

FEATURES AND APPLICATIONS

- 2:1 Input Range
- High Efficiency up to 92%
- 1500 Vdc Isolation
- Low Ripple and Noise
- Continuous Short Circuit Protection
- 2 x 1 x 0.4 inches
- RoHS ✓

GENERAL DESCRIPTION

The VM30C series is a family of 30W 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 1500 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line and load regulation. Wide range VM30C 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, ±5, ±12 and ±15Vdc. Cooling is by free-air convection.

2:1 Input single and dual Output

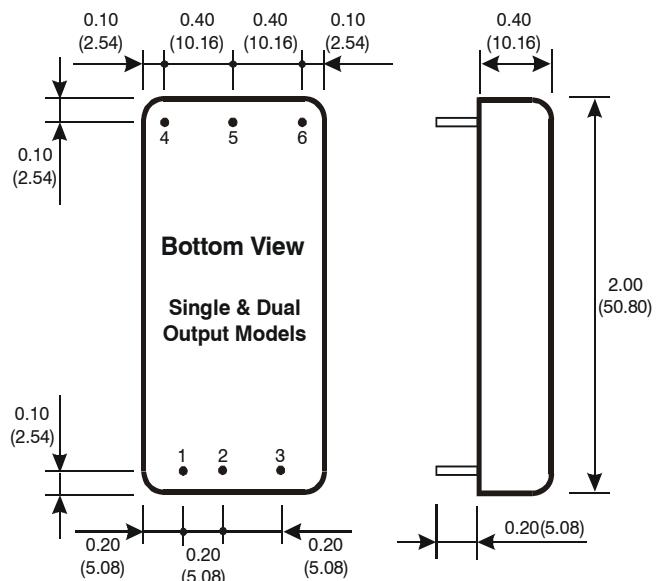
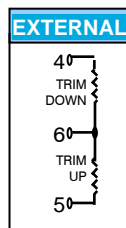
Model Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Input Current		Full Load Output Current [mA]	max. Capacitor Load [uF]	Efficiency [%] 24/48
			No-Load [mA] 12/24/48	Full Load [mA] 24/48			
VM30C-xx3R3S	9-18 18-36 36-72	3.3	80/70/50	2426/1185/593	8000	20000	89/91/90
VM30C-xx05S		5	180/100/70	2874/1420/702	6000	14000	91/92/91
VM30C-xx12S		12	30/20/30	2809/1436/718	2500	2000	91/92/91
VM30C-xx15S		15	30/40/30	2809/1420/710	2000	2000	92/92/91
VM30C-xx05D	9-18 18-36 36-72	± 5	180/50/50	2874/1437/710	± 3000	± 3000	89/90/90
VM30C-xx12D		± 12	100/40/50	2874/1453/718	± 1250	± 1300	90/91/90
VM30C-xx15D		± 15	70/50/40	2874/1437/718	± 1000	± 1300	91/91/90

* non standard output voltages on request

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

PIN Connections

Standard		
Pin	Single Output	Dual Output
1	+V Input	+V Input
2	- V Input	-V Input
3	Ctrl	Ctrl
4	+V Output	+V Output
5	-V Output	Common
6	Trim	-V Output



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	30mS, typ.
Under Voltage Lockout	on / off
12V input	8.6 Vdc / 7.9 Vdc, typ.
24V input	17.8 Vdc / 16.0 Vdc, typ.
48V input	33.5 Vdc / 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	3 to 12 Vdc or open circuit
OFF	0 to 1,2 Vdc or Short circuit Pin2 and Pin3 (OFF idle current 5mA typ.)
Control voltage referenced to negative input (Pin2)	

General Specifications

Efficiency	89% to 92%, see table
Switching Frequency	330 kHz, typ.
Isolation Voltage	1500 VDC, Standard
Isolation Capacitance	1500 pF, typ.
Isolation Resistance	10 ⁹ Ohms, min.
MTBF (MIL-HDBK-217 F)	>435 khrs
Safety Standard (designed to meet)	IEC/EN 60950-1

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
Potting Material	Epoxy (UL94V-0 rated)
Weight	31g

Output Specifications

Output Voltage Accuracy	±1%, max.
Output Voltage Trim	±10%, max.; (Single output only)
Ripple and Noise (20 MHz BW)	100 mVp-p, max. (measured with 1uF ceramic capacitor)
Line Voltage Regulation	±0.5%, max.
Load Voltage Regulation	(0% to 100% Loading) Single output: ±0,5%, max. Dual output: ±1% (balanced output)
Cross Regulation (Dual Output)	±5%, (25% to 100% Loading)
Temperature Coefficient	±0.02%/°C
Short Circuit Protection	Continuous (Automatic Recovery)
Over Current Protection	150% of Full Load, typ.
Max. Capacitive Load	see table
Transient Recovery Time	250uF, typ.
Over Voltage Protection	Zener Diode

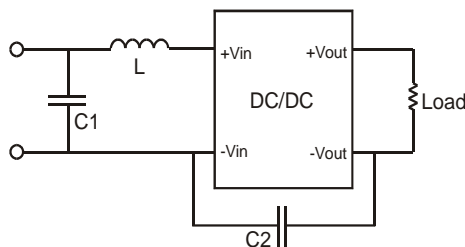
Environmental Specification and EMC

Operating Temperature	-40°C to +75°C derating above 50°C
Max. Case Temperature	+105°C
Over Temperature Protection	+115°C (Case)
Storage Temperature	-40°C to +125°C
Cooling	Free-air Convection
EMI/RFI *	EN55022 Class A
ESD	EN61000-4-2, Perf. Criteria A
RS	EN61000-4-3, Perf. Criteria A
EFT**	EN61000-4-4, Perf. Criteria A
Surge**	EN61000-4-5, Perf. Criteria A
CS	EN61000-4-6, Perf. Criteria A
PFMF	EN61000-4-8, Perf. Criteria A

* with external input filter (see below)

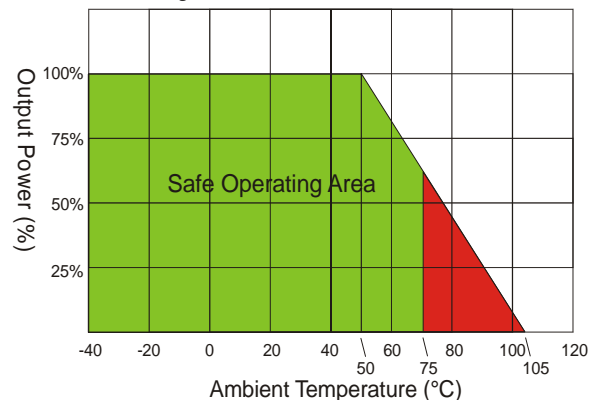
** an external filter capacitor is required: Nippon KY series, 220uF/100

Suggest adding external input filter to meet conducted emissions:



VM30C-Series L C1 C2
 12uH 100uF/100V 470pF/2kV

Derating VM30C:



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

November 2009

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