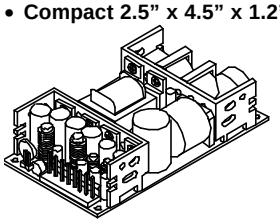
70 Watts

Advanced Product Bulletin

DC4-70 Series

Features

- **High Efficiency**
- **Advanced SMT Design**
- **36-72 VDC Input Range**
- **4250 VDC Input to Output Isolation meets Reinforced Insulation**
- **Compact 2.5" x 4.5" x 1.2" Size**
- **Fits 1U Applications**
- **Optional Chassis and Cover**
- **Size and Pin compatible with REL-70 Series**
- **Safety Certified to EN 60950, EN 60601-1**



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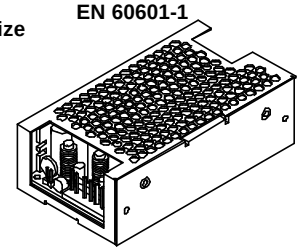


CHASSIS/COVER

Safety Specifications

c UL us	Underwriters Laboratories File E137708	Pending	UL 60950-1 First Edition UL 60601-1 First Edition CB Report per IEC 60950-1: 2001 First Edition including all National Deviations CB Report per IEC 60601-1(1988) Second Edition A1, A2
c UL us	UL Recognition Mark For Canada File E137708	Pending	CAN/CSA-C22.2 No. 60950-1-03 CAN/CSA-C22.2 No. 601-1-M90
TUV		Pending	EN 60950:2000 EN 60601-1/A2:1995
CE		Pending	Low Voltage Directive

Model Listing

MODEL	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4
DC4-70-4001	+3.3V/6A	+5V/5A	+12V/2A(1)	-12V/2A(1)
DC4-70-4002	+5V/6A	+3.3V/5A	+12V/2A(1)	-12V/2A(1)
DC4-70-4003	+5V/6A	+3.3V/5A	+15V/2A(1)	-15V/2A(1)
DC4-70-4004	+5V/6A	-5V/5A	+12V/2A(1)	-12V/2A(1)
DC4-70-4005	+5V/6A	-5V/5A	+15V/2A(1)	-15V/2A(1)
DC4-70-4006	+5V/6A	+24V/2A	+12V/2A(1)	-12V/2A(1)
DC4-70-4007	+5V/6A	+24V/2A	+15V/2A(1)	-15V/2A(1)
DC4-70-3001	+5V/6A	+12V/2A		-12V/2A
DC4-70-3002	+5V/6A	+15V/2A		-15V/2A
DC4-70-2001	+3.3V/6A	+5V/5A		
DC4-70-2002	+5V/6A	+12V/4A		
DC4-70-2003	+5V/6A	+24V/2A		
DC4-70-2004	+12V/3A	-12V/3A		
DC4-70-2005	+15V/3A	-15V/2A		
DC4-70-1001	2.5V/14A			
DC4-70-1002	3.3V/14A			
DC4-70-1003	5V/14A			
DC4-70-1004	12V/5.8A			
DC4-70-1005	15V/4.7A			
DC4-70-1006	24V/2.9A			
DC4-70-1007	28V/2.5A			
DC4-70-1008	48V/1.5A			

Consult factory for alternate output configurations
Specify optional chassis and cover when ordering.
Refer to Applications Information for complete output power ratings.
All specifications are maximum at 25º C unless otherwise stated and are subject to change without notice.

Output Specifications

Total Output Power at 50°C	50W	Convection Cooled
	70W	300 LFM Forced Air
Output Voltage Centering (50% load)	Output 1:	± 0.5%
	Output 2:	± 5.0%
	Output 3:	± 5.0%
	Output 4:	± 5.0%
Output Voltage Adjust Range	Output 1:	95 - 105%
Load Regulation (10-100% load change)	Output 1:	0.5%
	Output 2:	5.0%
	(4001-5 Models)	8.0%
	(2001 Model)	8.0%
	Output 3:	5.0%
	Output 4:	5.0%
Source Regulation	Outputs 1 – 4:	0.5%
Cross Regulation	Outputs 2 – 4:	4.0%
Output Noise	Outputs 1 – 4:	1.0%
Turn on Overshoot	None	
Transient Response	Outputs 1 – 4	
Voltage Deviation	5.0%	
Recovery Time	500µS	
Load Change	50% to 100%	
Output Overvoltage Protection	Output 1:	110% to 150%
Output Overpower Protection	110-160% rated Pout, cycle on/off, auto recovery	
Start Up Time	4 Seconds	

Input Specifications

Input Voltage Range	36 - 72 VDC
Input Under-Voltage Lockout	
Turn-On Voltage	29.0-35.0 VDC
Turn-Off Voltage	28.0-34.0 VDC
Input Overvoltage Shutdown	77.0-85.0 VDC
Maximum Input Current	2.7 A
Reflected Ripple Current	5 %
Efficiency	78% Typ., Full Power, 48VDC, varies by model

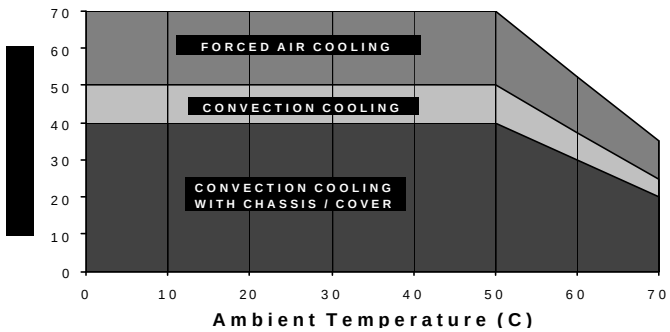
Environmental Specifications

Ambient Operating Temperature Range	0° C to + 70° C Derating: See Power Rating Chart
Ambient Storage Temp. Range	- 40° C to + 85° C
Temperature Coefficient	Outputs 1 – 4: 0.02% /°C
Vibration	MIL-STD-810E, Method 514.4, Category 1
Shock	Transit Drop per MIL-STD-810E, Method 516.4, Procedure IV

General Specifications

Dielectric Strength	4242 VDC, Primary to Secondary, 1 Sec. 2121 VDC, Primary to Ground, 1 Sec. 707VDC, Secondary to Ground, 1 Sec.
Power Good Signal	Logic high with input voltage above Vin min.
Remote Sense (singles only)	250mV compensation of output cable losses
Mean-Time Between Failures	100,000 Hours min., MIL-HDBK-217F, 25° C, GB
Weight	0.60 Lbs. Open Frame 1.00 Lbs. Chassis and Cover

Maximum Output Power vs. Ambient Temperature



DC4-70 Series Mechanical Specifications

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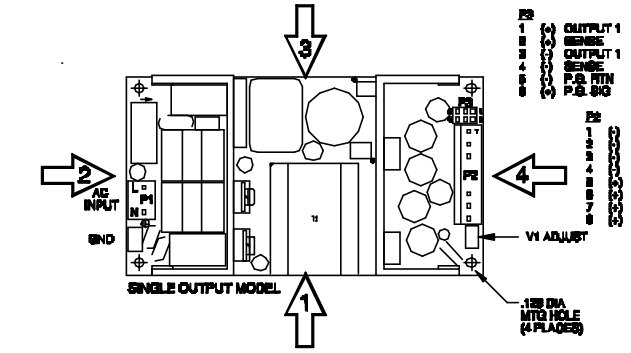
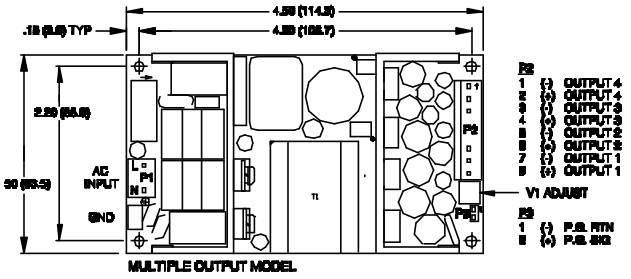
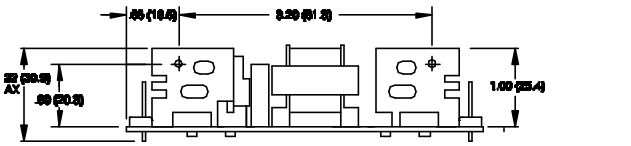
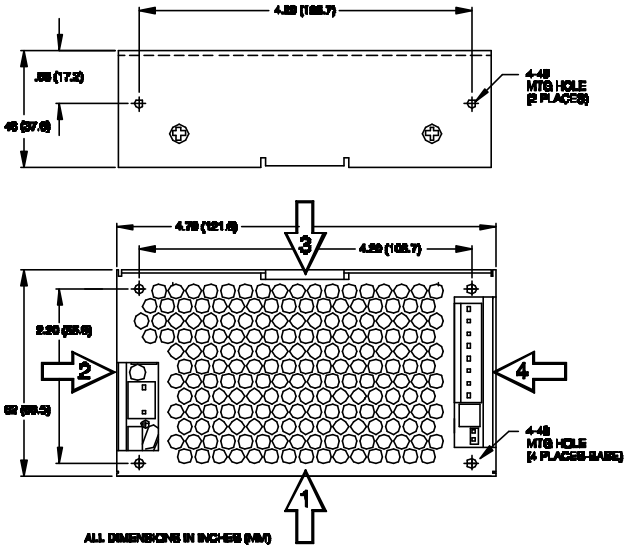






OPTIONAL CHASSIS/COVER



Recommended Air Flow Direction

1 – Optimum 2 – Good 3 – Good 4 - Fair

Applications Information

1. Rated 1.5A maximum with convection cooling.
2. Total power must not exceed 50 watts with convection cooling on open frame models except where noted.
3. Total power must not exceed 70 watts with 300 LFM forced air cooling on open frame models.
4. Total power must not exceed 40 watts with convection cooling and chassis/cover option.
5. Total power must not exceed 70 watts with 300 LFM forced air cooling and chassis/cover option.
6. Each output can deliver its rated current but total output power must not exceed maximum power as determined by the cooling method stated above.
7. Sufficient area must be provided around convection cooled power supplies to allow natural movement of air to develop.
8. 300 linear feet per minute of airflow must be maintained one inch above any point of the heatsink in the direction shown when forced air cooling is required.
9. This product is intended for use as a professionally installed component within information technology and medical equipment.
10. A minimum load of 10% is required on output one to ensure proper regulation of remaining outputs.
11. Remote sense terminals may be used to compensate for cable losses up to 250mV (single output models only). The use of a twisted pair is recommended as well as a decoupling capacitor (0.1 - 10µF) and a capacitor of 100µF/amp connected across the load side.
12. Peak to peak output ripple and noise is measured directly at the output terminals of the power supply, without the use of the probe ground lead or retractable tip, 20 MHz bandwidth.
13. This product includes only one fuse in the input circuit. In consideration of Clause 57.6 of UL 2601-1, a second fuse may be required in the end product.
14. This product was type tested and safety certified using the dielectric strength test voltages listed in Table V of UL 60601-1. In consideration of Clause 20.4g, care must be taken to insure that the voltage applied to a reinforced insulation does not overstress basic insulation. Secondary to ground capacitors may need to be removed prior to performing a dielectric strength type test on the end product. It is highly recommended that the DC test voltages listed in DVB.1, Annex DVB are not exceeded during a production-line dielectric strength test of the assembled end product. Please consult factory for further information.
15. This power supply has been safety approved and final tested using a DC dielectric strength test. Please consult factory before performing an AC dielectric strength test.
16. Maximum screw penetration into bottom chassis mounting holes is .100 inches.
17. Maximum screw penetration into side chassis mounting holes is .250 inches.
18. To meet emissions specifications, all four mounting hole pads must be electrically connected to a common metal chassis. Chassis/cover option recommended.

Connector Specifications

P1	AC Input	.156 friction lock header mates with Molex 09-50-3031 or equivalent crimp terminal housing with Molex 2478 or equivalent crimp terminal.
P2	DC Output (Single)	.156 friction lock header mates with Molex 09-50-3081 or equivalent crimp terminal housing with Molex 2478 or equivalent crimp terminal.
P2	DC Output (Multiple)	.156 friction lock header mates with Molex 09-50-3081 or equivalent crimp terminal housing with Molex 2478 or equivalent crimp terminal.
G	Ground	.187 quick disconnect terminal.
P3	P.G./Sense (Single)	.100 breakaway header mates with Molex 22-55-2061 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.
P3	Power Good (Multiple)	.100 breakaway header mates with Molex 50-57-9002 or equivalent crimp terminal housing with Molex type 71851 or equivalent crimp terminal.