

70050M8-1

(47- 800Hz)

90W, Multiple Output PFC Power Supply



Providing five independent output voltages and over 90W of continuous output power, the **70050M8-1** is optimized for wide frequency (47 – 800Hz) operation. Nominal line efficiency exceeds 75% at ½ to full output load and the supply is capable of providing 80W of combined output power during momentary input AC brown-out conditions for up to 200mSec.

Weighing less than 28 ounces, the **70050M8-1** is housed in an aluminum enclosure with outer dimensions of 7.0" x 4.0" x 1.40". The top cover is perforated; the lower U-Chassis accepts five #4 screws to facilitate system mounting. Interconnection is accomplished with three Molex straight locking vertical connectors.



FEATURES

	Exceeds RTCA/DO-160E, section 16, and Airbus ABD0100.1.8, issue D, for power factor and input current harmonic distortion levels over the wide operating frequency range of 360Hz to 800Hz
	Efficiency: 76% typical, ½ to full rated output load, nominal line (115Vrms)
	Wide input range: 97Vrms – 134Vrms, 47Hz – 800Hz
	Complies with RTCA/DO-160E, category M, for conducted emissions and susceptibility
	Active inrush current limiting: 7Apk
	Size: 7.0" x 4.0" x 1.40"; weight: less than 28 ounces
	Five standard outputs: +5.15V, +3.35V, +/-12V, 24V
	Independent over current protection on each output
	Multiple overcurrent, overvoltage and overtemperature protection features built-in
	AC status line (TTL)
	Output enable line (TTL)
	Output good status line (TTL)
	MTBF: 25,000 Hours, Aic category, 30°C case temperature (MIL-HDBK-217F)

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STANDARD OUTPUTS

PARAMETER	OUTPUT VOLTAGE				
DC Level	+3.35V	+5.15V	+12V	-12V	+24V
Voltage Regulation	+0.10V, 0.15V	+0.10V, 0.15V	+/- 0.6V	+/- 0.6V	+/- 1.0V
Output Current	5A	10A	1A	0.4A	0.3A
Maximum Load	16.8W	51.5W	12W	4.8W	7.2W
Minimum Load	0A	0A	0A	0A	0A
Peak-Peak Ripple + Noise (20MHz BW)	75mVpp	75mVpp	120mVpp	120mVpp	120mVpp
Over Current Trip-Point	5.5A	13A	1.4A	0.65A	0.35A
Notes	(1), (4)	(1), (4)	(1), (4)	(1), (4)	(2), (3), (4)

Notes:

1. Fold-back current limited, auto restart
2. Overcurrent protection with resettable (PTC) fuse
3. Unswitched output
4. Maximum supply simultaneous output power is limited to 92W using any combination of individual output current maximums provided. Uninterrupted hold-up time of 200mSec is provided for any 80W output load combination.

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INTERCONNECTION

Connector	P1	J1	J2
Type (Molex) Pin	43045-0612	43045-1412	43045-0812
1	AC Line	+5.15Vdc	Output Enable - H
2	Chassis	DC Return	DC Power Good - H
3	AC Neutral	DC Return	+24Vdc
4	Chassis	+12Vdc	DC Return
5	Chassis	DC Return	--
6	Chassis	+3.35Vdc	AC Power Fail - H
7		DC Return	+24Vdc
8		+5.15Vdc	DC Return
9		DC Return	
10		DC Return	
11		+12Vdc	
12		DC Return	
13		+3.35Vdc	
14		-12Vdc	

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ELECTRICAL SPECIFICATIONS

UNLESS OTHERWISE SPECIFIED THE FOLLOWING TEST CONDITIONS APPLY: Ta=25°C. CONSTANT ACTIVE LOADS APPLIED TO EACH OUTPUT. VIN=115Vrms, 400Hz, < 1.25% THD SINUSOID.

INPUT CHARACTERISTICS

PARAMETER	70050M8-1	REMARKS
INPUT VOLTAGE RANGE	97-134Vrms	COMPLIES WITH NORMAL/ABNORMAL INPUT VOLTAGES PER RTCA/DO-160E, SECTION 16
INPUT FREQUENCY RANGE	360Hz – 800Hz. EXCEEDS RTCA/DO-160E, SECTION 16, AND AIRBUS ABD0100.1.8, ISSUE D, FOR PF AND INPUT CURRENT HARMONIC DISTORTION LEVELS OVER THE WIDE OPERATING FREQUENCY RANGE FOR ½ TO FULL OUTPUT LOADING	OPERATES AT 47 – 360Hz WITH REDUCED DISTORTION PERFORMANCE
UNDERVOLTAGE INHIBIT	92Vrms +3, -2Vrms	OUTPUTS ARE INHIBITED WITHIN 2 SECONDS OF DETECTION OF INPUT UNDERVOLTAGE CONDITION
LEAKAGE CURRENT	< 5mA	AC LINE/NEUTRAL TO CHASSIS, @ 115Vrms / 400Hz
EFFICIENCY	76% TYPICAL 73% MINIMUM	NOMINAL LINE AND ½ TO FULL OUTPUT LOAD (46W to 92W) BALANCED OUTPUT LOAD CONDITION
INRUSH CURRENT	< 7.0A _{pk}	COLD OR WARM START
TOTAL HARMONIC DISTORTION (INPUT CURRENT)	< 5%	1/2 TO FULL OUTPUT LOAD (46W to 92W)
INDIVIDUAL HARMONICS AC CLEAN (V _{thd} < 1.25%)	EVEN: < 1% I _f / n, (n<10) EVEN: <0.1% I _f (n ≥10) ODD: < 30% I _f / n ODD TRIPLENS: < 15% I _f / n	I _f = Max fundamental current measured at 92W output, V _{thd} ≤ 1.25%, n = 1 thru 99, n = Order of harmonic ½ to full output load (46W to 92W) Harmonic currents less than 5mA _{rms} are disregarded
INDIVIDUAL HARMONICS DISTORTED INPUT, CLIPPED SOURCE (V _{thd} > 10%)	EVEN: < 1% I _f / n + V _n (n<10) EVEN: <0.1% I _f + V _n (n ≥10) ODD: < 30% I _f / n + V _n ODD TRIPLENS: < 15% I _f / n + V _n	I _f = Max fundamental current measured at 90W output, V _{thd} ≥ 5%, n = 1 thru 99, V _n = Corresponding input voltage harmonic ½ to full output load (46W to 92W) Harmonic currents less than 5mA _{rms} are disregarded
POWER FACTOR	0.90 min	P _{out} > 46W
CREST FACTOR (CURRENT)	1.314 - 1.514	RATIO OF PEAK TO RMS
START-UP TIME	< 750mSec	OUTPUTS WITHIN REGULATION

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INPUT CHARACTERISTICS—CONTINUED

PARAMETER	70050M8-1	REMARKS
CONDUCTED EMISSIONS	RTCA/DO-160E	CATEGORY M EQUIPMENT
STORAGE TEMPERATURE RANGE	-55°C TO +100°C	NON-OPERATIONAL
OPERATING TEMPERATURE RANGE	-25°C TO +70°C	REQUIRES EXTERNAL AIRFLOW OR HEATSINKING TO ASSURE CASE TEMPERATURE DOES NOT EXCEED 100°C
OUTPUT ENABLE - H	TTL LEVEL, SECONDARY REFERENCED	DISABLES ALL OUTPUTS EXCEPT +24V WHEN PULLED LOW. AN OPEN OR GREATER THAN 2.5V APPLIED TO THIS PIN ENABLES SUPPLY OUTPUTS
OVERTEMPERATURE SHUTDOWN	100°C +/- 4°C	SUPPLY IS INHIBITED WHEN CASE TEMPERATURE IS DETECTED AT OR ABOVE 100°C. AUTO RESTART AT ~ 80°C CASE TEMPERATURE

OUTPUT CHARACTERISTICS

PARAMETER	70050M8-1	REMARKS
RATED OUTPUT POWER	92W	CONTINUOUS
RATED OUTPUT VOLTAGES	SEE "STANDARD OUTPUTS" TABLE	ANY COMBINATION OF LINE / LOAD
TEMPERATURE STABILITY COEF.	0.01% / °C	OUTPUT VOLTAGES
OUTPUT RIPPLE + NOISE (pk - pk)	SEE "STANDARD OUTPUTS" TABLE	20MHz BANDWIDTH (EACH OUTPUT)
LINE REGULATION	< 0.5%	INDIVIDUAL OUTPUT DEVIATION FOR ± 20%, STEP CHANGE IN LINE VOLTAGE
LOAD REGULATION	OUTPUTS REMAIN WITHIN RESPECTIVE REGULATION WINDOWS	50% STEP CHANGE IN INDIVIDUAL OUTPUT LOAD
HOLD-UP TIME, AC INTERRUPT	200mSec MINIMUM	UNINTERRUPTED RIDE-THROUGH DURING AN AC INTERRUPT FOR ANY COMBINED OUTPUT POWER LEVEL OF 80W
ISOLATION VOLTAGE INPUT TO CHASSIS	1500Vac, 60Hz	NO ARCING OR DAMAGE FOR 60 SECOND TEST DURATION. MAXIMUM LEAKAGE CURRENT IS 8mArms WITH "Y" SUPPRESSION CAPACITORS INTACT (< 1mArms WITH "Y" SUPPRESSION CAPACITORS REMOVED FOR TEST)
ISOLATION VOLTAGE INPUT TO OUTPUT	1500Vac, 60Hz	NO ARCING OR DAMAGE FOR 60 SECOND TEST DURATION. MAXIMUM LEAKAGE CURRENT IS 8mArms WITH "Y" SUPPRESSION CAPACITORS INTACT (< 1mArms WITH "Y" SUPPRESSION CAPACITORS REMOVED FOR TEST)

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OUTPUT CHARACTERISTICS—CONTINUED

<i>PARAMETER</i>	<i>70050M8-1</i>	<i>REMARKS</i>
ISOLATION VOLTAGE OUTPUT TO CHASSIS	250Vdc	NO ARCING OR DAMAGE FOR 60 SECOND TEST DURATION (100Mohm MINIMUM)
OUTPUT VOLTAGE ADJUSTMENT	NONE	
EXT "AC POWER FAIL – H" STATUS LINE	HIGH STATE, 2.5Vmin LOW STATE, 0.5Vmax @ 3mA SINK CURRENT	ACTIVE HIGH (W/ RESPECT TO DCrtn) UPON DETECTION OF INPUT AC < 92Vrms. ASSERTS HIGH WITHIN 10mSEC UPON DETECTION OF LOSS OF INPUT AC
"DC POWER GOOD – H" STATUS LINE	HIGH STATE, 2.5Vmin LOW STATE, 0.5Vmax @ 3mA SINK CURRENT	ACTIVE HIGH (W/ RESPECT TO DCrtn). AS- SERTS LOW WITHIN 5mSEC UPON DETECTION OF UNDERVOLTAGE CONDITION ON MAIN 5.15V OUTPUT (@4.9V)

To inquire about price, delivery or options
please contact PPI's sales department.