

## FEATURES AND APPLICATIONS

- 2:1 Input Range
- High Efficiency up to 88%
- Low Ripple and Noise
- 1500 Vdc Isolation, 3500 Vdc on request
- Continuous Short Circuit Protection
- 2 x 2 x 0.4 inches
- RoHS ✓

## GENERAL DESCRIPTION

The VM20A series is a family of 20W single and dual output DC-DC converters. These converters combine a nickel-coated copper package in a compatible case (50.8 x 50.8 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. The wide range VM20A 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, 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 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			
VM20A-xx3R3S	9-18 18-36 36-72	3,3	20/25/20	1375/696/348	4000	3300	80/79/79
VM20A-xx05S		5,0	20/25/20	2008/992/502	4000	2200	83/84/83
VM20A-xx7R2S		7,2	20/25/20	1984/992/490	2777	2200	84/84/85
VM20A-xx09S		9,0	20/20/20	1984/968/478	2222	1000	84/86/87
VM20A-xx12S		12,0	30/25/20	1960/958/478	1666	1000	85/87/87
VM20A-xx15S		15,0	30/25/20	1960/957/484	1333	680	85/87/86
VM20A-xx18S		18,0	30/25/20	1960/980/484	1111	470	85/85/86
VM20A-xx24S		24,0	30/25/25	1960/957/479	833	470	85/87/87
VM20A-xx3R3D	9-18 18-36 36-72	$\pm 3,3$	20/25/20	1410/696/343	$\pm 2000$	$\pm 1000$	78/79/80
VM20A-xx05D		$\pm 5,0$	25/25/15	2032/992/502	$\pm 2000$	$\pm 680$	82/84/83
VM20A-xx7R2D		$\pm 7,2$	30/25/20	2008/992/490	$\pm 1388$	$\pm 680$	83/84/85
VM20A-xx09D		$\pm 9,0$	25/20/20	1960/957/478	$\pm 1111$	$\pm 470$	85/87/87
VM20A-xx12D		$\pm 12,0$	30/20/20	1984/968/478	$\pm 833$	$\pm 330$	84/86/87
VM20A-xx15D		$\pm 15,0$	30/25/20	1937/957/478	$\pm 666$	$\pm 220$	86/87/87
VM20A-xx18D		$\pm 18,0$	35/25/20	1960/946/484	$\pm 555$	$\pm 220$	85/88/86
VM20A-xx24D		$\pm 24,0$	35/30/20	1960/969/478	$\pm 416$	$\pm 220$	85/86/87

\* non standard output voltages on request

xx                      nominal Input voltage:  
VM20A Series      12            (9 – 18VDC)  
                             24            (18 – 36VDC)  
                             48            (36 – 72VDC)

Suffix H              3.5 kVDC Isolation, on request

### 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
	48V nominal	36 to 72V
Input Filter	Capacitors	
Input Reflected Ripple Currents	35mA pk-pk (measured with a simulated source inductance of 12uH)	

#### General Specifications

Efficiency	79% to 88%, see table
Switching Frequency	125 kHz, typ.
Isolation Voltage	1500 VDC, Standard
	3500 VDC, H-Option (on request)
Isolation Resistance	10 <sup>9</sup> Ohms, min.
Safety Standard (designed to meet)	IEC 60950-1 :2001

#### Environmental Specification

Operating Temperature	-40°C to +85°C
Max. Case Temperature	+100°C
Storage Temperature	-40°C to +125°C
Cooling	Free-air Convection

#### Output Specifications

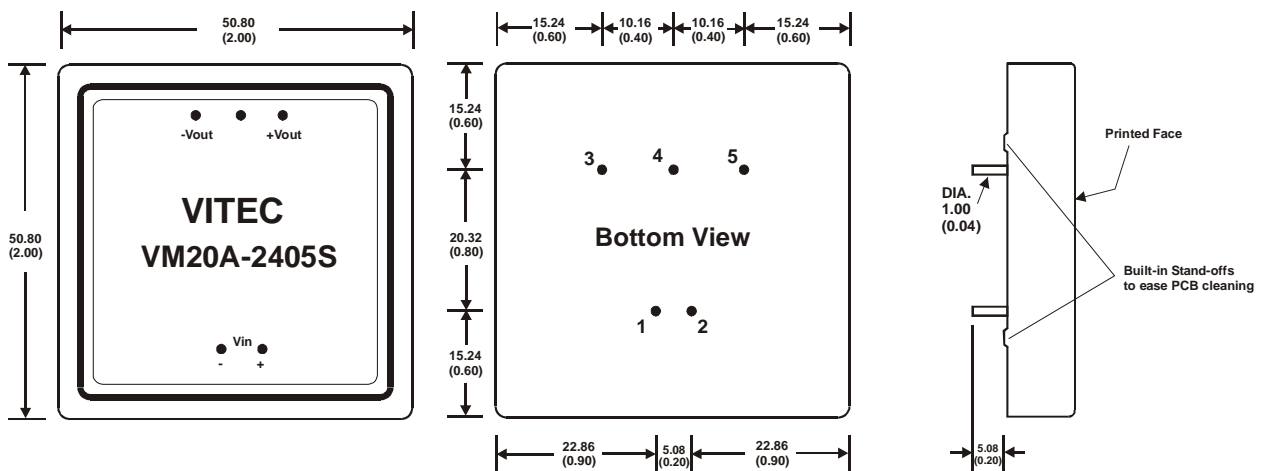
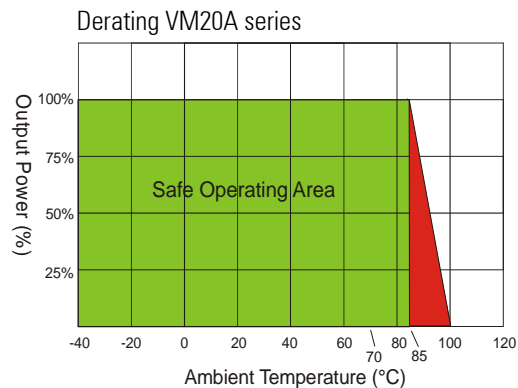
Output Voltage Accuracy	±1%, max.
Ripple and Noise (20 MHz BW)	100 mVpk-pk
Line Voltage Regulation	±0,5%, max.
Load Voltage Regulation	±0,5%, max. (0% to 100% Loading)
Temperature Coefficient	±0.02%/°C
Short Circuit Protection	Continuous (Automatic Recovery)

#### Physical Characteristics

Dimensions	50.8 x 50.8 x 10.2 mm 2.0 x 2.0 x 0.4 inches
Case Material	Nickel-Coated Copper with Non-conductive Base
Weight	60g
MTBF (MIL-HDBK-217F)	>1.121 Mhrs

#### PIN Connections

Standard		
Pin	Single Output	Dual Output
1	+V Input	+V Input
2	- V Input	-V Input
3	+V Output	+V Output
4	Omitted	Common
5	-V Output	-V Output



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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