A600ERU Series

Single & Dual Output, 6W Ultra-Wide Input Range DC/DC Converters

A Cost Cutter Product

Key Features:

- 6W Output Power
- 4:1 Input Voltage Range
- 1,500 VDC Isolation
- -40ºC to +85ºC Temp Range
- Compact DIP Case
- Single & Dual Outputs
- 1.0 MH MTBF
- Industry Standard Pin-Out
- ***Low, Low Cost***

RoHS

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 (See Note 1)	24 VDC Input	9.0	24.0	36.0	VDC
	48 VDC Input	18.0	48.0	72.0	
Input Filter	Capacitors				
Reverse Polarity Input Current				1.0	A
Short Circuit Input Power				2,500	mW

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy	See Note 2		±1.0	±3.0	%
Output Voltage Balance	Dual Output , Balanced Loads		±3.0		%
Line Regulation	Vin = Min to Max		±0.2	±0.5	%
Load Regulation	See Note 3		±0.5	±1.0	%
Noise (20 Hz - 300 kHz)	See Note 4		30	50	mV P - P
Ripple (DC - 20 MHz)			100	300	mV P - P
Output Power Protection		120			%
Temperature Coefficient			±0.01	±0.02	%/ºC
Output Short Circuit	Continuous				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,500			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Switching Frequency	Single Output		300		kHz
	Dual Output		250		

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40		+85	ºC
Storage Temperature Range		-55		+125	ºC
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	0.49 Oz (14g)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25ºC, 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			300	ºC
Internal Power Dissipation	All Models			2,500	mW

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			Efficiency (%, Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Reflected Ripple Current (mA, Typ)	Voltage (VDC)	Current (mA, Max)	Current (mA, Min)		
	Nominal	Range	Full-Load	No-Load						
A601ERU	24	9.0 - 36.0	278	20	10	3.3	1,500	150.0	75	1,500
A602ERU	24	9.0 - 36.0	312	20	10	5.0	1,200	120.0	80	1,500
A603ERU	24	9.0 - 36.0	304	20	10	12.0	500	50.0	82	1,500
A604ERU	24	9.0 - 36.0	304	20	10	15.0	400	40.0	82	1,500
A605ERU	24	9.0 - 36.0	301	20	10	24.0	250	25.0	83	1,500
A606ERU	24	9.0 - 36.0	312	20	10	±5.0	±600	±60.0	80	1,500
A607ERU	24	9.0 - 36.0	304	20	10	±12.0	±250	±25.0	82	1,500
A608ERU	24	9.0 - 36.0	298	20	10	±15.0	±200	±20.0	84	1,500
A609ERU	24	9.0 - 36.0	294	20	10	±24.0	±125	±13.0	85	1,500
A611ERU	48	18.0 - 72.0	137	10	10	3.3	1,500	150.0	76	750
A612ERU	48	18.0 - 72.0	156	10	10	5.0	1,200	120.0	80	750
A613ERU	48	18.0 - 72.0	152	10	10	12.0	500	50.0	82	750
A614ERU	48	18.0 - 72.0	147	10	10	15.0	400	40.0	85	750
A615ERU	48	18.0 - 72.0	145	10	10	24.0	250	25.0	86	750
A616ERU	48	18.0 - 72.0	156	10	10	±5.0	±600	±60.0	80	750
A617ERU	48	18.0 - 72.0	152	10	10	±12.0	±250	±25.0	82	750
A618ERU	48	18.0 - 72.0	149	10	10	±15.0	±200	±20.0	84	750
A619ERU	48	18.0 - 72.0	147	10	10	±24.0	±125	±13.0	85	750

Notes:

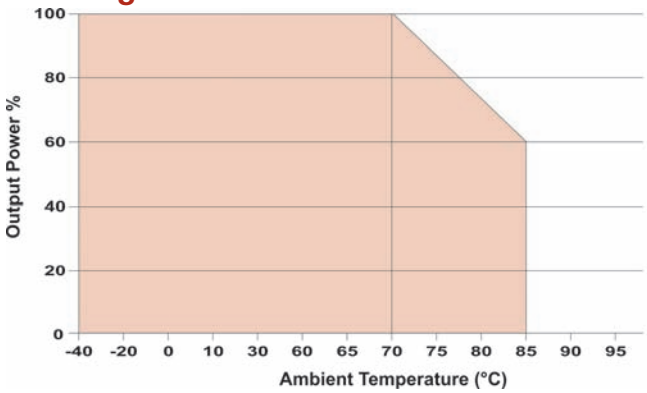
1. Exceeding the input range by a significant margin may damage the units. For 24V input the input voltage should not exceed 40V; for 48V models it should not exceed 80V.
2. Output accuracy for the negative output of dual output units is typically ±3% (±5% max.).
3. Output load regulation is specified for a load change of 10% to 100%. For 3.3V output units, the load regulation is ±1.5% max.
4. When measuring output ripple, it is recommended that an external 0.33 µF 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.
5. These units should not be operated with a load under the specified minimum. Operation at no-load will increase ripple significantly and may cause damage to the unit.
6. These converters are specified for operation without external components. However, in some applications the addition of input/output capacitors will enhance stability and reduce output ripple. Recommended capacitor values are:

Vin	Input Capacitor	Vout	Output Capacitor
24 VDC	100 µF	3.3 VDC	100 µF
48 VDC	100 µF	5 VDC	100 µF
		12 VDC	100 µF
		15 VDC	47 µF
		24 VDC	47 µF

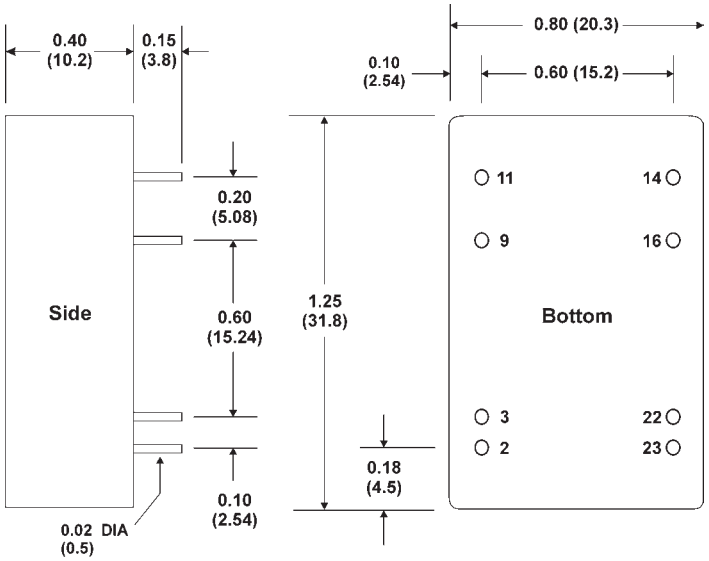
For applications requiring very low output noise levels, a simple LC filter should be effective.

7. It is recommended that a fuse be used on the input of a power supply for protection. See the Model Selection table above for the correct rating.

Derating Curve



Mechanical Dimensions



Pin Connections

Pin	Single	Dual
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 Notes:

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

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