

Features:

- Universal Input 100 – 240 VAC
- AC Input Range Auto-Selectable
- Low Leakage Current
- 2 VDC – 60 VDC Output
- Over-Current Protection
- Over-Voltage Protection
- Peak Power 700W within 500uS Duty Duration
- 4 Mechanical Options
- RoHS Compliant



Input Voltage: 90-132 / 180-264 VAC auto-ranging, 47~63Hz.

Input Current: 8/4A at 100-120/200-240 VAC.

Inrush Current: Max. 70A @ 230 VAC & 35A @ 115 VAC; cold start.

PFC: Power Factor Correction pass EN61000-3-2 class A.

Transient Response: Returns to within 1% in less than 2.5mS for a 50% load change and the peak transient does not exceed 5%.

Overshoot: Turn-on & off overshoot <5% over nominal voltage.

Efficiency: 70% for 3.3V, 75% for 5V, 80% for 12V and 83% minimum for others output @ 230 VAC and full load.

Turn On Delay: 1 second maximum at 120 VAC.

Hold Up Time: 20mS min. at 80% of full load.

Adjustability: Output user adjustable $\pm 5\%$ minimum.

Fan Drive: 12VDC/400mA offering to drive an external fan.

Fan Fail (FF) Alarm: Designated as FF on pin 3 of CN1 is a open collector output rated for 15VDC/5mA sink current maximum, it will go high when a fan failure is detected.

Power Supply On: Green LED designated as LED1 on the PCB.

Power Good: Designated as PG on CN1 and TTL high 100-500mS after regulation. It goes low at least 1mS before loss of regulation and has ability to sink 100mA.

Input Fusing Protection: One T8AL250V fuse inserted in primary.

Over-Power Protection: Fold back mode 110~140%; Auto-recovery.

Short Circuit Protection: Trip without damage and auto-recovery.

Over Voltage Protection: Unit latching down when output exceed 130% and recycle AC input to reset.

Over-Temperature Protection: Unit protected of excessive operating ambient 85°C, and automatic recovery.

Switching Frequency: 23K Hz fixed frequency.

Operating Temperature: 0 to 70°C ambient, de-rating at 2.5% per degree from 50°C to 70°C.

Vibration: 5 ~ 50 Hz, acceleration 7.35 m/s*s on X,Y and Z Axis.

Storage Temperature: -20°C to 85°C.

Operating Humidity: 5% to 90% RH, Non-condensing.

Storage Humidity: 5% to 95% RH, Non-condensing.

Emissions: FCC Part 15, CISPR 22 class B, Conducted.

Safety Regulation: Approved to UL60950-1, CSA C22.2 No. 60950-1-03, TUV EN60950-1, CE Mark (LVD) EN61000-3-2,3 & IEC61000-4 Series Regulations and CB.

Leakage Current: Regular Type 1.5mA @ 240 VAC. (optional for 500uA max. at 240 VAC / 300uA max. at 120 VAC input)

HI-POT Test: 1,500 VAC input line to chassis (10mA DC cut off current); Isolating 3,000 VAC primary to secondary windings; Primary to core 1,500 VAC. All for 3 sec.

Grounding Test: Apply 25A from ground pin of the three prong plug to the far most earth. Max allowable resistance 0.1 ohm.

MTBF: 100,000 Hrs (according to MIL-HBK-217F) at 30°C.

Cooling:

SAU320T1: U-Chassis @ 320W max. with 22CFM max. forced airflow or 180W convection cooled output.

SAC320T1: U-Chassis with top cover @ 170W max. convection cooled.

SAE320T1: Enclosed with rear side built-in fan @ 320W max.

SAF320T1: Enclosed with top built-in fan @ 320W max.

Enclosure:

SAU320T1: 6(L) x 4(W) x 1.5(H) inches.

SAC320T1: 6(L) x 4(W) x 1.55(H) inches.

SAE320T1: 7(L) x 4(W) x 1.6(H) inches.

SAF320T1: 6(L) x 4(W) x 2(H) inches.

Burn in: 45 $\pm 5^\circ\text{C}$ for 1 hour @ 230 VAC with full load.

Weight: Maximum weight is 800g.



SAY320T1 Series

Single Output, Switchmode Power Supply
Passive PFC, RoHS Compliant

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Output Voltage and Current Chart

Model Number**	Output Voltage	Max. Output Power/Current			Ripple & Noise	Efficiency (Minimum)
		Type <u>U</u> (Forced Air) Type <u>E</u> & <u>F</u>	Type <u>U</u> (Convection)	Type <u>C</u> (Convection)		
SAY320T1XXR	2 - 5.5 VDC	45 A	27.28 A	25 A	50mV	70% - 75%
SAY320T1XXR	6 - 11 VDC	29.1 A	16.37 A	13.64 A	1%	75%
SAY320T1XXR	12 - 13.5 VDC	320W	180W	170W	1%	80% - 83%
SAY320T1XXR	13.6 - 15 VDC	320W	180W	170W	1%	83%
SAY320T1XXR	16 - 20 VDC	320W	180W	170W	1%	83%
SAY320T1XXR	21 - 26 VDC	320W	180W	170W	1%	83%
SAY320T1XXR	27 - 34 VDC	320W	180W	170W	1%	83%
SAY320T1XXR	35 - 42 VDC	320W	180W	170W	1%	83%
SAY320T1XXR	43 - 50 VDC	320W	180W	170W	1%	83%
SAY320T1XXR	51 - 60 VDC	320W	180W	170W	1%	83%

** To Determine Part Number:

• Replace "XX" with Required Output Voltage (5VDC = "05", 12VDC = "12", 48VDC = "48", ect.)

• Replace "Y" with Desired Case Code:

Type U: U-Chassis @ 320 Watts Max. Output Power with 22 CFM Airflow or 180 Watts Convection Cooling

Type C: U-Chassis with Cover @ 170 Watts Max. Output with Convection Cooling

Type E: Enclosed with Side Built-In Fan @ 320 Watts Max. Output Power

Type F: Enclosed with Top Built-In Fan @ 320 Watts Max. Output Power

• Conformal Coating (Optional): Order as SAY320T1XXCR

• Input/Output Connector: Avail. with Crimp Style PCB Header (I/P: 5-Pin, O/P: 10-Pin) or 7-Position Barrier Strip

For Crimp Style PCB Header, Order as: SAY320T1XXR (Unchanged)

For 7-Position Barrier Strip, Order as: SAY320T1XXAR

Example: SAF320T124R indicates a 24VDC Unit with an Enclosed, Top Fan Case and Crimp Style PCB Header

SAU320T148ACR indicates a 48VDC Unit with U-Chassis Case, 7-Position Barrier Strip, and Conformal Coating



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Pin Connection: SAY320T1XXR

Pin	Input: 5-Pin Crimp Terminal
1	Ground
2	No Pin
3	Neutral
4	No Pin
5	Line
Output: 10-Pin Crimp Terminal	
1 - 5	V Output (+)
6 - 10	Return (-)

Pin Connection: SAY320T1XXAR

Pin	7-Position Barrier Strip
1 - 2	V Output (+)
3 - 4	Return (-)
5	Ground
6	Neutral
7	Line

Input and Output Connector (CN2):

Terminal block - Howder Part No. HB-95-7P

Molex - Mating JST VH series. Input 5-pin connector (3 pins used, pin 2 & pin 4 removed), PCB labeling: L = Line; N = Neutral; G = Chassis Ground. Output 10-pin connector.

Input and Output Connector Pin Assignment:

(See table above)

Mounting Inserts:

6 Places 8-32 (M4X0.7 Optional). Maximum Penetration 4mm sees outline drawing for location.

Logic signal connector (CN1):

Mating JST XHP-3 or equivalent (CHYAO SHIUNN JS-2001-03);

Mating Pins: JST SXH-002T-P0.6 FOR AWG 30 to 26.

Fan driver connector (FAN2):

Mating connector is JST P/N XHP-2 (2 pins 0.98 pitch) or equivalent (CHYAO SHIUNN JS-2001-02).



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SAY320T1 Series

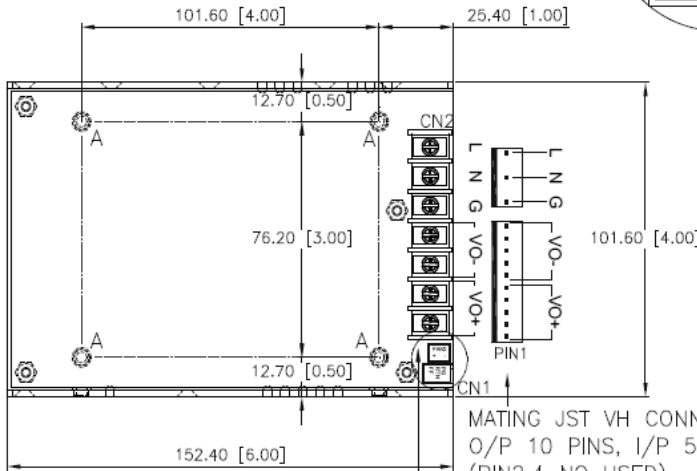
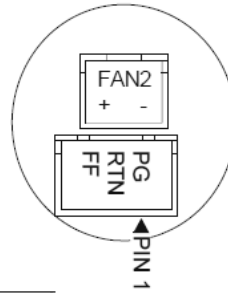
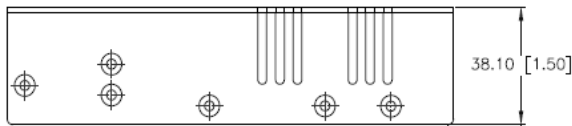
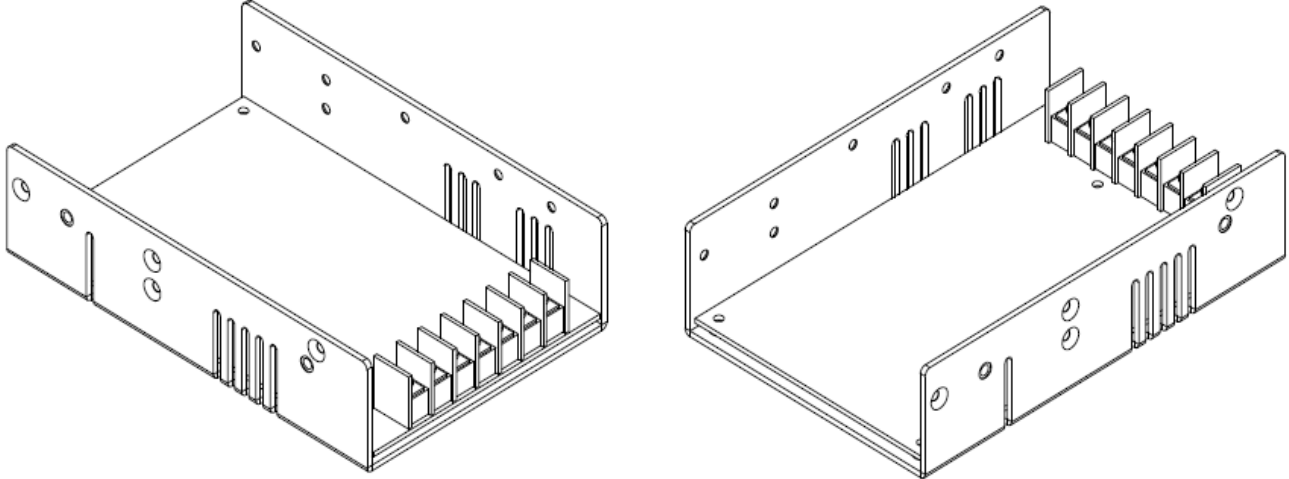
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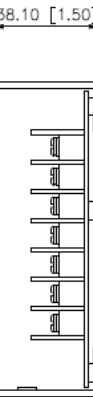
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Type U: U-Chassis Case
Order as: SAU320T1XXR

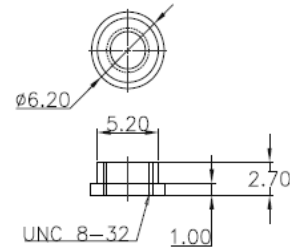
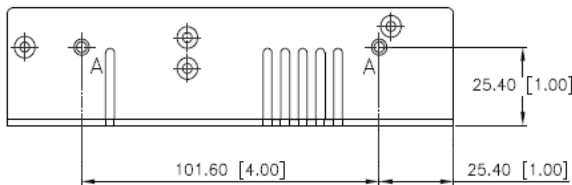


MATING JST VH CONNECTOR
O/P 10 PINS, I/P 5 PINS USE 3 PIN
(PIN2,4 NO USED)

TERMINAL BLOCK
M3.5 SCREW 7PINS 9.5mm CENTER



A 4:1 (8X)ZN-PLATED



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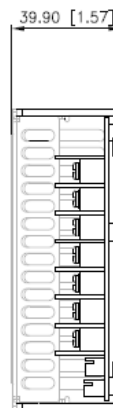
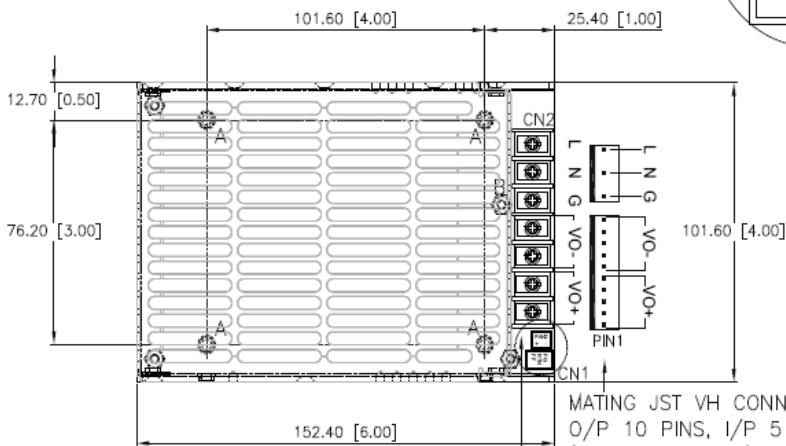
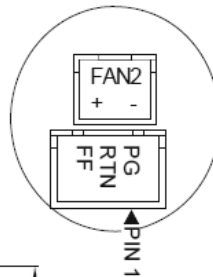
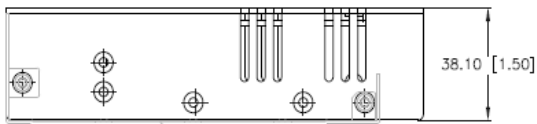
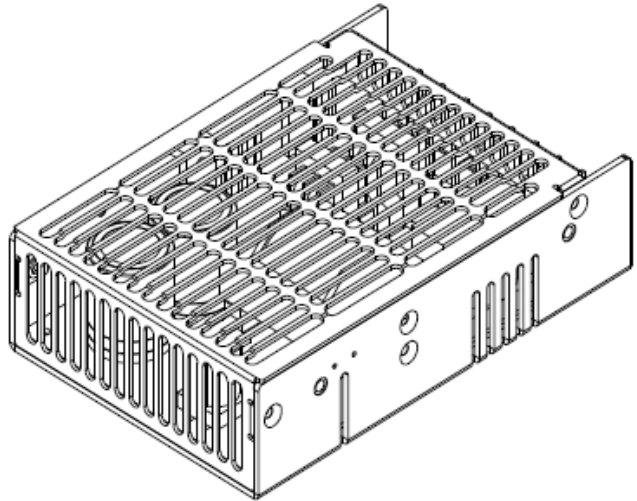
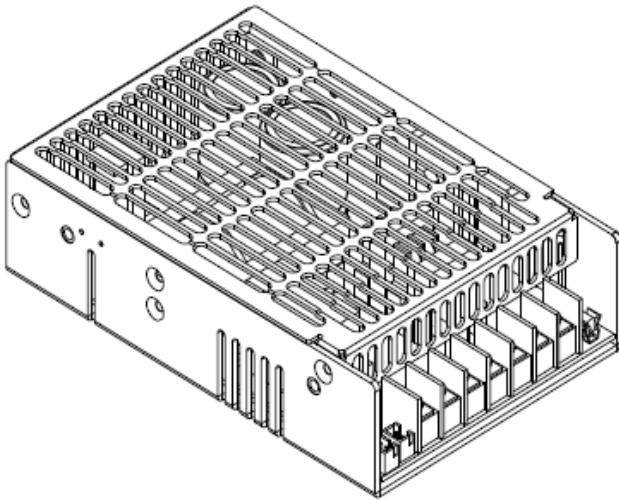
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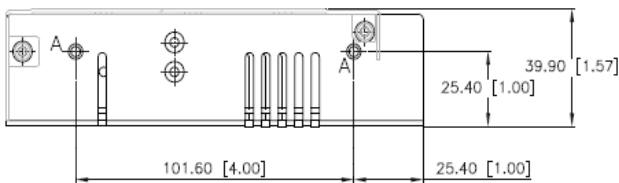
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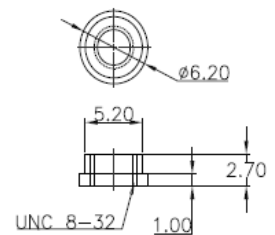
Type **C**: U-Chassis Case w/ Cover
Order as: SAC320T1XXR



MATING JST VH CONNECTOR
O/P 10 PINS, I/P 5 PINS USE 3 PIN
(PIN2,4 NO USED)
TERMINAL BLOCK
M3.5 SCREW 7PINS 9.5mm CENTER



A 4:1 (8X)Zn-PLATED



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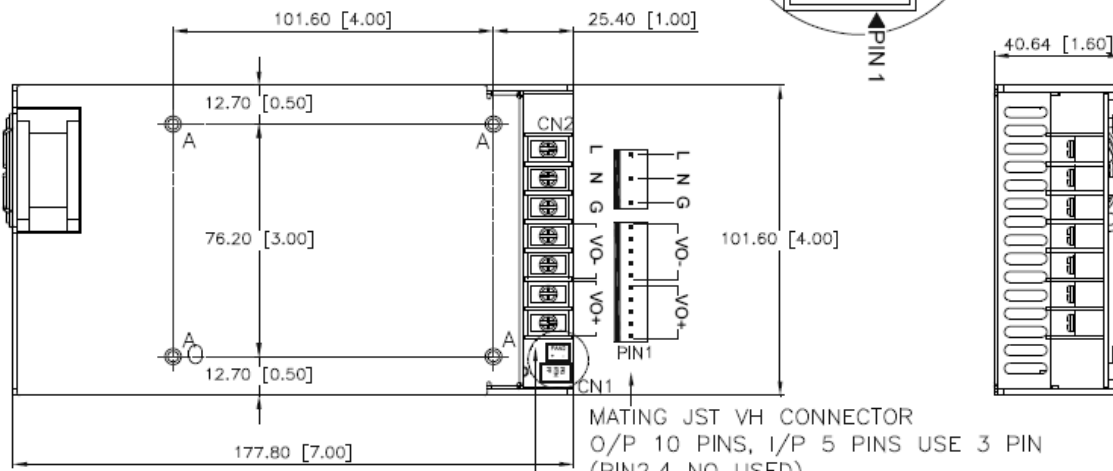
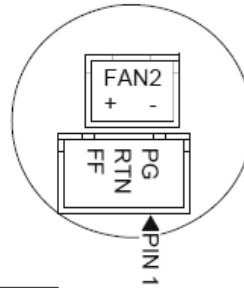
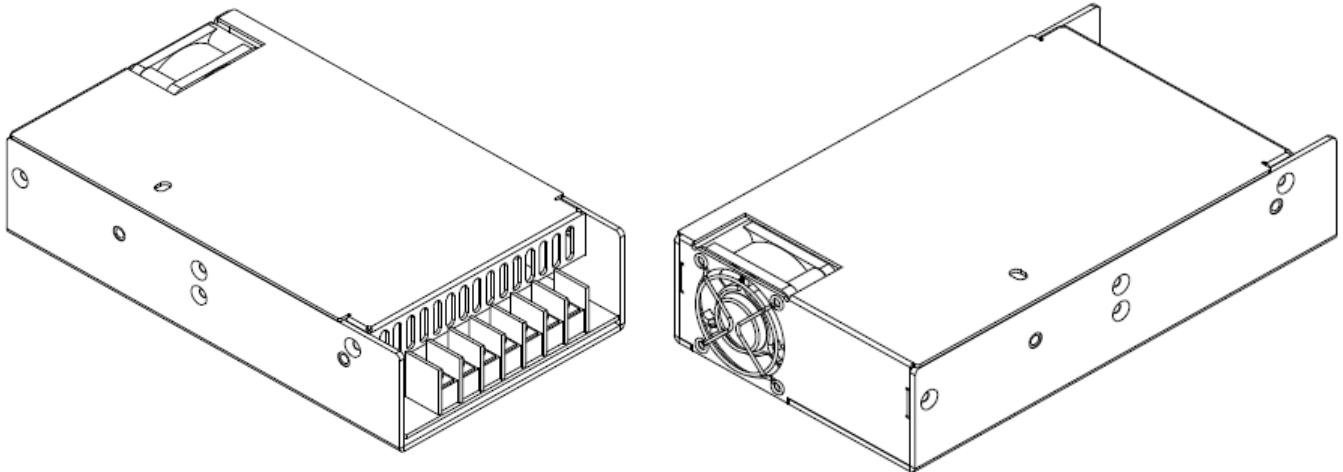
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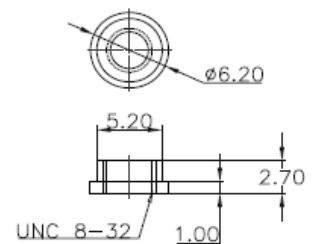
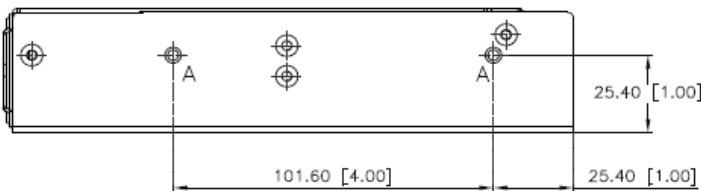
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Type **E**: Enclosed Case w/ Side Fan
Order as: SA**E**320T1XXR



TERMINAL BLOCK
M3.5 SCREW 7PINS 9.5mm CENTER

A 4:1 (8X)Zn-PLATED





SAY320T1 Series

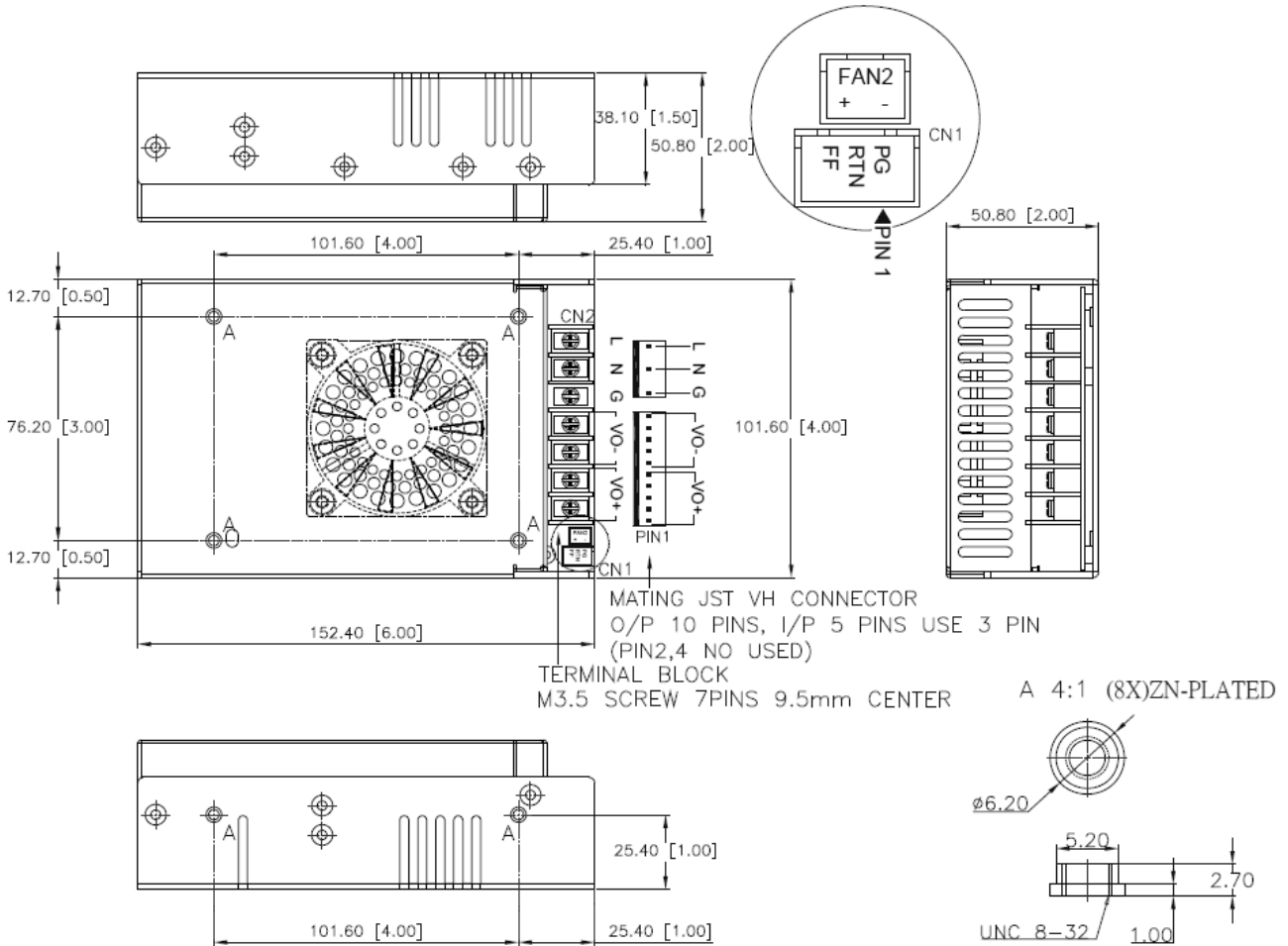
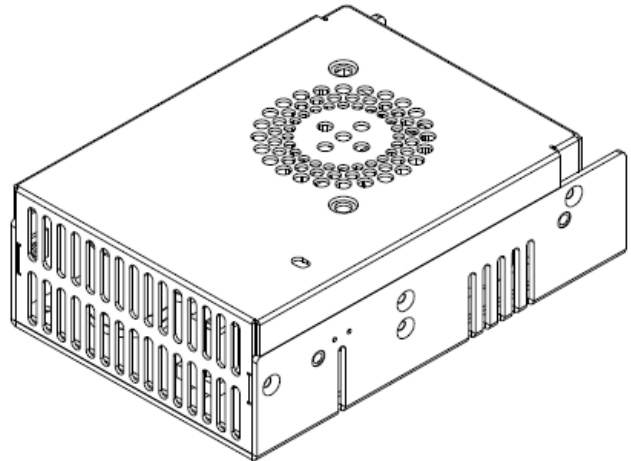
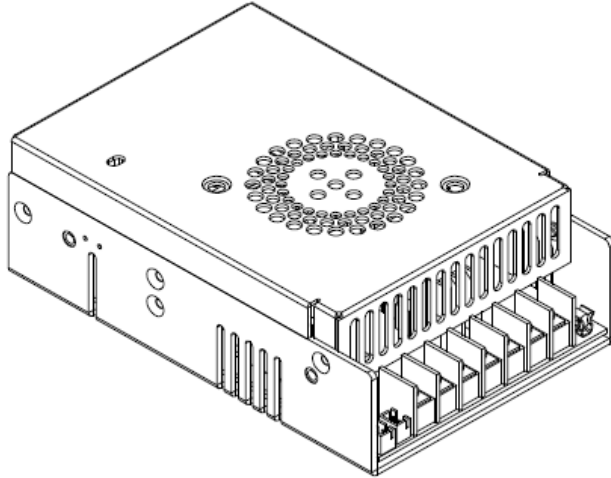
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Type **F**: Enclosed Case w/ Top Fan
Order as: SA**F**320T1X**R**



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