



FEATURES

- Medical & ITE Dual Safety Approvals
- 2 x MOPP BF Rated Insulation
- Low Leakage Current
- 250W in 4.1" x 2.1" Footprint
- Various Form Factors & Output Connector Options
- Optional Fan Output
- Efficiency Up to 94.5%



INPUT SPECIFICATIONS

Input Voltage Range	90 - 264 VAC
Input Frequency	47 - 63 Hz
Input Current	2.8A rms @ 115 VAC, 1.4A rms @ 230 VAC
Inrush Current	50A max. @ 115 VAC, 100A max. @ 230 VAC, at 25°C cold start
Earth Leakage Current	300 µA max. @ 264 VAC
Touch Current	100 µA max. @ 264 VAC

OUTPUT SPECIFICATIONS

Output Power Ratings	See models list
Total Regulation	See models list
Ripple and Noise	See models list
Over Load Protection	Set at 105 - 150% of its nominal output voltage; Auto recovery
Over Temperature Protection ...	Shut down
Over Voltage Protection	Latch off
Short Circuit Protection	Shut down, Auto recovery
Temperature Coefficient	±0.04%/°C max.
Transient Response	20 ms @ 10% max.
Hold-up Time	10 ms min. @ 80%, full load

GENERAL SPECIFICATIONS

Power Factor	0.95 @ 115 VAC, 0.90 @ 230 VAC, full load
Efficiency	93% typ. @ 230 VAC, full load
Switching Frequency	80 - 100 KHz @ full load
Operating Temperature	-20°C to +70°C
Derating	See models list
Storage Temperature	-20°C to +85°C
Storage Humidity	0% to 95% non-condensing
Operating Humidity	10% to 95% non-condensing
Withstand Voltage	5,656 VDC, input-output, 2 MOPP 2,121 VDC, input-ground, 1 MOPP 2,121 VDC, output-ground, 1 MOPP
Operating Altitude	3,000 meters max. for medical, 5,000 meters max. for ITE
MTBF	350K hours minimum at full load, 25°C ambient, calculated per Telcordia (Bellcore TR-332)

STANDARDS & COMPLIANCE

IEC/EN 60601-1-2, 4 th Ed. ..	EMC & Immunity Performance
EN 55011, EN 55032	Class B, conducted & radiated
EN 55024	Class B, conducted & radiated
FCC, VCCI	Class B, conducted & radiated
EN 61000-3-2	Harmonic distortion, Class A & D
EN 61000-3-3	Line fluctuations & flicker
EN 61000-4-2	ESD, ±15 KV air and ±8 KV contact
EN 61000-4-3	Radiated immunity, 10V/m
EN 61000-4-4	Fast transient/burst, ±2 KV
EN 61000-4-5	Surge, ±1 KV diff., ±2 KV com.
EN 61000-4-6	Conducted immunity, 6 Vrms
EN 61000-4-8	Magnetic field immunity, 30A/m
EN 61000-4-11	Voltage dip immunity, 30% reduction for 500ms, 60% reduction for 100ms, >95% reduction for 10ms
Safety Standards	UL/IEC/EN 60601-1 (Edition 3.1), UL/IEC/EN 62368-1
Agency Approvals	UL, cUL, TUV, CE, CB
Other Compliance	RoHS3

TIM250-S Series

250W Medical & ITE Grade AC/DC Power Supplies

MODELS LIST

*Product No.	Output Voltage	Max. Output Power					
		90-120 VAC, Convection	200-264 VAC, Convection	18 CFM Forced Air	90-120 VAC, Convection	200-264 VAC, Convection	18 CFM Forced Air
Open Frame PCB							
TIM250-S12A	12V	12.5A	14.16A	20.83A	150W	170W	250W
TIM250-S24A	24V	6.25A	7.08A	10.41A			
TIM250-S48A	48V	3.12A	3.54A	5.2A			
U-Bracket							
TIM250-S12B	12V	13.33A	15.83A	20.83A	160W	190W	250W
TIM250-S24B	24V	6.66A	7.91A	10.41A			
TIM250-S48B	48V	3.33A	3.95A	5.2A			
Enclosed (U-Bracket with Cover)							
TIM250-S12C	12V	13.33A	15.83A	20.83A	160W	190W	250W
TIM250-S24C	24V	6.66A	7.91A	10.41A			
TIM250-S48C	48V	3.33A	3.95A	5.2A			
Enclosed with Top Mounted Fan							
TIM250-S12T	12V	20.83A		N/A	250W	N/A	
TIM250-S24T	24V	10.41A					
TIM250-S48T	48V	5.2A					

*For A/B/C types only, add suffix "F" to order +12V/0.25A fan output, e.g. TIM250-S12AF, TIM250-S12BF, TIM250-S12CF, etc.

*Output Connector Suffix: "E" for Euro style terminal block, "J" for JST connector, "M" for Molex connector, "S" for screw terminal; e.g. TIM250-S12AE, TIM250-S12BJ, TIM250-S12CM, TIM250-S12TS, etc. Refer to the mechanical drawings for detailed information.

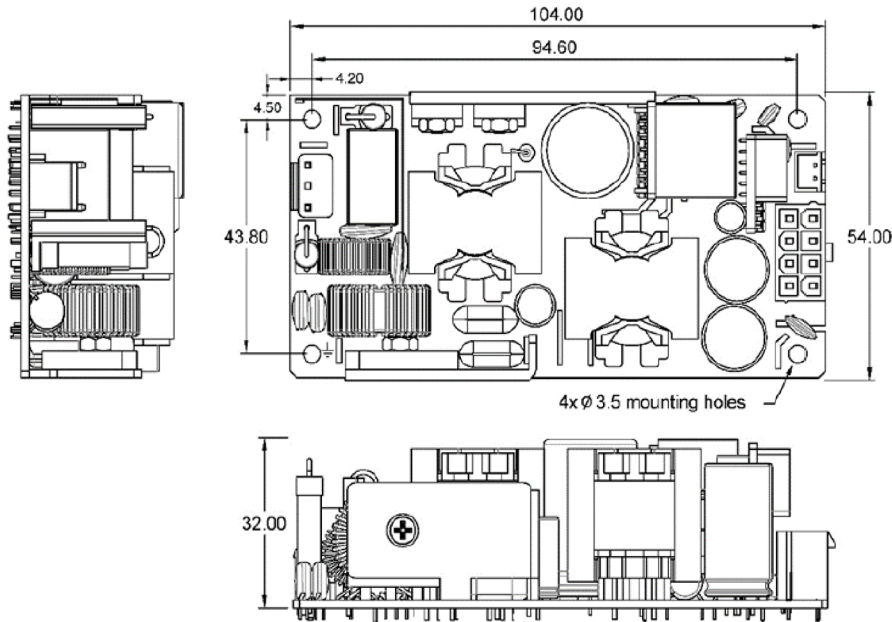
- Notes:**
- Ripple and noise on +12V rail is 180mV max. , 280mV for +24V and 380mV for +48V, measured at oscilloscope 20MHz bandwidth with a 100uF electrolytic capacitor and a 0.1uF ceramic capacitor in parallel at output wire 300mm length connector.
 - Output regulation: $\pm 3\%$ for +12V, $\pm 2\%$ for +24V and +48V. The worst case is $\pm 5\%$ @ -1 to -20°C ambient temperature.
 - For A/B/C type @ convection, the output power should derate linearly 2.2%/°C from +40°C to +70°C ambient temperature.
 - For A/B/C types @ 18 CFM forced air and T type with top mounted fan, the output power should derate linearly 2.2%/°C from +50°C to +70°C, and derate linearly 1%/°C from 0°C to -20°C ambient temperature.
 - For A/B/C types @ 18 CFM forced air and T type with top mounted fan, the output power should derate 1% per VAC from 100 to 90 VAC input.

TIM250-S Series

250W Medical & ITE Grade AC/DC Power Supplies

MECHANICAL SPECIFICATIONS

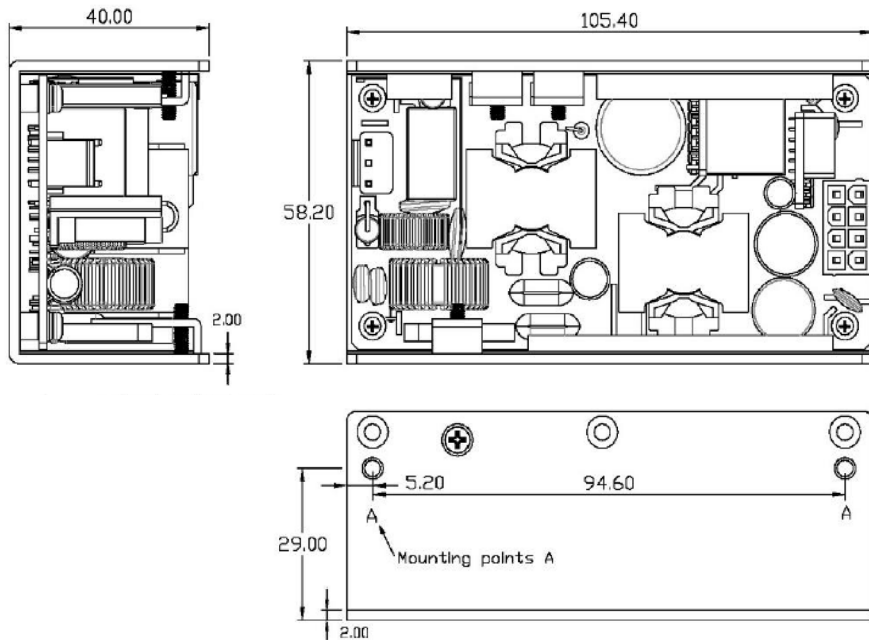
Open Frame PCB



Notes:

1. Unit: mm
2. Tolerance: ± 1 mm
3. Weight: 230 grams
4. Four mounting holes must be securely connected to protective earth ground in the final system for optimum safety and EMI performance.

U-Bracket



Notes:

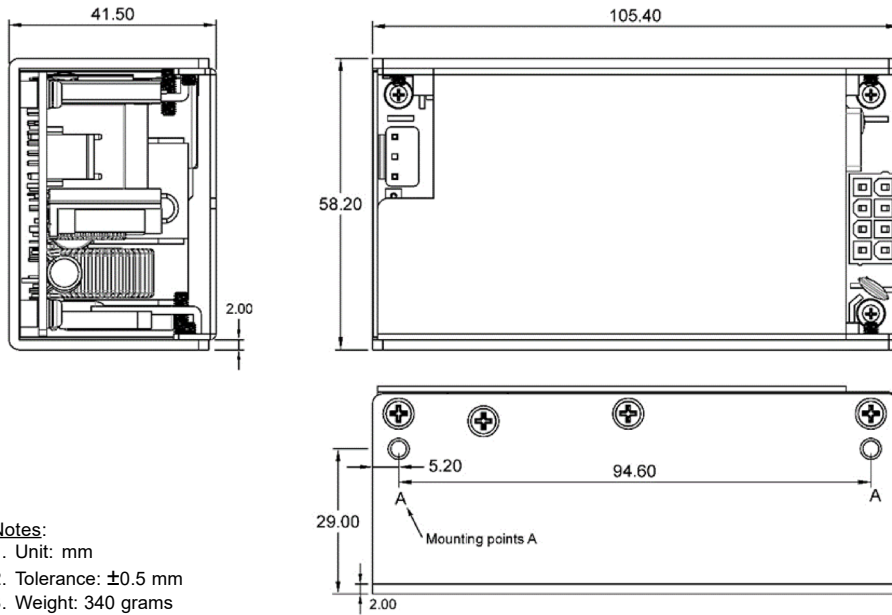
1. Unit: mm
2. Tolerance: ± 0.5 mm
3. Weight: 320 grams

TIM250-S Series

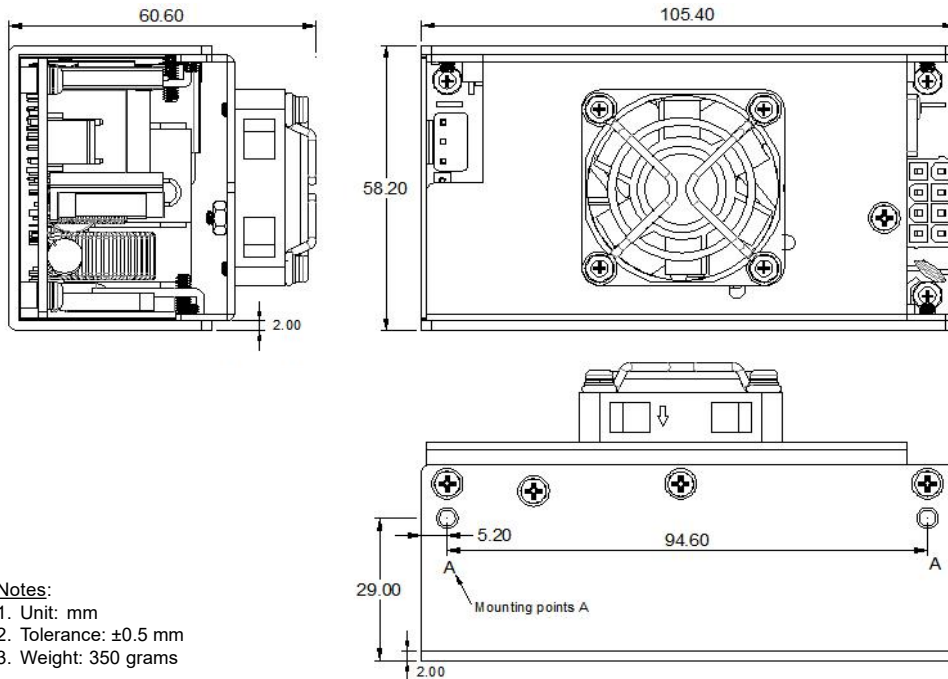
250W Medical & ITE Grade AC/DC Power Supplies

MECHANICAL SPECIFICATIONS (CONT.)

U-Bracket with Cover

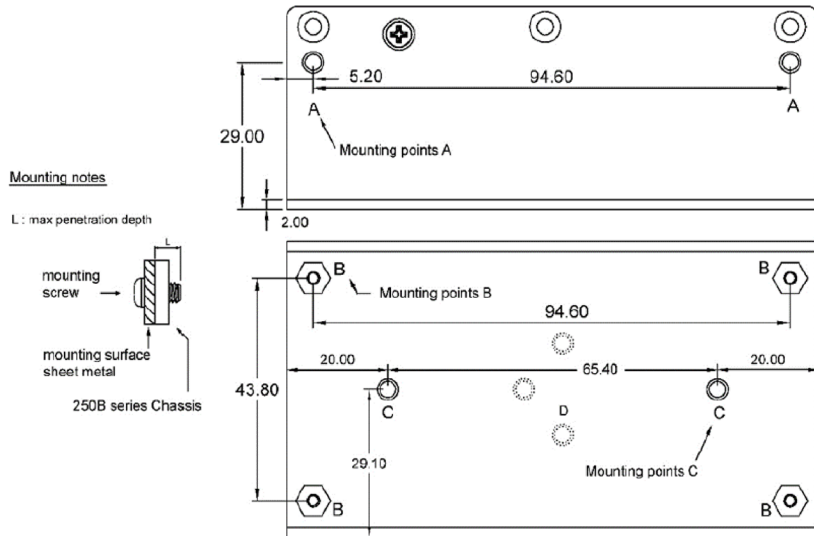


Enclosed with Top Mounted Fan



MECHANICAL SPECIFICATIONS (CONT.)

Mounting Points Notes for B/C/T Type U-shaped Chassis:

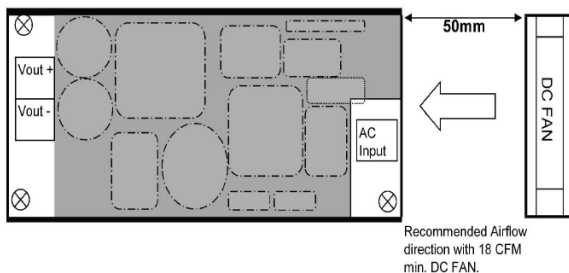


- Notes:**
1. Unit: mm
 2. Tolerance: ± 0.5 mm

Mounting Points Notes and Mounting Method:

1. U-shaped chassis must be securely connected to protective earth ground in the final system assembly for optimum Safety and EMI performance.
2. Mounting point A: M3 x 0.5m thread, 5mm max. penetration depth.
3. Mounting point B: M3 x 0.5m thread, 2.5mm max. penetration depth.
4. Mounting point C: M3 x 0.5m thread, 3mm max. penetration depth.
5. Mounting point D: M3 x 0.5m optional DIN-Rail type holes.
6. Mounting points A, B, C: 1-2 Kgf-cm recommended torque for mounting screw.

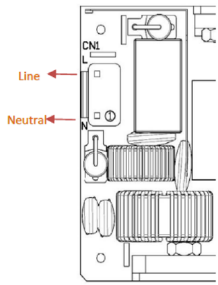
Recommended Airflow



Notes:

1. Recommended airflow direction for open frame PCB and U-bracket types is from the top of the AC side.
2. Recommended airflow direction for U-bracket with cover/enclosed type is from the AC side.

AC Input Connector (CN1)

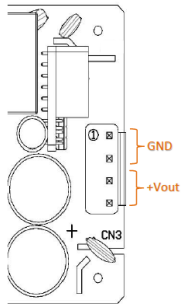


JST CONNECTOR	
PIN	FUNCTION
1	AC NEUTRAL
2	AC LINE

JST P/N B2P3-VH 3.96mm pitch or equivalent, mates with JST VAR-2 or equivalent.

Optional Connectors for Main Output (CN3)

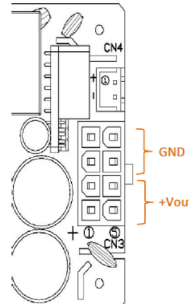
JST Connector



JST CONNECTOR	
PIN	FUNCTION
1	GND
2	GND
3	+V
4	+V

JST P/N B4P-VH-B 3.96mm pitch or equivalent, mates with JST VHR-4N or equivalent.

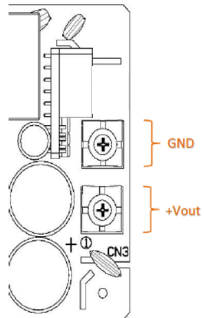
Molex Mini-Fit Connector



MOLEX 8 PIN MINI-FIT CONNECTOR	
PIN	FUNCTION
1, 2	+V
3, 4	GND
5, 6	+V
7, 8	GND

Molex P/N 39281083 Mini-Fit 4.2mm pitch or equivalent, mates with Molex P/N 39012085 or equivalent.

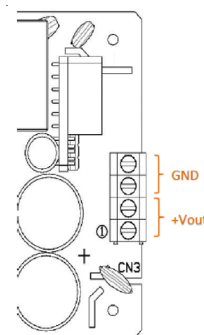
Screw Terminal



SCREW TERMINAL	
PIN	FUNCTION
1	+V
2	GND

Quick PCB terminal blocks 11mm pitch mates with metric ring terminal or equivalent.

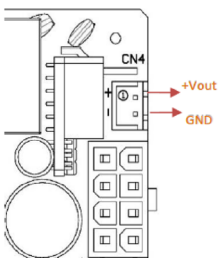
Euro Style Terminal Block



EURO STYLE TERMINAL BLOCK	
PIN	FUNCTION
1	+V
2	+V
3	GND
4	GND

Euro style terminal block 3.81mm pitch mates with wire rating 0.5~1.3mm² (20~16 AWG) and 5-6mm wire strip or wire pin terminal.

Optional Fan Output Connector (CN4)



JST CONNECTOR	
PIN	FUNCTION
1	+12V (FAN+)
2	GND (FAN-)

JST P/N B2B-XH-A 2.5mm pitch or equivalent, mates with JST XHP-2 or equivalent.