

FEATURES AND APPLICATIONS

- 2:1 Input Range
- High Efficiency up to 91%
- 1500 Vdc Isolation, 3500 on request
- Low Ripple and Noise
- Continuous Short Circuit Protection
- Over Current and Over Voltage Protection
- 2 x 1.6 x 0.4 inches
- RoHS ✓

GENERAL DESCRIPTION

The VM25/30 series is a family of 25/30W single and dual output DC-DC converters. These converters combine a nickel-coated copper package in a compatible case (50.8 x 40.6 x 10.2 mm) with high performance features such as 1500 VDC or 3500 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line and load regulation. Wide range VM25/30 devices operate over 2:1 input voltage range providing stable output voltage.

Models operate with input voltages of 12, 24 and 48Vdc offering output voltage levels of 3.3, 5, 12, 15, ±12 and ±15Vdc. Cooling is by free-air convection.

2:1 Input single and dual Output							
Model Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Input Current		Full Load Output Current [mA]	max. Capacitor Load [uF]	Efficiency [%] 12/24/48
			No-Load [mA] 12/24/48	Full Load [mA] 12/24/48			
VM25-xx3R3S	9-18 18-36 36-72	3,3	30/25/20	1867/922/461	5500	15000	83/84/84
VM25-xx05S		5	30/25/20	2480/1225/613	5000	10000	86/87/87
VM30-xx12S		12	30/25/20	2841/1404/702	2500	2200	90/91/91
VM30-xx15S		15	30/25/20	2841/1404/702	2000	1000	90/91/91
VM30-xx12D	9-18 18-36	± 12	30/25/20	2841/1404/710	± 1250	± 1000	90/91/90
VM30-xx15D	36-72	± 15	30/25/20	2841/1404/710	± 1000	± 680	90/91/90

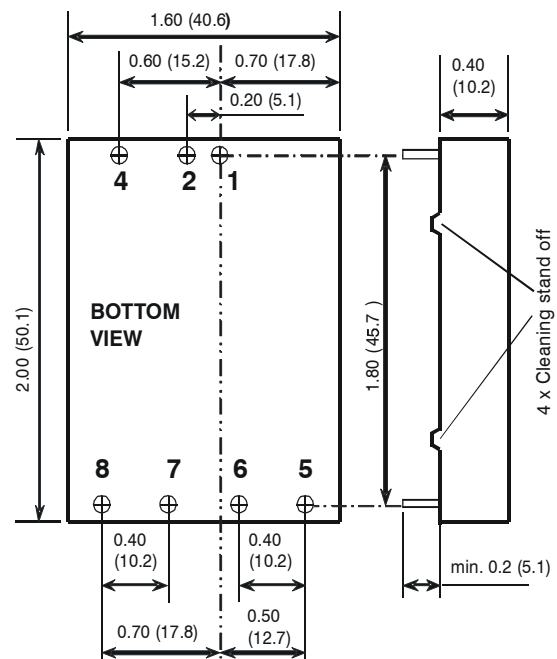
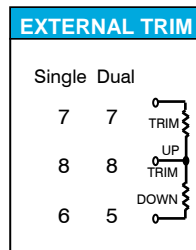
* non standard output voltages on request

xx nominal Input voltage:
12 (9 – 18VDC)
24 (18 – 36VDC)
48 (36 – 75VDC)

Suffix H 3.5 kVDC Isolation, on request

PIN Connections

Standard PIN Connections		
Pin	Single Output	Dual Output
1	+V Input	+V Input
2	-V Input	-V Input
4	Ctrl	Ctrl
5	No pin	+ V Output
6	+V Output	Common
7	-V Output	-V Output
8	Trim	Trim



ELECTRICAL SPECIFICATIONS

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

Input Specifications

2:1 Input Voltage Range	see table
Input Filter	Pi-Type
Start up Time	20mS, typ.
Under Voltage Lockout	on / off
12V input	8.6Vdc / 7.9 Vdc, typ.
24V input	17.6Vdc / 16.0 Vdc, typ.
48V input	33.5Vdc / 30.5 Vdc, 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	2.5 to 5.5 Vdc or open circuit
OFF	-0.7 to 0.8 Vdc or Short circuit Pin2 and Pin3 (OFF idle current 2.5mA typ.)
	Control voltage referenced to negative input (Pin2)

Environmental Specification (Reference)

Operating Temperature	-40°C to +85°C derating above 60°C
Max. Case Temperature	+100°C
Storage Temperature	-40°C to +125°C
Over Temperature Protection	+110°C, typ. (Case)
Cooling	Free-air Convection
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: Nichicon FW series, 1000uF/100V

Output Specifications

Output Voltage Accuracy	±1%, max.
Output Voltage Trim	±10%, max.;
Ripple and Noise (20 MHz BW)	75 mVp-p, max. (measured with 1uF ceramic capacitor)
Line Voltage Regulation	±0,5%, max.
Load Voltage Regulation	±0,5%, max. (0% to 100% Loading)
Cross Regulation (Dual Output)	±5%, (25% to 100% Loading)
Temperature Coefficient	±0.02%/°C
Short Circuit Protection	Continuous (Automatic Recovery)
Over Current Protection	120% of Full Load, typ.
Max. Capacitive Load	see table
Over Voltage Protection	Zener Diode

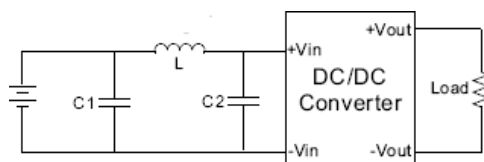
General Specifications

Efficiency	83% to 91%, see table
Switching Frequency	270 kHz, typ.
Isolation Voltage	1500 VDC, Standard 3500 VDC, H-Option (on request)
Isolation Capacitance	1.2 nF, typ.
Isolation Resistance	10 ⁹ Ohms, min.
MTBF (MIL-HDBK-217 F)	>1 Mhrs

Physical Characteristics

Dimensions	50.8 x 40.6 x 10.2 mm 2.0 x 1.6 x 0.4 inches
Case Material	Nickel-Coated Copper with Non-conductive Base
Potting Material	Epoxy (UL94V-0 rated)
Weight	48g

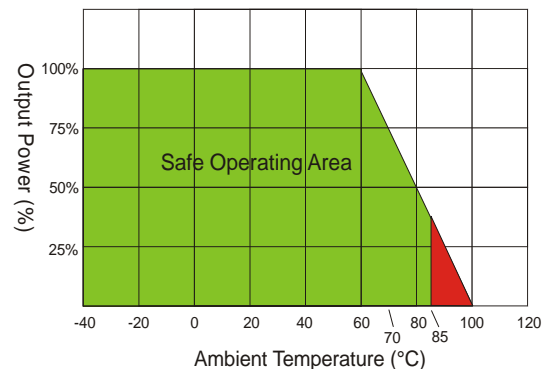
Suggest adding external input filter to meet conducted emissions:



VM25/30-Series: L C1 C2
 12uH 330uF/100V 100uF/100V

At 48V input a additional capacitor between -Vin and -Vout of 1000pF/2kV is recommended

Derating VM25/30:



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