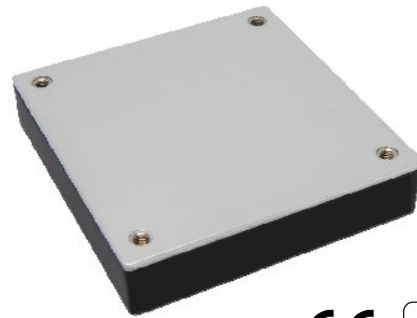


## FEATURES

- 200W Isolated Output
- Efficiency to 91%
- Low No Load Power Consumption
- Fixed Switching Frequency
- 4:1 Input Range
- Regulated Outputs
- Input Under-Voltage Protection
- Over Temperature Protection
- Over Voltage/Current Protection
- Remote On/Off
- Half-Brick Size meet Industrial Standard
- meets UL60950-1 2nd (Basic Insulation)
- meet EN50155 with External Circuits
- Shock & Vibration meet EN50155 (EN61373)
- Fire & Smoke meet EN45545-2
- 5000m Operating Altitude
- Safety meets IEC/EN/UL 62368-1



## GENERAL DESCRIPTION

VCH200R4 200W 4:1 Input DC/DC Converters are 200W isolated output devices with efficiency up to 91% and low No Load power consumption. VCH200R4 feature a 4:1 input range and fixed switching frequency. The Half-Brick size meets industrial standards.

## SELECTION GUIDE

Model No.	nominal Input Voltage Range [Vdc]	nominal Output Voltage [Vdc]	Output Current max. [A]	Input Current @ No Load [mA]	Input Current @ Full Load [mA]	Max. Capacitive Load [ $\mu$ F]	Efficiency typ. [%]
VCH200R4-11005S	43-160	5	40	10	2043	40000	89
VCH200R4-11012S		12	16.7		2002	16700	91
VCH200R4-11024S		24	8.3		2034	8300	89
VCH200R4-11028S		28	7.14		2042	7140	89
VCH200R4-11048S		48	4.2		2014	3000	91

## Options:

- Suffix N: Add Suffix N to the part number - negative logic instead of positive logic (Standard)  
 Suffix -C: Add Suffix -C to the part number - with clear mounting insert (3.2 mm diameter) instead of M3 x 0.5 Mounting Inserts (Standard)

## Part Number Example: VCH200R4-11005SN-C:

Half Brick, 200 W, 4:1, 43-160 Vdc Input, Single 5 Vdc Output, Negative Logic, Clear Mounting Insert

### INPUT SPECIFICATIONS

Item	Conditions	Min. / Max.
Input Voltage Range	110V	43-160V
Input Surge Voltage (100ms max.)		200Vdc max.
Under Voltage Lockout	110V <sub>in</sub> Power Up	42V
	110V <sub>in</sub> Power Down	39V
Input Filter	Pi Type	

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

### OUTPUT SPECIFICATIONS

Item	Conditions	
Voltage Accuracy	±1.0 % max.	
Transient Response	75 % ~100 % Step Load Change	
Error Band	±5 % V <sub>out</sub> Nominal, Recover Time	<250 μs
External Trim Adj. Range	±10 %	
Ripple & Noise, 20MHz BW	5V	60mV RMS, 120mV pk-pk max.
	12V	80mV RMS, 150mV pk-pk max
	24V	120mV RMS, 240mV pk-pk max
	28V	140mV RMS, 280mV pk-pk max.
	48V	220mV RMS, 480mV pk-pk max.
Temperature coefficient	±0.02 % °C	
Load Regulation	±0.2 % max.	
Line Regulation	±0.2 % max.	
Over Voltage Protection Trip Range, % V <sub>o</sub> nom	115 % -140 %	
Current Limit	110 % - 160 % Nominal Output	
Start up time	35 ms typ.	
Output Voltage Remote Sense Range	P <sub>o</sub> ≤ max rated power, I <sub>o</sub> ≤ I <sub>o_max</sub> % of nominal V <sub>o</sub>	
Short Circuit Protection	Continuous	

### ON/OFF CONTROL

Item	Conditions	Min.	Typ.	Max.	Unit
Positive Remote On/Off logic (refer to -V <sub>in</sub> pin)	Logic Low (Module Off) V <sub>on/off</sub> at I <sub>on/off</sub> = 1.0mA	0	-	1.2	V
	Logic High (Module On) V <sub>on/off</sub> at I <sub>on/off</sub> = 0.0uA, Pin open = On	3.5	-	160	
Negative Remote On/Off logic (refer to -V <sub>in</sub> pin)	Logic High (Module Off) V <sub>on/off</sub> at I <sub>on/off</sub> = 0.0mA (Pin open = On)	3.5	-	160	V
	Logic Low (Module On) V <sub>on/off</sub> at I <sub>on/off</sub> = 1.0mA	0	-	1.2	

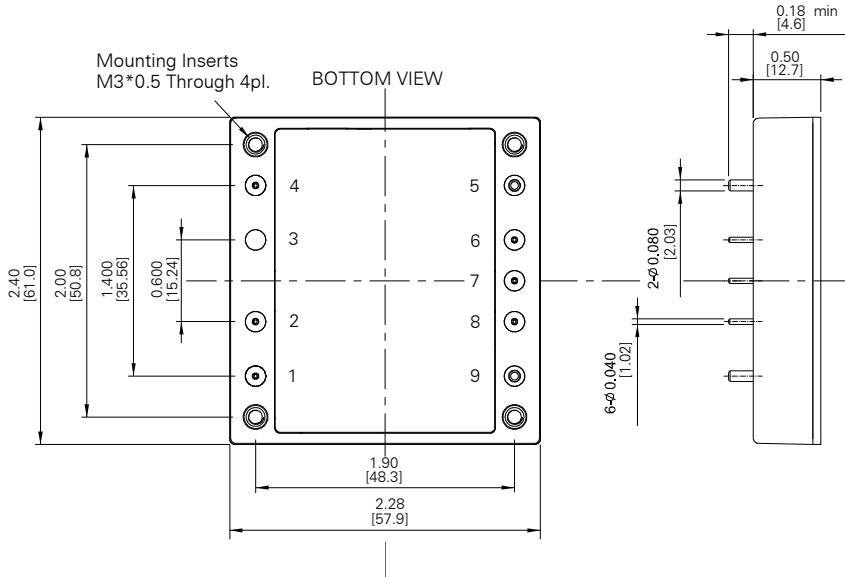
## GENERAL SPECIFICATIONS

Item	Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input/Output	3000	-	-	Vdc
	Input to Case	3000	-	-	
	Output/Case	500	-	-	Vac
Isolation resistance	-	10 <sup>8</sup>	-	-	Ohm
Isolation Capacitance	-	-	3000	-	pF
Switching frequency	-	-	300	-	kHz
Temperature	Operating Case Temperature	-40	-	100	°C
	Storage Temperature	-55	-	125	
	Thermal Shutdown Case Temp.	-	110	-	
Humidity	Non Condensing	-	-	95	% RH
MTBF MIL-HDBK-217F, GB, 25°C, Full Load	48V	-	900	-	Khrs
	Others	-	600	-	Khrs
Safety	meets UL60950-1 2nd (Basic Insulation).				
EMC (note7)	meets EN50155 (EN50121-3-2) with External Filter				
Shock/Vibration	meets EN50155(EN61373)				
Environmental	meets EN50155 (EN60068-2-1, 2, 30)				
Fire & Smoke	meets EN45545-2				
Dimensions	2.28x2.40x0.50 inches (57.9x61.0x12.7 mm)				
Case Material	Aluminum Baseplate with Plastic Case				
Weight	114g				

**Note:**

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10uF aluminum solid capacitor and 1uF ceramic capacitor across output. (5V: 47uF polymer tantalum capacitor and 1uF ceramic capacitor across output).
4. An external input capacitor 220uF for all models are recommended to reduce input ripple voltage.
5. For information about EN50155 and RIA12, refer to application note.
6. Suffix „-C“ to the model number with clear mounting insert. (3.2mm DIA)

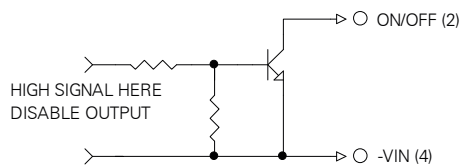
## MECHANICAL DRAWING



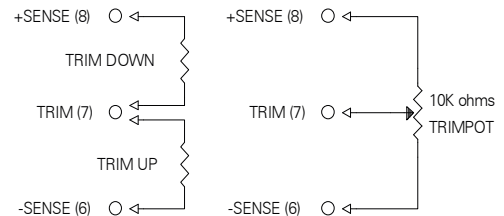
PIN CONNECTION	
PIN	Function
1	+V Input
2	On/Off
3	NP
4	-V Input
5	-V Output
6	-Sense
7	Trim
8	+Sense
9	+V Output

1. All dimensions in inch [mm]
2. Tolerance: x.xx±0.02 [x.x±0.5]  
x.xxx±0.01 [x.xx±0.25]
3. Pin dimension tolerance ±0.004 [±0.10]

### REMOTE ON/OFF CONTROL



### EXTERNAL OUTPUT TRIM



Note: 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.