A1200RU Series

4:1 Input Range, 12W Single & Dual Output DC/DC Converters



Key Features:

- 12W Output Power
- 4:1 Input Voltage Range
- Compact DIP Case
- EN 60950 Compliant
- Meets EN 55022 “A”
- Single & Dual Outputs
- 1.0 MH 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	24 VDC Input	9.0	24.0	36.0	VDC
	48 VDC Input	18.0	48.0	75.0	
Input Filter	π (Pi) Filter (Meets EN 55022 Class “A”)				
Input Reflected Ripple Current			20.0		mA P - P

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.2		%
Output Voltage Balance	Dual Output , Balanced Loads		±0.5		%
Line Regulation	Vin = Min to Max			±0.2	%
Load Regulation, Single Output	Iout = 0% to 100%			±0.5	%
Load Regulation, Dual Output	Iout = 0% to 100%			±1.0	%
Ripple & Noise (20 MHz)	See Note 1			85	mV P - P
Output Power Protection			170		% I_{OUT}
Transient Recovery Time, See Note 2	25% Load Step Change		250		µSec
Transient Response Deviation			±3.0		%
Temperature Coefficient			±0.02		%/°C
Output Short Circuit Protection	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage (Input/Output)	3 Seconds	1,600			VDC
Isolation Voltage (Case/Input(output)	3 Seconds	1,600			
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz/1V		1500		pF
Switching Frequency			270		kHz

EMI Characteristics

Parameter	Standard	Level
Radiated Emissions	EN 55022	Class A
Conducted Emissions, See Note 3	EN 55022	Class A
ESD	EN 61000-4-2	Criteria B
RS	EN 61000-4-3	Criteria A
EFT, See Note 4	EN 61000-4-4	Criteria B
Surge, See Note 4	EN 61000-4-5	Criteria B
CS, See Note 4	EN 61000-4-6	Criteria A
PFMF	EN 61000-4-8	Criteria A

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40		+60	°C
Operating Temperature Range	Case			+105	°C
Storage Temperature Range		-55		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing		95		%

Physical

Case Size	1.25 x 0.80 x 0.40 Inches (31.8 x 20.3 x 10.2 mm)
Case Material	Metal with Non-Conductive Base (UL94V-0)
Weight	0.62 Oz (18g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	1.0			MHours

Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	24 VDC Input	-0.7		50.0	VDC
	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.

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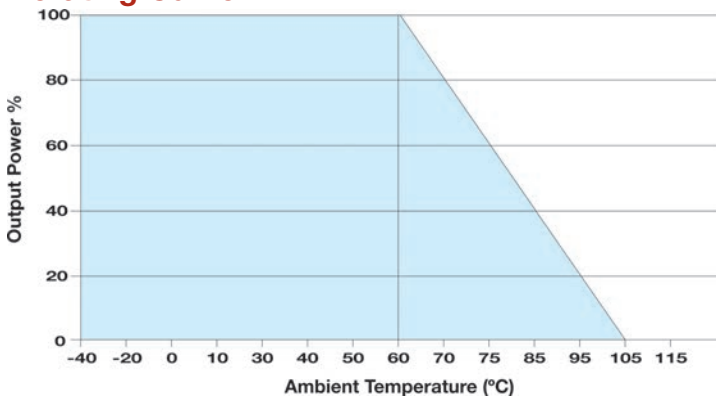
Model Selection Guide

Model Number	Input				Output			Over Voltage Protection (VDC)	Max Capacitive Load (µF Max)	Efficiency (%, Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)				
	Nominal	Range	Full-Load	No-Load							
A1201RU	24	9.0 - 36.0	573	15	3.3	3,500	0.0	3.9	2,000	87	1,200
A1202RU	24	9.0 - 36.0	581	15	5.1	2,400	0.0	6.2	2,000	89	1,200
A1203RU	24	9.0 - 36.0	574	15	12.0	1,000	0.0	15.0	430	90	1,200
A1204RU	24	9.0 - 36.0	574	15	15.0	800	0.0	18.0	300	90	1,200
A1205RU	24	9.0 - 36.0	595	15	±5.0	±1,200	±0.0	±6.2	±1,250	87	1,200
A1206RU	24	9.0 - 36.0	574	15	±12.0	±500	±0.0	±15.0	±200	90	1,200
A1207RU	24	9.0 - 36.0	574	15	±15.0	±400	±0.0	±18.0	±120	90	1,200
A1211RU	48	18.0 - 75.0	286	15	3.3	3,500	0.0	3.9	2,000	87	750
A1212RU	48	18.0 - 75.0	290	15	5.1	2,400	0.0	6.2	2,000	89	750
A1213RU	48	18.0 - 75.0	287	15	12.0	1,000	0.0	15.0	430	90	750
A1214RU	48	18.0 - 75.0	287	15	15.0	800	0.0	18.0	300	90	750
A1215RU	48	18.0 - 75.0	297	15	±5.0	±1,200	±0.0	±6.2	±1,250	87	750
A1216RU	48	18.0 - 75.0	287	15	±12.0	±500	±0.0	±15.0	±200	90	750
A1217RU	48	18.0 - 75.0	287	15	±15.0	±400	±0.0	±18.0	±120	90	750

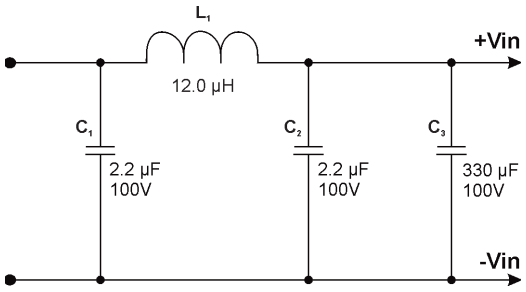
Notes:

1. When measuring output ripple, it is recommended that an external 1.0µF ceramic capacitor be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units. For noise sensitive applications, the use of 3.3 µF capacitors will reduce the output ripple.
2. Transient recovery is measured to within a 1% error band for a load step change of 75% to 50% to 25%.
3. To help meet conducted emissions requirements, the Pi filter components (C_1, C_2 & L_1) in the diagram below should be used. These components should be mounted as close to the module as possible.
4. To meet the requiremets of EN61000-4-4, EN 61000-4-5 and EN 61000-4-6, an external filter capacitor is required. It is recommended that the value shown in the figure below (C_3) be used.
5. Operation at no-load will not damage these units. However, they may not meet all specifications.
6. Dual output units may be connected to provide a 10 VDC, 24 VDC or 30 VDC output. To do this, connect the load across the positive (+Vout) and negative (-Vout) outputs and float the output common.
7. 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.

Derating Curve



Recommended Input Components



Remote ON/OFF

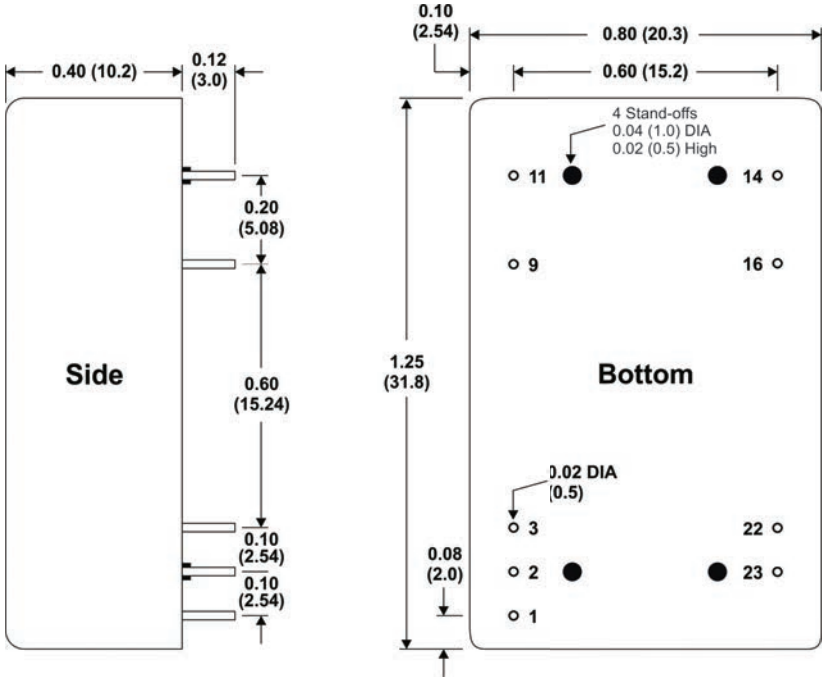
Parameter	Min	Max	Units
Supply On	3.0	12 or Open	VDC
Supply Off	0.0	1.2	VDC
Standby Input Current	5 mA Typical		
Control Common	Referenced to Neg. Input (pin 2,3)		

Pin Connections

Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2, 3	-Vin	-Vin
9	No Pin	Common
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Common
22, 23	+Vin	+Vin

NC: No Connection

Mechanical Dimensions



Mechanical Notes:

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

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