70050M7

(18—32Vdc)

130W Multiple Output,
DC Input Power Supply

Providing four isolated output voltages and up to 130W continuous output power, the **70050M7** is optimized for 28Vdc RTCA/DO-160D airborne applications. Incorporating synchronous rectifiers and precision control, overall supply efficiency exceeds 80% at full rated output load. The **70050M7** is capable of providing up to 65W output during momentary input DC brown-out conditions for 50m-Sec.

Weighing less than 38 ounces, the **70050M7** is mounted on an aluminum plate for card guide installation into a standard 6U chassis. Card ejectors are included to facilitate easy insertion and removal. Lower plate dimensions are 6.41" x 9.19" and overall supply height is 1.38". Interconnection is accomplished using two right angle Positronic power connectors.

The **70050M7** is designed and manufactured to stand-up to the harsh operating environments encountered in today's aircraft installations. Incorporating multiple layers of built-in protection features; including overcurrent, overvoltage and over-temperature; safe and reliable operation is assured for each and every application.

FEATURES

	Efficiency: 77% typical at half rated output; 80% at full rated output load
	Wide input range: 18 – 32Vdc
	Active inrush current limiting: 15Apk
	Size: 6.41" x 9.19" x 1.38"; Weight: less than 38 ounces
	Four standard outputs: +3.3V, +5V, ± 12V
	Independent over-current and over-voltage protection on each output
	Input DC valid status line (TTL)
	Output DC valid status line (TTL)
	Over-temperature protection and over-temperature fault signal (TTL)

To inquire about price and delivery please contact PPI.

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STANDARD OUTPUTS

PARAMETER	OUTPUT VOLTAGE			
	+3.3V	**+5V**	**+12V**	**-12V**
Voltage Regulation	± 2.5%	± 2.5%	± 5%	± 5%
Output Current	5.75A	6.5A	5A	1.6A
Maximum Load	19W	32.5W	60W	19W
Minimum Load	0A	0A	0A	0A
Pk-pk Ripple + Noise (20MHz)	33mVpp	50mVpp	120mVpp	120mVpp
Overcurrent Trip-point	7.4A	8.4A	6.5A	2.1A
Notes	2,3	1,3	2,3	2,3

Notes:

1. **Pulse-retry circuit limited to 3% duty cycle**
2. **Fold back current limited**
3. **Maximum supply (simultaneous) output power is limited to 131W using any combination of individual output current maximums provided**

SPECIFICATIONS

	RTCA/DO-160D, section 16, change notice 2, power input requirements for DC input, category A equipment
	RTCA/DO-160D, section 17, voltage spike, category B equipment
	RTCA/DO-160D, section 18, conducted susceptibility, category Z equipment
	RTCA/DO-160D, section 19, induced signal susceptibility, category Z equipment
	RTCA/DO-160D, section 20, conducted and radiated susceptibility, category T equipment
	RTCA/DO-160D, section 21, conducted and radiated emissions, category H equipment
	RTCA/DO-160D, section 4, altitude (operating) to 15,000 feet, category A1 equipment
	RTCA/DO-160D, section 8, vibration (operating) category S, curve B
	RTCA/DO-160D, section 6, humidity (operating) category A
	RTCA/DO-160D, section 15, magnetic effect, category B
	Shock (non-operating): 10g, 11ms, sawtooth, 3 pulses of each polarity in each direction (18 total)
	Operating temperature: -15°C to +70°C
	Storage temperature: -55°C to +85°C

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INTERCONNECTION

Connector	P2	P1	Connector	P2	P1
Pin #	Positronic P/N PLA03M4B0A1	Positronic P/N PCIH47M400A1	Pin #	Positronic P/N PLA03M4B0A1	Positronic P/N PCIH47M400A1
1	DC (+) Input	+5Vout	25	--	DC Return
2	DC (-) Input	+5Vout	26	--	NC
3	Chassis	+5Vout	27	--	NC
4	--	+5Vout	28	--	NC
5	--	DC Return	29	--	NC
6	--	DC Return	30	--	NC
7	--	DC Return	31	--	NC
8	--	DC Return	32	--	NC
9	--	DC Return	33	--	+3.3V Sense
10	--	DC Return	34	--	DC Return
11	--	DC Return	35	--	NC
12	--	DC Return	36	--	NC
13	--	+3.3Vout	37	--	NC
14	--	+3.3Vout	38	--	DCOUTFAIL - L
15	--	+3.3Vout	39	--	OVRTEMP - L
16	--	+3.3Vout	40	--	NC
17	--	DC Return	41	--	NC
18	--	DC Return	42	--	DCFAIL - L
19	--	+12Vout	43	--	NC
20	--	+12Vout	44	--	NC
21	--	-12Vout	45	--	Chassis
22	--	DC Return	46	--	NC
23	--	NC	47	--	NC
24	--	DC Return			

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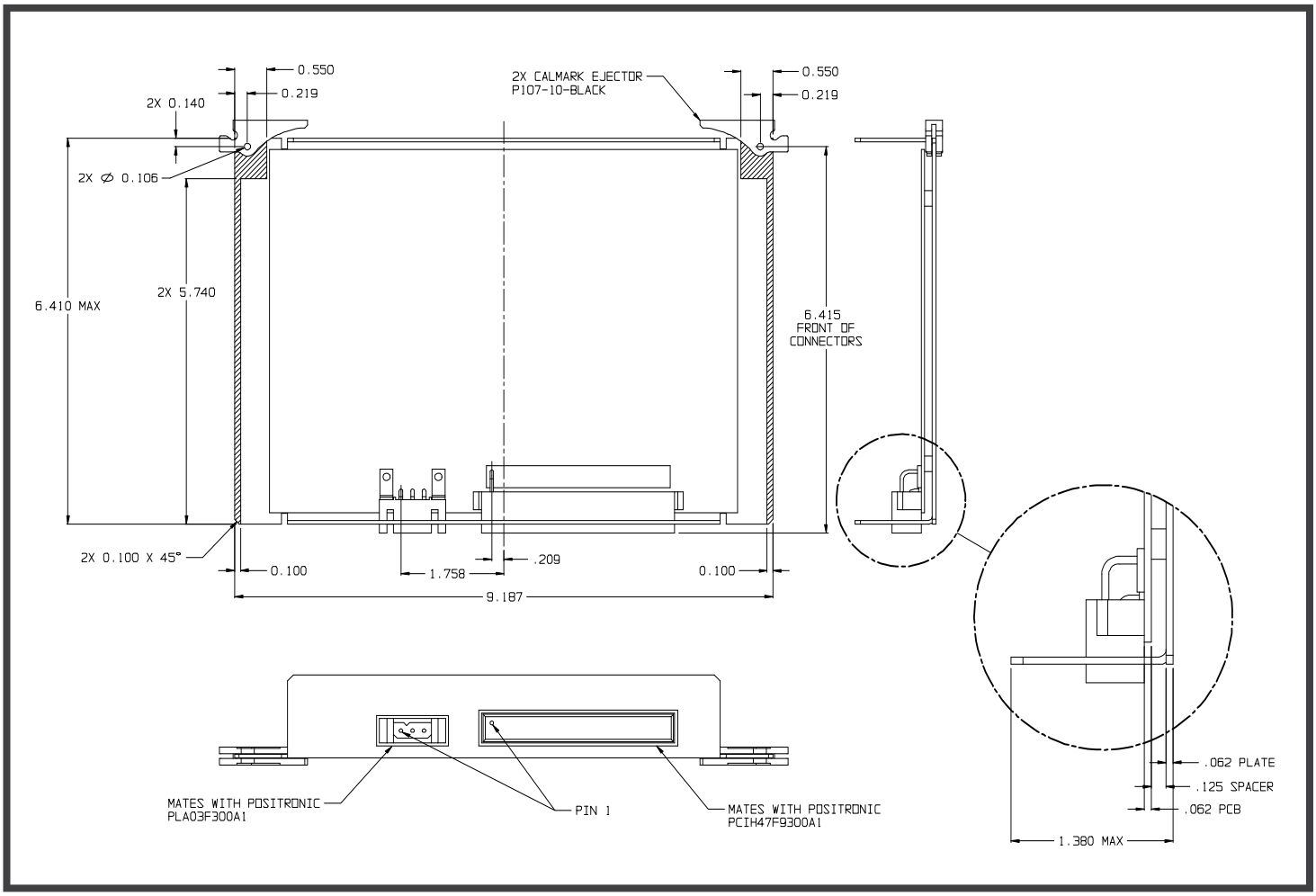
MECHANICAL DIAGRAM



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ELECTRICAL SPECIFICATIONS

UNLESS OTHERWISE SPECIFIED THE FOLLOWING TEST CONDITIONS APPLY: Ta = 25°C. CONSTANT ACTIVE LOADS APPLIED TO OUTPUTS, Vin = 28Vdc.

INPUT CHARACTERISTICS

PARAMETER	*70050M7*	*REMARKS*	*NOTES*
INPUT VOLTAGE RANGE	**18 – 32Vdc**	**Complies with normal / abnormal input voltages for DC operation per RTCA/DO-160D, Section 16, Category A**	**2**
INPUT CURRENT	**6.2A max at 28.0Vdc input 9.8A max at 18.0Vdc input**	**Full rated output load (130W)**	**2**
EFFICIENCY (FULL LOAD)	**80.5% typical at 28.0Vdc input 75.5% typical at 18.0Vdc input**	**Full rated output load (130W)**	**2**
EFFICIENCY (50% LOAD)	**77.0% typical at 28.0Vdc input**	**Half rated output load (65W)**	**2**
INPUT VOLTAGE SURGE WITHSTAND	**48Vdc @ 100mSec 38Vdc @ 1 Sec**	**Per RTCA/DO-160D, Section 16, Category A. Outputs remain in proper regulation during and after application of input surges**	**1**
INRUSH CURRENT	**<15.0Apk typical, 25.7Apk max**	**Cold or warm start**	**2**
START-UP TIME	**<500mSec**	**Outputs within regulation**	**2**
CONDUCTED EMISSIONS	**RTCA/DO-160D, Section 21**	**Category H equipment**	**1**
QUIESCENT POWER	**6.5W typical**	**Pout = 0W**	**2**
STORAGE TEMPERATURE RANGE	**-55°C TO +100°C**	**Non operational**	**1**
OPERATING TEMPERATURE RANGE	**-25°C TO +70°C**	**Requires external airflow or heatsink to assure case temperature does not exceed 100°C**	**1**
OVERTEMPERATURE SHUTDOWN	**100°C +/- 4°C**	**Supply is inhibited at or above 100°C, auto re-start at ~ 80°C case temperature**	**1**

OUTPUT CHARACTERISTICS

PARAMETER	70050M7	REMARKS	NOTES
RATED OUTPUT POWER	130W	Continuous	2
OUTPUT VOLTAGE TOLERANCE	3.3V ± 2.5%, 5V ± 2.5%, ± 12V ± 5%	See "STANDARD OUTPUTS" table	2
TEMPERATURE STABILITY COEFFICIENT	0.01% / °C	Output voltages	1
OUTPUT RIPPLE + NOISE (pk-pk)	<1%, each output	20MHz Bandwidth (each output)	2
MINIMUM OUTPUT LOAD	0A, each output	No output load required for supply stability or proper output regulation	2
LINE REGULATION	<0.5%	Individual output deviation for ± 20% step change in input voltage	1
LOAD REGULATION (TRANSIENT LOAD RECOVERY)	Outputs remain within regulation limits	50% step change in individual output load currents	1
HOLD-UP TIME	25mSec @ Pout = 130W 50mSec @ Pout = 65W	Input 28Vdc interrupt	2
ISOLATION VOLTAGE INPUT TO OUTPUT	500Vdc	No arcing or damage for 60 second test duration	1
ISOLATION VOLTAGE INPUT TO CHASSIS	100Vdc	No arcing or damage for 60 second test duration	1
DC INPUT STATUS "DCFAIL-L"	Transitions to 0.5V max level upon detecting input DC at or below 18Vdc	Secondary referenced, 10mSec delay time, TTL level, 1mA max source current; 3mA max sink current	2
OVERTEMPERATURE STATUS "OVRTEMP-L"	Transitions to 0.5V max level upon detecting an internal operating temperature of 90°C; prior to supply shutdown.	Secondary referenced, 10mSec delay time, TTL level, 1mA max source current; 16mA max sink current	1
DC OUTPUT STATUS "DCOUTFAIL-L"	Transitions to 0.5V max level upon detecting any one of the four outputs are operating outside of their respective regulation windows	Secondary referenced, 10mSec delay time, TTL level, 1mA max source current; 16mA max sink current	2
OUTPUT OVERVOLTAGE PROTECTION	Each output limited to 125% of nominal set point	Pulse-by-pulse protection, 4mSec fault to activation delay, auto-restart	1
OUTPUT VOLTAGE ADJUSTMENT	None		

Notes:

Ensured by design, not 100% tested in production.

100% tested for specification compliance in production.