

FEATURES

* 8.4ms HOLD UP AT FULL POWER OF 200W

- Patented Switched Boost Topology reduces hold up capacitance by 80%
- Boost supply tightly regulated to 59.5V to meet SELV requirements.
- No requirement for external hold up capacitors

* VOLTAGE OUTPUTS

- Isolated 3V3 IPMI Supply
- Isolated 5V BLUE LED Supply
- 6.6 watts of total power on IPMI
- Over-current Protection
- 12V INTERMEDIATE VBUS supply

* MECHANICAL

- Designed to be fitted in Zone 1/2 connector area and be used with AMC
- 47mm wide in Zone 1 area
- Low Profile (19.5mm total height above FRB) including hold up capacitors
- Surface Mount Samtec connectors combined with high power solder pins

* MONITORING

- 48VA and 48VB voltage monitoring available from A/D converter
- ENABLE_A and ENABLE_B monitoring available from A/D converter
- Input current and PSU_TEMP monitoring available from A/D converter
- All available on I²C interface referenced to 3V3 IPMI

* REGULATORY COMPLIANCE (pending)

- Meets CISPR 22 EMC requirements without the addition of external components
- ETSI, EN60950, Telspec1555
- UL approval
- Fully integrated fusing

* ACTIVE INRUSH CURRENT PROTECTION.

- 5 times inrush current limit.
- Hiccup mode if over-current persists
- All input lines protected by fuses

* INTERMEDIATE VBUS CONTROL

- Secondary side ON/OFF control of INTERMEDIATE VBUS
- Secondary side sequencing of 2 additional core output rails

* HIGH EFFICIENCY IPCM

- 0.5V input to output drop at full power
- Active FET based input voltage orring with reverse current protection



Description

The Visionpower IPCM –200 combined with Synqor PQ60120HPA20NN7 provides a complete solution for Advanced TCA (PICMG 3) intermediate bus (VBUS) applications. It provides a fully compliant solution and additionally integrates the control and supervision of low voltage core supplies simplifying the integration of Intelligent Power Managers within FRBs.

From a dual redundant –48V input the unit delivers 12V at up to 20A and includes a 3V3 IPM supply capable of delivering 2 amps for power management functions. An additional 5V 300mA supply is included to provide power for BLUELED or power up history circuitry.

The single mezzanine card meets the pitch requirements for ATCA with an overall height above the FRB of 19.5mm. The unit is dimensioned to ensure 48V primary side voltages are restricted to within the Zone 1 area of FRBs thereby avoiding clearance and creepage problems associated with the input circuitry. Connectivity to the FRB is via a combination of solder pins and SAMTEC 2mm pitch headers minimising assembly time and maximising packaging density. This approach has the added advantage that the FRB can be manufactured using SMT connectors and only high power connections require soldering.

PQ60120HPA20 Features

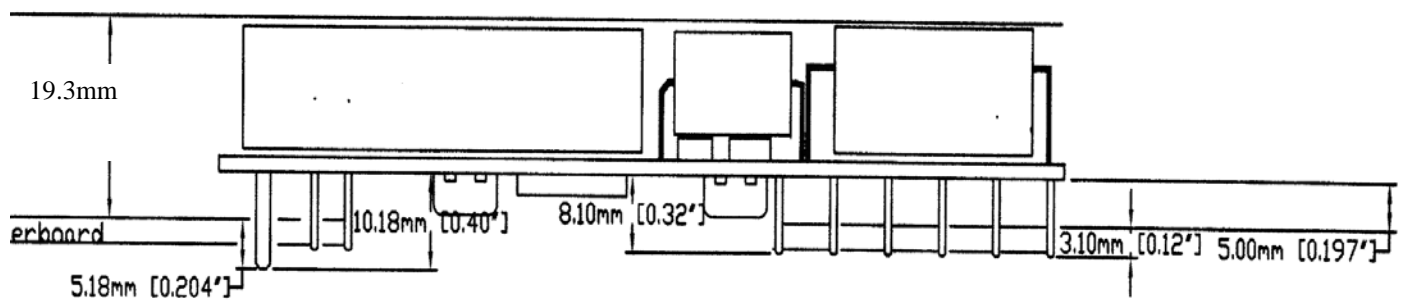
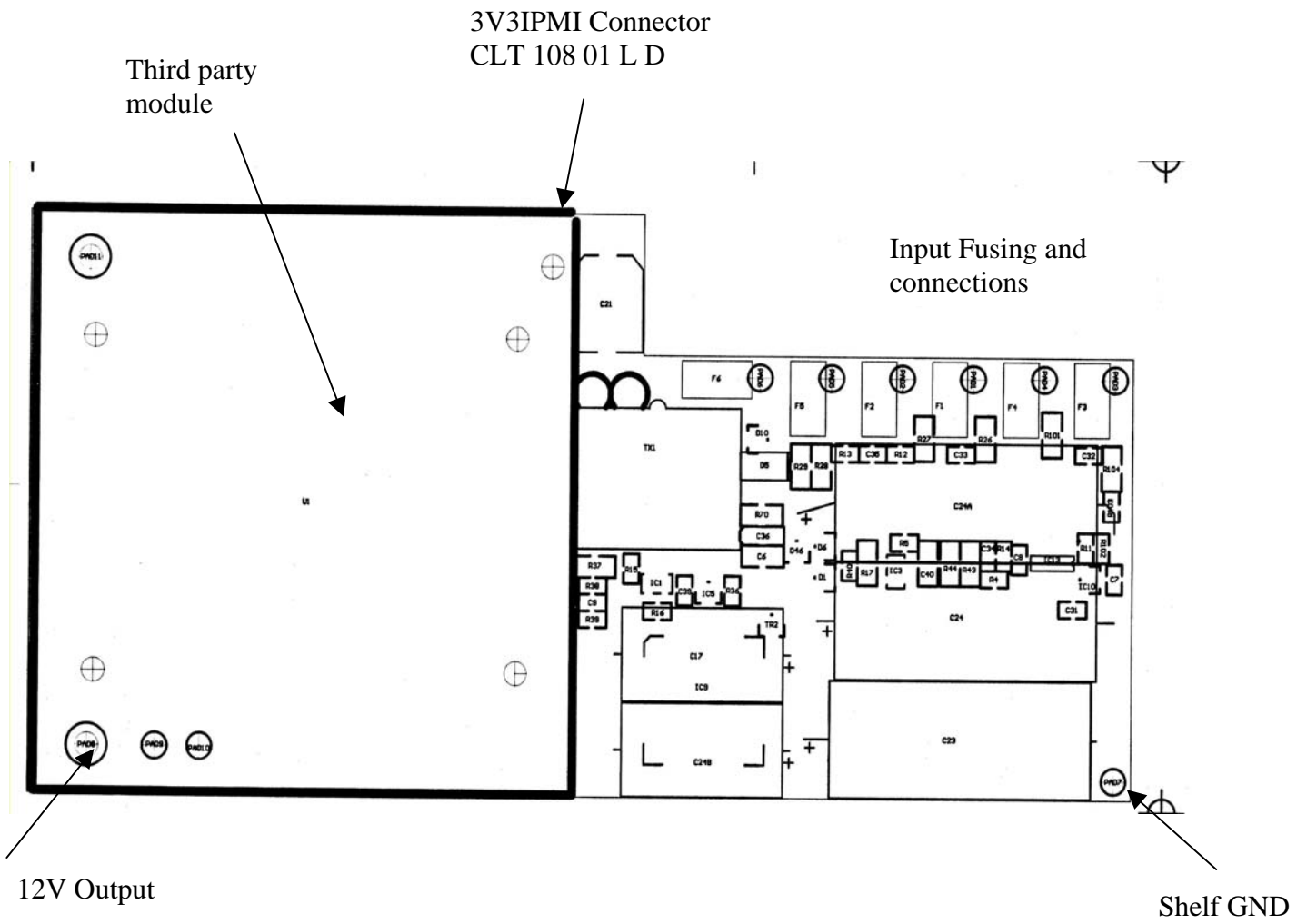
See the full Synqor Specification for feature on the 240W 12V out 20A PSU. (PQ60120HPA20)

ELECTRICAL CHARACTERISTICS

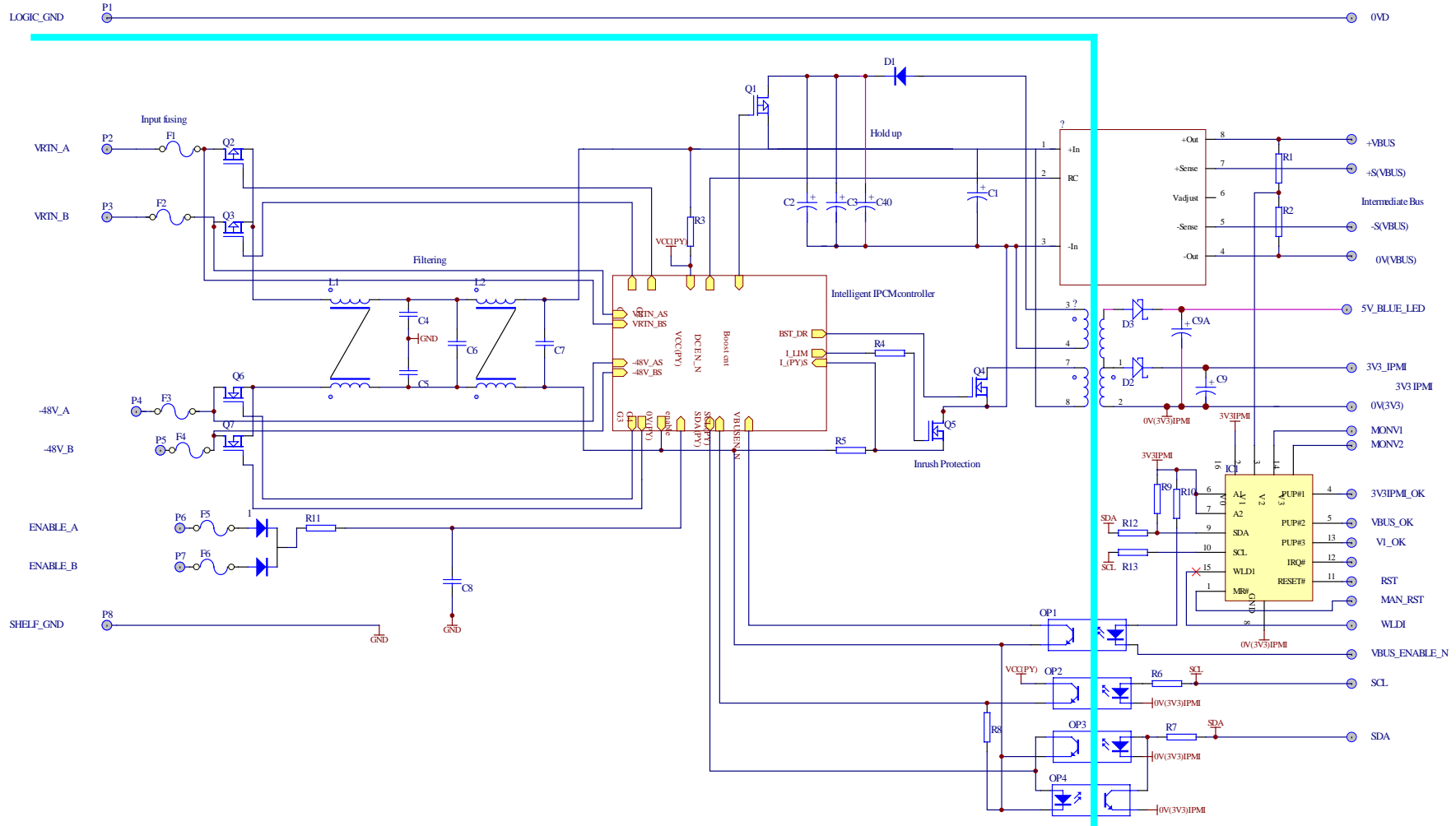
Parameter	IP-SY 200-12-47 PSU	Min	Typ	Max	Units	Notes & Conditions
ABSOLUTE MAXIMUM RATINGS						
Input Voltage						
Non Operating		-100		+100	V	
Operating				80	V	Continuous
Operating transient Protection				100	V	100ms transient
Isolation Voltage (Input to Output)				2000	V	Basic Insulation Level 2
(Input to Shelf GND)				1500	V	
Operating Temperature		-40		100	C	Output power derated with temperature. See user guide
Storage Temperature		-40		125	C	
Terminal Voltage with respect to 0V(out)		-0.3		6.0	V	Logic I/O referenced to output.
INPUT CHARACTERISTICS						
Operating Input Voltage Range (Intermediate Bus Converter)		-35.5	-48	-75	V	
Operating Input Voltage Range (3V3 IPMI Converter)		-34	-48	-75	V	
Input Cut Off Voltage		-32.3	-33	33.7	V	
Input Current below Cut Off Voltage				10	mA	
Maximum Input Current				6	A	35.5 volt input 200W load.
No Load Input current				200	mA	
Enable Input Current				100	mA	
Inrush Current				20	A	ie < 5X maximum
Fuse ratings Littlefuse 0451 series						
-48VA and -48VB				8	A	Fast Acting SMT
-48V A RTN and -48VB RTN				10	A	Fast Acting SMT
ENABLE_A and ENABLE_B				375	mA	Fast Acting SMT
Active Fusing						
Circuit Breaker trip				10	A	
Circuit Breaker delay time			2.5		mS	
Retry Time Period			0.88		S	
Hold Up		8.4			mS	200W input at > 40.5V dc input .
Discharge Time				1	sec	
Clearances						
Fuse feed track clearance		2.8			mm	
Input to Outputs		1.4			mm	
Input to Shelf Ground		1.4			mm	
Conducted emissions 0.15 to 0.5MHz (Average)				56 to 46	dBuV	Meets CISPR 22 Class B
Conducted emissions 0.5 to 5MHz (Average)				46	dBuV	
Conducted emissions 5 to 30MHz (Average)				50	dBuV	
OUTPUT CHARACTERISTICS						
3V3 IPMI Supply						
Output Voltage Set Point		3.25	3.30	3.35	V	
Output Voltage regulation						
Line			5	10	mV	36V -72V input range
Load			20	50	mV	0 to 100% load
Temperature				50	ppm	
Ripple			50		mV	pk-pk
Noise			50		mV	BW 20MHz.
Operating Output Current range (See Note 3)		0		2	A	
Current Limit			3A		A	At 48V input
5V Blue LED Supply						
Output Voltage Set Point		4.87	5.00	5.15	V	
Output Voltage regulation						
Line			5	10	mV	36V -72V input range
Load			25	50	mV	0 to 100% load
Temperature				50	ppm	
Ripple			50		mV	pk-pk
Noise			50		mV	BW 20MHz.
Operating Output Current range (See Note 3)		0		300	mA	
Current Limit			500		mA	Over-temperature Protected
INTERMEDIATE BUS (VBUS)						
Output Voltage Set Point		11.88	12.00	12.12	V	
Line Regulation						
Line Regulation			6	12	mV	36V -72V input range
Load Regulation						
Load Regulation			12	24	mV	0 to 100% load
Ripple			50	100	mV	pk-pk
Operating Output Current range		0		20	A	
Current Limit		22	23.5	25	A	
Input Monitoring						
(48VA, 48VB, I(48), ENA, ENB, TEMP.)						
Resolution		8			BIT	
Relative Accuracy				+/-1	LSB	
Voltage multiplier			0.5V		mV/Bit	
Current multiplier			90		mA/Bit	
Temperature			1.6		C/Bit	
Serial Clock Frequency (Fast Mode)				400	KHz	

- Note:
- 1 Please refer to Synqor data sheet for 12V module characteristics not listed above.
 - 2 Please refer to Maxim data sheet 1038 for A/D programming and Summit SMS45 for Power sequencing
 - 3 Maximum combined power from 3V3 and 5V BLUE LED supply not to exceed 6.6 watts.

Mechanical



Block Schematic



TYPICAL APPLICATION

ATCA ZONE1 CONNECTOR



PIN CONFIGURATION DIAGRAM

Pins INTERMEDIATE BUS AND OVD are 2.03mm dia.
All other pins are 1.02 mm dia.
NO EXTERNAL COMPONENTS REQUIRED FOR FULL OPERATION

PIN NO	Name	Description
1	VRTN A	-48VA input return orred in module with -48VB input return
2	VRTN B	-48V B input return orred in module with -48VA input return
3	-48VA	-48VA input orred in module with -48VB input
4	-48VB	-48VB input orred in module with -48VA input
5	ENABLE A	Connect to -48VA input return on shelf to enable module orred in module with Enable B
6	ENABLE B	Connect to -48VB input return on shelf to enable module orred in module with Enable A
7	SHELF_GND	Connect to chassis connections on FRB to ensure proper earthing.
8	INTERMEDIATE VBUS	Output power for Intermediate Bus
9	SEN+	Connect to 12V at load.
10	SEN-	Connect to 0VD at (VBUS) load return.
11	0VD	0V(VBUS) RETURN power for intermediate Bus.
CON 1 1	0VD	0V (3V3) should be connected to 0V(VBUS)
CON 1 2	3V3	3V3 supply to power Intelligent Platform Manager on board
CON 1 3	VBUS_OK	ACTIVE LOW indicates VBUS is in spec.
CON 1 4	3V3_OK	ACTIVE LOW indicates 3V3 is in spec.
CON 1 5	EXTV1_MON	Monitor point for external core rail 1.
CON 1 6	EXTV1_OK	ACTIVE LOW indicates external core rail 1 is in spec (Customer programmable)
CON 1 7	SCLSEC	Secondary side referenced I ² C clock input. (referenced to 3V3 supply)
CON 1 8	EXTV2_MON	Monitor point for external core rail 2.
CON 1 9	N.C	No connection
CON 1 10	SDASEC	Secondary side referenced I ² C data input/output for programming external core rail 1 and 2 monitoring. Also reading A to D outputs derived from – input 48VA,B,EnableA, ,B, -48V Input current and module temperature (referenced to 3V3 supply).
CON 1 11	MAN_RST	Low whenever RESET is low or when driven low. Stays low for programmable time in the range 25 to 200ms.
CON 1 12	RESET	ACTIVE LOW open drain output which is low whenever an enabled under or overvoltage condition exists on 3V3, 12V, EXTV1, or EXTV2.
CON1 13	N.C	No connection
CON 1 14	WLD1	Watchdog timer input. High to Low transition clears the watchdog timer. Programmable from “OFF” to 6.4 seconds.
CON1 15	VBUS_ENABLE	Module enable input. Logic low (referenced to (3V3) enables 12V converter.
CON1 16	5V_BLUE_LED	5V supply for Blue LED

Contact VISIONPOWER for the application note VP AN-15 if you would like a more detailed explanation on IPSY200-12-47 in terms of electrical performance and software addressing.



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