

### FEATURES AND APPLICATIONS

- Wide 2:1 Input range
- 24 Pin DIL Package
- Regulated Output Voltage
- Full SMD Technology
- 1500 VDC Isolation, 3500 VDC on request
- RoHS ✓
- Mobile/Battery Driven Applications
- Distributed Power Networks
- Data Communications Equipments
- Telecommunication Instruments
- Process/Machine Control Equipments

### GENERAL DESCRIPTION

The VMU series is a family of 8W single & dual output DC-DC converters with 1.5kVDC isolation. These converters achieve miniature package in a 24-pin DIL compatible case with high performance features and a short circuit protection with automatic restart and tight line/load regulation. Wide range devices operate over 2:1 Input voltage range providing stable output voltage.

Models operate from an input bus voltage of 12, 24 and 48VDC offering output voltage levels of 3.3, 5, 12, 15, ±5, ±12 or ±15VDC.

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			
VMU-xx3R3S8	9-18 18-36 36-72	3.3	20/15/15	687/344/172	2000	3300	80/80/80
VMU-xx05S8		5.0	20/15/15	762/381/191	1500	2200	82/82/82
VMU-xx12S8		12.0	20/15/15	784/392/198	665	470	85/85/84
VMU-xx15S8		15.0	20/15/15	803/397/198	535	220	83/84/84
VMU-xx05D8	9-18	± 5.0	20/15/15	813/407/203	± 800	± 1000	82/82/82
VMU-xx12D8	18-36	± 12.0	20/15/15	794/402/196	± 335	± 220	84/83/85
VMU-xx15D8	36-72	± 15.0	20/15/15	794/392/196	± 265	± 100	84/85/85

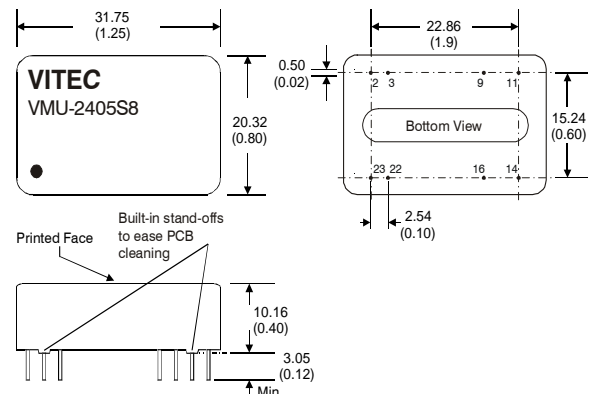
\* non standard output voltages on request

**xx** nominal input voltage:  
**12** (9 – 18VDC)  
**24** (18 – 36VDC)  
**48** (36 – 72VDC)  
**Suffix H** 3.5kVDC isolation, on request

### DIL 24 Package

Standard Isolation		
Pin	Single Output	Dual Output
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

N.C. ...not connected  
 N.P. ...no Pin



## ELECTRICAL SPECIFICATIONS

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

### Input Specifications

Voltage Range	12Vdc, 9-18Vdc 24Vdc, 18-36Vdc 48Vdc, 36-72Vdc
Filter	Pi-Network
Input Reflected Ripple Currents (measured with a simulated source inductance of 12uH)	35mA pk-pk

### Output Specifications

Voltage Accuracy	±1%, max.
Ripple and Noise (20 MHz BW)	75 mVp-p, max.
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Current Limiting	140% of max. Iout
Line Voltage Regulation	±0.5%, max.
Load Voltage Regulation	±0.5%, max. ±0.7%, max. for 3.3 Models

### Environmental Specification

Operating Temperature	-40°C to +85°C derating above 60°C
Max. Case Temperature	+100°C
Storage Temperature	-40°C to +125°C
Derating	None required
Cooling	Free-air convection

### General Specification

Efficiency	see table
Switching Frequency	330 KHz, typ.
Rated Voltage	1500 VDC (Standard) 3000 VDC (Suffix H)
Resistance	10 <sup>9</sup> Ω
Safety Standard	IEC 60950 (designed to meet)
MTBF (MIL-HDBK-217 F)	> 0.91 Mhrs

### EMC Characteristics

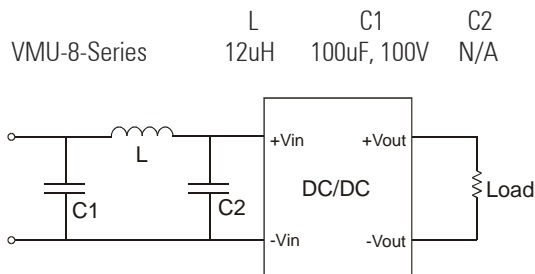
EMI/RFI *	EN55022 Class A with External Input Filter
EN61000-4-2 (ESD)	Perf. Criteria B
EN61000-4-3 (RS)	Perf. Criteria A
EN61000-4-4 (EFT) **	Perf. Criteria B
EN61000-4-5 (Surge) **	Perf. Criteria B
EN61000-4-6 (CS)	Perf. Criteria A
EN61000-4-8 (PFMF)	Perf. Criteria A

\*\* External filter capacitor is required:  
suggest Nippon – chemi – con KY series, 220uF/100V

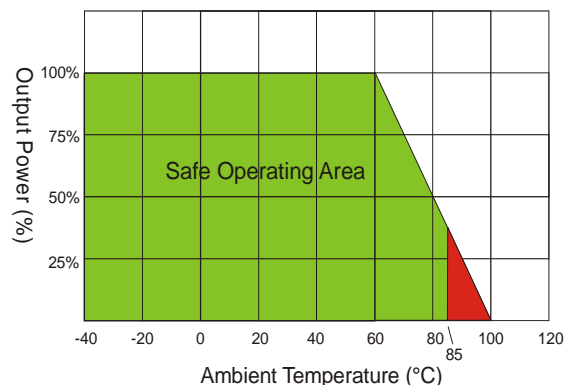
### Physical Characteristics

Dimension DIP	31.75 x 20.32 x 10.16 mm 1.25 x 0.80 x 0.40 inches
Weight	17.0 g
Case Material:	Nickel-Coated Copper Metal

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



Derating VMU-8W:



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

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