Modular DC/DC Converters

GENERAL DESCRIPTION

Analog Devices' line of compact dc/dc converters offer system designers a means of supplying a reliable, easy to use, low-cost solution to a variety of floating (analog and digital) power applications. These devices provide high accuracy, short circuit protected, regulated outputs with very low output noise and ripple characteristics.

Fourteen models are offered in five power levels of 1 watt, 1.8 watts, 4.5 watts, 6 watts and 12 watts. Input voltage versions include 5 volt, 12 volt, 24 volt and 28 volt with output ranges as follows: +5 volt, ±12 volts and ±15 volts at ±60mA to 1000mA output current capability.

Most models are high efficiency (typically over 60% at full load) and feature complete 6-sided continuous shielding for EMI/RFI protection. A π-type input filter is contained, in some models, which virtually eliminates the effects of reflected input ripple current. Most Analog Devices' dc/dc converters are available from stock in both large and small quantities with substantial discounts being applied to large quantity orders.

DC/DC POWER SUPPLY FEATURES

- Inaudible (>20kHz) converter switching frequency
- Continuous, Six-Sided EMI/RFI Shielding Except on 1 Watt and 1.8 Watt Models
- Output Short Circuit Protection (either output to common)
- Automatic Restart After Short Condition Removed
- Automatic Starting with Reverse Current Injected into Outputs
- Low Output Ripple and Noise
- High Temperature Stability
- Free Air Convection Cooling

  No external heat sink or specification derating is required over the operating temperature range.

GENERAL SPECIFICATIONS FOR 1W AND 1.8W MODELS

Line Regulation–full range: ±0.3% (±1% max, 949)
Load Regulation–no load to full load: ±0.4% (±0.5% max, 949)
Output Noise and Ripple: 20mV p-p (with 15μF tantalum capacitor across each output) (2mV rms max, 949)
Breakdown Voltage: 300V dc min (500V dc min, 949)
Input Filter Type: π
Operating Temperature Range: −25°C to +71°C
Storage Temperature Range: −40°C to +125°C (+100°C, 949)
Fusing: If input fusing is desired, we recommend the use of a slow blow type fuse that is rated at 150%–200% of the dc/dc converter's full load input current.

GENERAL SPECIFICATIONS FOR 4.5W, 6W, 12W MODELS

Line Regulation–full range: ±0.07% max (±0.02% max, 951, 960 series) (±0.1% max, 943)
Load Regulation–no load to full load: ±0.07% max (±0.02% max, 951, 960 series) (±0.1% max, 943)
Output Noise and Ripple: 1mV rms max
Breakdown Voltage: 500V dc min
Input Filter Type: π
Operating Temperature Range: −25°C to +71°C
Storage Temperature Range: −40°C to +125°C
Fusing: If input fusing is desired, we recommend the use of a slow blow type fuse that is rated at 150%–200% of the dc/dc converter's full load input current.

SPECIFICATIONS – Typical @ +25°C at nominal input voltage unless otherwise noted*

Model	Output Voltage Volts	Output Current mA	Input Voltage Volts	Input[1] Voltage Range Volts	Input Current Full Load	Output Voltage Error max	Temperature Coefficient /°C max	Efficiency Full Load min	Dimensions Inches
943	5	1000	5	4.75/5.25	1.52A	±1%	±0.02%	62%	2.0×2.0×0.38
958	5	100	5	4.5/5.5	200mA	±5%	±0.01% (typ)	50%	1.25×0.8×0.4
941	±12	±150	5	4.75/5.25	1.17A	±1%	±0.01%	58%	2.0×2.0×0.38
960	±12	±40	5	4.5/5.5	384mA	±5%	±0.01% (typ)	50%	1.25×0.8×0.4
962	±15	±33	5	4.5/5.5	396mA	±5%	±0.01% (typ)	50%	1.25×0.8×0.4
964	±15	±33	12	10.8/13.2	165mA	±5%	±0.01% (typ)	50%	1.25×0.8×0.4
965	±15	±190	5	4.65/5.5	1.7A	±1%	±0.005% (typ)	62% (typ)	2.0×2.0×0.38
966	±15	±190	12	11.2/13.2	710mA	±1%	±0.005% (typ)	62% (typ)	2.0×2.0×0.38
967	±15	±190	24	22.3/26.4	350mA	±1%	±0.005% (typ)	62% (typ)	2.0×2.0×0.38
949	±15	±60**	5	4.65/5.5	0.6A	±2%	±0.03%	58%	2.0×1.0×0.375
940	±15	±150	5	4.75/5.25	1.35A	±1%	±0.01%	62%	2.0×2.0×0.38
953	±15	±150	12	11/13	0.6A	±0.5%	±0.01%	62%	2.0×2.0×0.38
945	±15	±150	28	23/31	250mA	±0.5%	±0.01%	61%	2.0×2.0×0.38
951	±15	±410	5	4.65/5.5	3.7A	±0.5%	±0.01%	62%	3.5×2.5×0.88

NOTES
[1]Models 940 and 941 will deliver up to 120mA output current (and model 943 will deliver up to 600mA) over an input voltage range of 4.65V dc and 5.5V dc.
*Consult Analog Devices Power Supply Catalog for additional information.
**Single-ended or unbalanced operation is permissible such that total output current load does not exceed a total of 120mA.
Specifications subject to change without notice.