN61000-4-3, Perf. Criteria A
EFT**	EN61000-4-4, Perf. Criteria B
Surge**	EN61000-4-5, Perf. Criteria B
CS	EN61000-4-6, Perf. Criteria A
PFMF	EN61000-4-8, Perf. Criteria A

* with external input filter (see below)

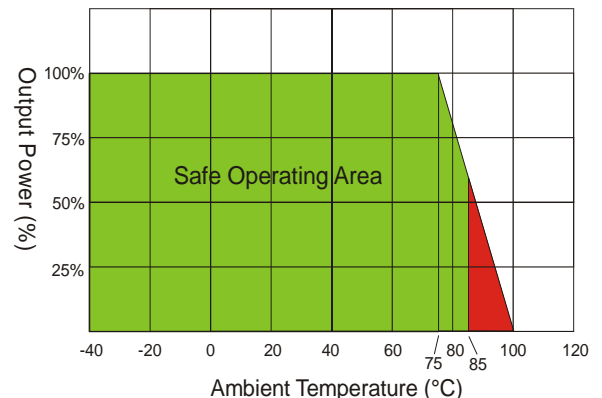
** an external filter capacitor is required: Nippon KY series, 220uF/100V

Suggest adding external input filter to meet conducted emissions:



VMV-Series	L	C1	C2
24V Input	6.8uH	1210, 225K/100V	-
48V Input	56uH	1210, 105K/100V	-

Derating VMV-Series:



Notes:

All dimensions in millimeters (inches).

Tolerance ±0.25mm (0.01).

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

January 2009