C2000RW Series

Wide 2:1 Input 20W Single, Dual & Triple Output DC/DC Converters

Key Features:

- 20W Output Power
- 2:1 Input Voltage Range
- 1,600 VDC Isolation
- 12, 24, & 48V Input
- Single, Dual, Triple Output
- Remote ON/OFF
- >550 kHour MTBF
- Industry Standard Pin-Out

Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range	12 VDC Input	9.0	12.0	18.0	VDC
	24 VDC Input	18.0	24.0	36.0	
	48 VDC Input	36.0	48.0	75.0	
Input Filter	π (Pi) Filter				

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±2.0		%
Line Regulation, Single, Dual Output	For Vin Min to Max		±0.5		%
Line Regulation, Triple Output	Vout 1		±1.0		%
	Vout 2 & Vout 3		±5.0		
Load Regulation, Single Output	Iout = 10% to 100%		±0.5		%
Load Regulation, Dual Output	Iout = 10% to 100%		±3.0		%
Load Regulation, Triple Output	Iout = 10% to 100%, Vout 1		±3.0		%
	Iout = 10% to 100%, Vout 2 & Vout 3		±5.0		
Ripple, See Note 1	0.2% Vout + 20 mV P - P Max.				
Noise, See Note 1	0.5% Vout + 50 mV P - P Max.				
Output Power Protection, See Note 2		120			%
Over Voltage Protection, See Note 3		112		165	%
Temperature Coefficient			±0.02		%/°C
Output Short Circuit	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,600			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz, 1V		1,000		pF
Switching Frequency			200		kHz

Remote On/Off, See Note 4

Parameter	Conditions	Min.	Typ.	Max.	Units
Supply On		5.0		15.0	VDC
Supply Off		-1.0		+1.0	VDC
Input Current (On)				-1	mA
Input Current (Off)				1	mA
Control Common	Referenced to Negative Input (pin 2)				

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-25		+70	°C
Operating Temperature Range	Case			+100	°C
Storage Temperature Range		-55		+105	°C
Cooling	See Derating Curve				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	2.0 x 2.0 x 0.45 Inches (50.8 x 50.8 x 11.4 mm)
Case Material	Nickel Coated Copper with Non-Conductive Base
Weight	2.47 Oz (70g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	550			kHours

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (0.1 Sec)	12 VDC Input	-0.7		25.0	VDC
	24 VDC Input	-0.7		50.0	
	48 VDC Input	-0.7		100.0	
Lead Temperature	1.5 mm From Case For 10 Sec			260	°C

Caution: Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

RoHS

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Model Selection Guide

Model Number	Input				Output 1		Output 2		Output 3		Max. Output Power (W)	Efficiency (Typ %)	Max. Capacitive Load (µF)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (A, Max)	Voltage (VDC)	Current (A, Max)	Voltage (VDC)	Current (A, Max)				
	Nom.	Range	Full-Load	No-Load										
C2001RW	12	9 - 18	1,447	120	3.3	4.00					13.2	76	28,000	4,000
C2002RW	12	9 - 18	2,137	120	5.0	4.00					20.0	78	10,000	4,500
C2003RW	12	9 - 18	2,058	120	12.0	1.67					20.0	81	2,000	4,500
C2004RW	12	9 - 18	2,032	120	15.0	1.33					20.0	82	755	4,500
C2005RW	12	9 - 18	2,008	120	24.0	0.83					20.0	83	330	4,500
C2006RW	12	9 - 18	2,164	120	+5.0	+2.00	-5.0	-2.00			20.0	77	±3,000	4,500
C2007RW	12	9 - 18	2,058	120	+12.0	+0.83	-12.00	-0.83			20.0	81	±680	4,500
C2008RW	12	9 - 18	2,032	120	+15.0	+0.66	-15.00	-0.66			20.0	82	±330	4,500
C2009RW	12	9 - 18	2,110	120	5.0	2.50	+12.0	+0.30	-12.0	-0.30	20.0	79	6,000/ ±150	4,500
C2010RW	12	9 - 18	2,164	120	5.0	2.50	+15.0	+0.25	-15.0	-0.25	20.0	77	4,000/ ±150	4,500
C2011RW	24	18 - 36	705	85	3.3	4.00					13.2	78	28,000	2,000
C2012RW	24	18 - 36	1,029	85	5.0	4.00					20.0	81	10,000	2,500
C2013RW	24	18 - 36	969	85	12.0	1.67					20.0	86	2,000	2,500
C2014RW	24	18 - 36	980	85	15.0	1.33					20.0	85	755	2,500
C2015RW	24	18 - 36	945	85	24.0	0.83					20.0	88	330	2,500
C2016RW	24	18 - 36	1,016	85	+5.0	+2.00	-5.0	-2.00			20.0	82	±3,000	2,500
C2017RW	24	18 - 36	992	85	+12.0	+0.83	-12.00	-0.83			20.0	84	±680	2,500
C2018RW	24	18 - 36	980	85	+15.0	+0.66	-15.00	-0.66			20.0	85	±330	2,500
C2019RW	24	18 - 36	1,004	85	5.0	2.50	+12.0	+0.30	-12.0	-0.30	20.0	83	6,000/ ±150	2,500
C2020RW	24	18 - 36	1,029	85	5.0	2.50	+15.0	+0.25	-15.0	-0.25	20.0	81	4,000/ ±150	2,500
C2021RW	48	36 - 75	362	50	3.3	4.00					13.2	76	28,000	1,000
C2022RW	48	36 - 75	508	50	5.0	4.00					20.0	82	10,000	1,500
C2023RW	48	36 - 75	496	50	12.0	1.67					20.0	84	2,000	1,500
C2024RW	48	36 - 75	490	50	15.0	1.33					20.0	85	755	1,500
C2025RW	48	36 - 75	479	50	24.0	0.83					20.0	87	330	1,500
C2026RW	48	36 - 75	502	50	+5.0	+2.00	-5.0	-2.00			20.0	83	±3,000	1,500
C2027RW	48	36 - 75	490	50	+12.0	+0.83	-12.00	-0.83			20.0	85	±680	1,500
C2028RW	48	36 - 75	496	50	+15.0	+0.66	-15.00	-0.66			20.0	84	±330	1,500
C2029RW	48	36 - 75	502	50	5.0	2.50	+12.0	+0.30	-12.0	-0.30	20.0	83	6,000/ ±150	1,500
C2030RW	48	36 - 75	496	50	5.0	2.50	+15.0	+0.25	-15.0	-0.25	20.0	84	4,000/ ±150	1,500

Notes:

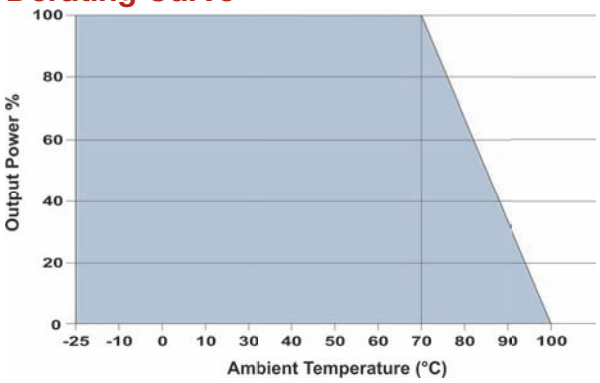
1. When measuring output ripple, it is recommended that an external 1.0 µF ceramic in parallel with a 10 µF capacitor be placed from the +Vout pin to the -Vout pin.
2. The unit will recover automatically when the fault condition is removed.
3. Over voltage protection is provided by a zener diode clamp.
4. If the on/off pin (Pin 4) is left open, the unit operates.
5. No load operation will not damage these units, but they may not meet all spec's.
6. It is recommended that a fuse be used on the input of a power supply for protection. See the table above for the correct rating.

Pin Connections

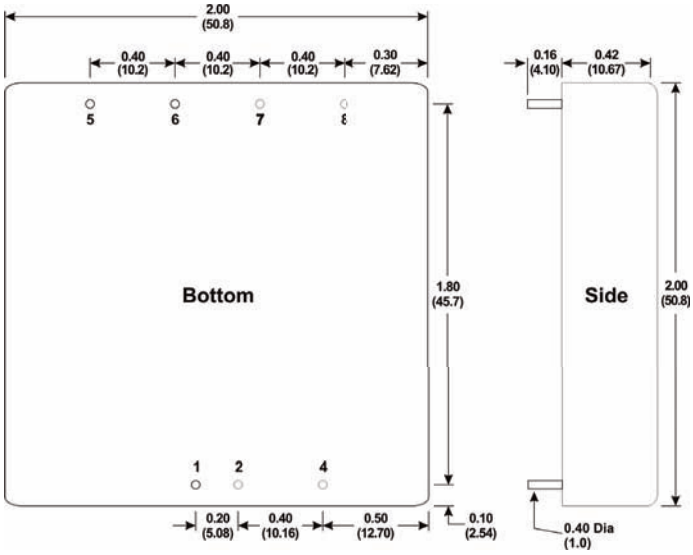
Pin	Single	Dual	Triple
1	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin
4	On/Off	On/Off	On/Off
5	NC	Vout 1	Vout 2
6	+Vout	Common	Vout 1
7	-Vout	Vout 2	Common
8	Trim	Trim	Vout 3

NC = No Connection

Derating Curve

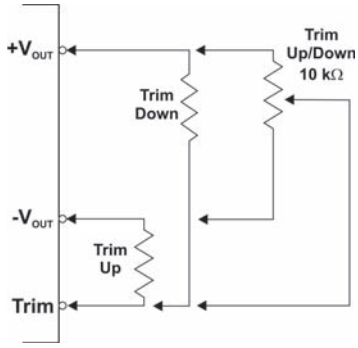


Mechanical Dimensions



External Trim

A simple external circuit may be used to adjust the converter output. To adjust the output DOWN, connect a 5%, 3W resistor between the plus output pin and the Vout trim pin. To adjust the output UP, connect a 5%, 3W resistor between the minus output pin and the Vout trim pin.
For UP/Down trimming capability, connect a 10 kW potentiometer between the plus and minus outputs with the wiper arm connected to the Vout trim pin.
The range for the external trim is about ±10%.



Mechanical Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)

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