1~4 Output Medical Type

200W Medical series



Features

- Universal AC input / Full range
- Low leakage current <180μA
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Free air convection for 140W and forced air convection for 200W
- UL60601-1 medical safety approved
- With power good and fail signal output
- Built-in remote ON-OFF control
- Built-in remote sense function
- Fixed switching frequency at 100KHz

Specification

AC INPUT VOLTAGE
90~264 VAC, 47~440Hz / 127~370VDC.

POWER FACTOR (Typ.)
PF>0.95/230VAC PF>0.98/115VAC at full load

AC INPUT CURRENT (Typ.)
Maximum input current 3.5A at 115VAC, 60Hz or
1.6A at 230VAC, 60Hz with 100% output load.

INRUSH CURRENT (Typ.)
Inrush current is less than 25A at 115VAC or
less than 40A at 230VAC under cold start
conditions. Limiting provided by internal
thermistors.

SETUP, RISE TIME
1000ms, 20ms / 230VAC at full load
3000ms, 20ms / 115VAC at full load

HOLD-UP TIME (Typ.)
16ms / 230VAC at full load
16ms / 115VAC at full load

LEAKAGE CURRENT
Leakage current is less than 180μA at 264VAC for
earth leakage current
Leakage current is less than 100μA at 264VAC for
patient leakage current

DC OUTPUT ADJ. RANGE
DC output voltage (or CH1 of multiple output models)
can be adjusted between -5%~+10% rated output
voltage by potential meter.

OVERLOAD PROTECTION
Fully protected against short circuit and output overload.
The hiccup type protection will be activated at 120~160%
rated load and recovers automatically after fault condition
is removed.

OVER VOLTAGE PROTECTION
Provided on output channel 1 only at 115%~135%
rated output voltage.
Output will be shut down when this protection is activated.

OVER TEMPERATURE PROTECTION
When the temperature of TSW1 which detect on heat sink of
power transistor reaches 95℃, This protection is activated.
Then output will be shut down and recovers automatically
after temperature goes down.

POWER GOOD / FAIL SIGNAL
TTL logic high for power good and TTL low for
power fail. When the output voltage reaches 90% of
rated value, a +5V TTL signal will be sent out with a
10~500ms delay; At least 1ms before the output
voltage goes below 90% of the rated value, the TTL
signal will be turned off.
* MPS-200-3.3 does not have this function.

REMOTE CONTROL
RC+/RC-:0 ~ 0.8V=power on; 4 ~ 10V=power off sink current<4~10mA

WORKING TEMP.
Whole series can operate from -20~70℃. Please refer
to the derating curves.

WORKING HUMIDITY
20~90% RH non-condensing.

STORAGE TEMP., HUMIDITY
-40~+85℃, 10~90% RH

TEMP. COEFFICIENT
±0.04%/℃ on all outputs at full load between 0~50℃ of ambient temperature.

VIBRATION
2G of acceleration, vibrating frequency adjust from 10Hz ~500Hz within a
10-minute cycle. 6 testing cycles (60 minutes) each along X, Y, Z axes.

SAFETY STANDARDS
Medical : UL60601-1, TUV EN60601-1 approved
Commercial : Also design refer to UL60950-1, TUV EN60950-1

WITHSTAND VOLTAGE
4000VAC between input and output
1500VAC between input and F.G.
1500VAC between output and F.G.

ISOLATION RESISTANCE
>100M Ohms for I/P-O/P, I/P-FG, O/P-FG by using 500VDC test voltage.

EMI COMPLIANCE

EMI Specifications	Compliance Level
Conducted & Radiation	EN55011, Class B
	EN55022, Class B
Harmonic distortion	EN61000-3-2
Voltage flicker	EN61000-3-3

EMS COMPLIANCE

EMS Specification	Compliance Level
ESD air	EN61000-4-2, Level 3, 8KV
ESD contact	EN61000-4-2, Level 2, 4KV
RF field susceptibility	EN61000-4-3, Level 2, 3V/m
	Level 3, 10V/m
EFT(Electrical Fast Transient)/Burst	EN61000-4-4, Level 2, 1KV/5KHz
	Level 3, 2KV/5KHz
Lightning/Surge	EN61000-4-5, Level 4, 2KV/Line-Line
	4KV/Line-Earth
Conducted RF susceptibility	EN61000-4-6, Level 2, 3Vrms/m
	Level 3, 10Vrms/m
Magnetic field immunity	EN61000-4-8, Level 2, 3A/m
	Level 3, 10A/m
Voltage dip, interruption	EN61000-4-11,Compliance
Digital phone carrier immunity	ENV50204, Level 2, 3V/m, 900MHz
	Level 3, 10A/m, 900MHz

MTBF
262,100 hours min. at full load and 25℃ of ambient temperature,
calculated per MIL-HDBK-217F.

DIMENSION (L*W*H)
177.8x107.2x35.5mm or 7"x4.22"x1.4"

PACKING
0.66Kg; 24pcs/16.8Kg/1.04CUFT

1~4 Output Medical Type

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■ Output Chart

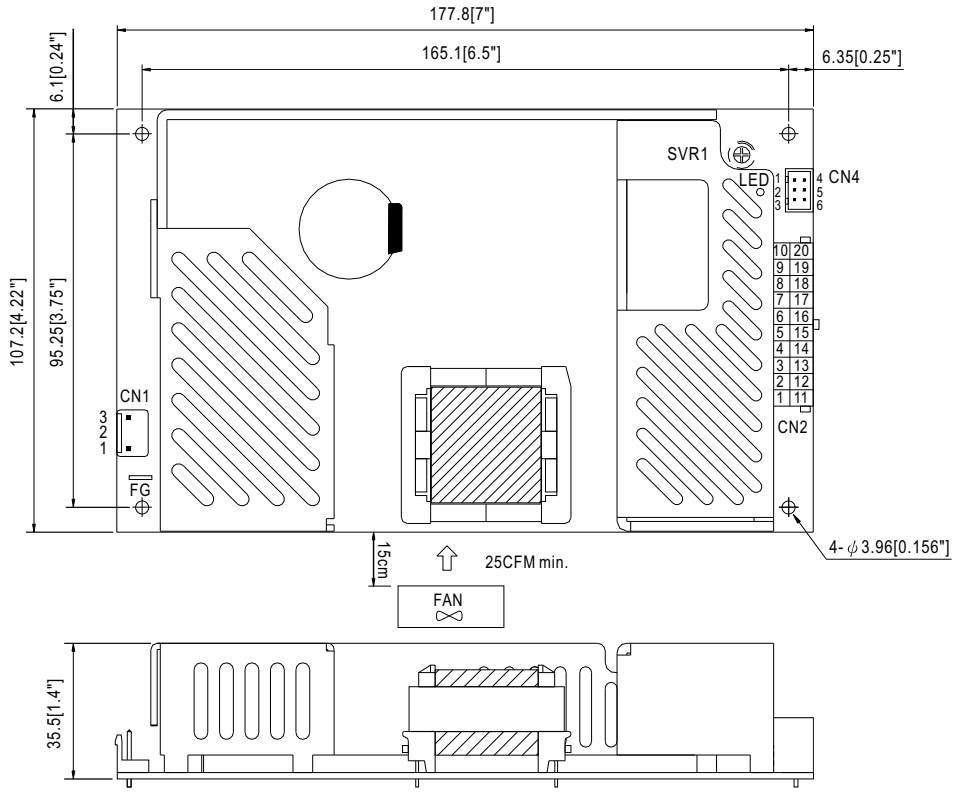
MODEL	OUTPUT VOLTAGE	RATED CURRENT	OUTPUT CURRENT				RIPPLE & NOISE (Max.) (Note 2)	VOLTAGE TOLERANCE (Note 3)	LINE REGULATION	LOAD REGULATION	EFFICIENCY (typ.)
			MINIMUM LOAD	CONVECTION (max.)	WITH FAN (25CFM)	PEAK LOAD WITH 25CFM FAN (Note 4)					
MPS-200-3.3	3.3V	40A	0A	28A	40A	48A	80mVp-p	±2.0%	±0.5%	±1.0%	77%
MPS-200-5	5V	40A	0A	28A	40A	48A	80mVp-p	±2.0%	±0.5%	±1.0%	81%
MPS-200-12	12V	16.7A	0A	11.7A	16.7A	20A	100mVp-p	±2.0%	±0.5%	±1.0%	84%
MPS-200-15	15V	13.4A	0A	9.4A	13.4A	16A	100mVp-p	±2.0%	±0.5%	±1.0%	85%
MPS-200-24	24V	8.4A	0A	5.9A	8.4A	10A	150mVp-p	±1.0%	±0.5%	±1.0%	86%
MPS-200-48	48V	4.2A	0A	3A	4.2A	5A	200mVp-p	±1.0%	±0.5%	±1.0%	87%
MPD-200A	5V	20A	4A	15A	20A	24A	80mVp-p	±2.0%	±0.5%	±1.0%	82%
	12V	8A	0.8A	5.4A	8A	9.6A	120mVp-p	+8,-5%	±1.0%	±4.0%	
MPD-200B	5V	20A	4A	15A	20A	24A	80mVp-p	±2.0%	±0.5%	±1.0%	83%
	24V	4A	0.4A	2.7A	4A	4.8A	180mVp-p	±6.5%	±1.0%	+4,-6%	
MPT-200A	5V	20A	4A	15A	20A	24A	80mVp-p	±2.0%	±0.5%	±1.0%	80%
	12V	7.5A	0.8A	5A	7.5A	9A	120mVp-p	±8.0%	±1.0%	±5.0%	
	-5V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPT-200B	5V	20A	4A	15A	20A	24A	80mVp-p	±2.0%	±0.5%	±1.0%	80%
	12V	6A	0.6A	4.4A	6A	7.2A	120mVp-p	±8.0%	±1.0%	±5.0%	
	-12V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPT-200C	5V	20A	4A	15A	20A	24A	80mVp-p	±2.0%	±0.5%	±1.0%	80%
	15V	4.7A	0.5A	3.3A	4.7A	5.6A	150mVp-p	±8.0%	±1.0%	±5.0%	
	-15V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPT-200D	5V	20A	4A	15A	20A	24A	80mVp-p	±2.0%	±0.5%	±1.0%	81%
	24V	3A	0.3A	2.2A	3A	3.6A	180mVp-p	±8.0%	±1.0%	±5.0%	
	12V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPQ-200B	5V	15A	3A	12A	15A	18A	80mVp-p	±2.0%	±0.5%	±1.0%	78%
	12V	7A	0.7A	5.3A	7A	8.4A	120mVp-p	±8.0%	±1.0%	±5.0%	
	-5V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
	-12V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPQ-200C	5V	15A	3A	12A	15A	18A	80mVp-p	±2.0%	±0.5%	±1.0%	78%
	15V	5A	0.5A	4A	5A	6A	150mVp-p	±6.0%	±1.0%	±5.0%	
	-5V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
	-15V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPQ-200D	5V	15A	3A	12A	15A	18A	80mVp-p	±2.0%	±0.5%	±1.0%	79%
	24V	3A	0.3A	2.3A	3A	3.6A	180mVp-p	±8.0%	±1.0%	±5.0%	
	12V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
	-12V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
MPQ-200F	5V	15A	3A	12A	15A	18A	80mVp-p	±2.0%	±0.5%	±1.0%	81%
	24V	2.7A	0.3A	2.1A	2.7A	3.3A	180mVp-p	±8.0%	±1.0%	±5.0%	
	15V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	
	-15V	2A	0A	1A	2A	2.4A	80mVp-p	±5.0%	±0.5%	±1.0%	

➤ **Notes :**

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.
5. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
6. Derating may be needed under low input voltages. Please check the derating curve for more details.

■ Mechanical Specification(MPS-200)

Unit:mm



AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/L		

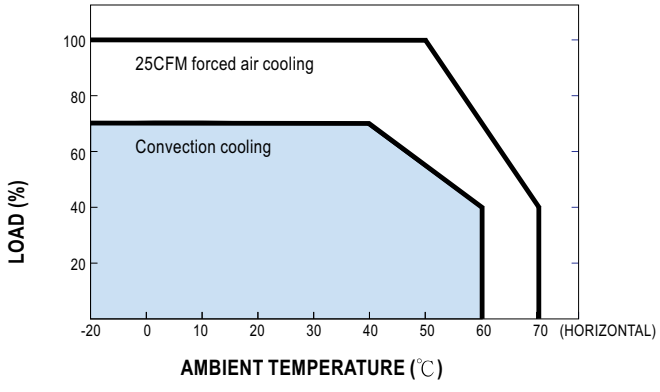
DC Output Connector (CN2) : MOLEX 5566-20 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1~5,11~15	DC OUTPUT -V	MOLEX 5557 or equivalent	MOLEX 5556 or equivalent
6~10,16~20	DC OUTPUT +V		

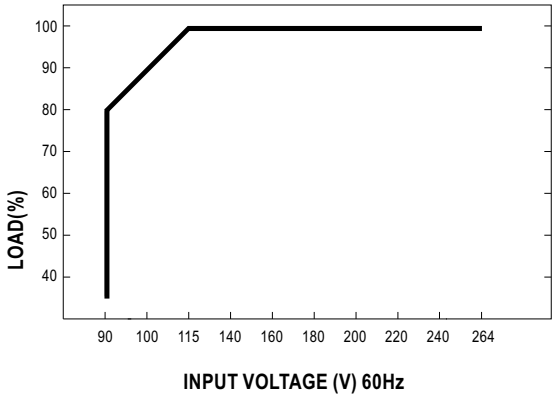
DC Output Connector (CN4) : TKP DH2I-2*3 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	PG	TKP DH2-2*3 or equivalent	TKP DHT or equivalent
2	RS-		
3	GND		
4	RC+		
5	RS+		
6	RC-		

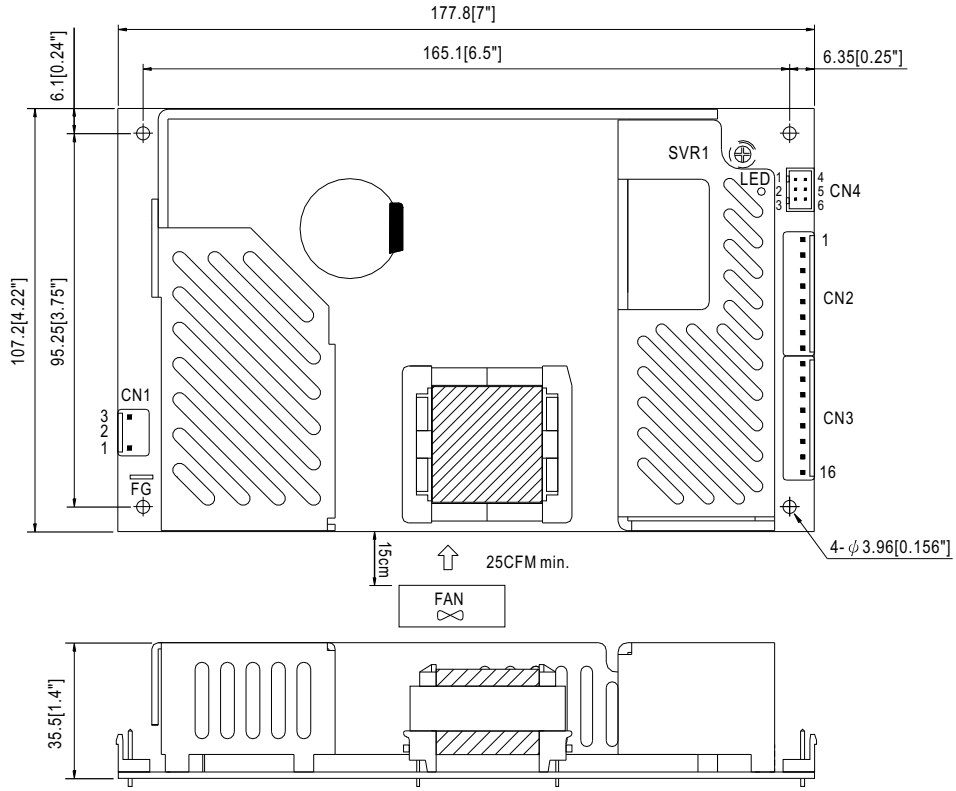
■ Derating Curve (MPS-200)



■ Static Characteristics (MPS-200)



■ Mechanical Specification(MPD/T/Q-200)



AC Input Connector (CN1) : JST B3P-VH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	AC/N	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
2	No Pin		
3	AC/L		

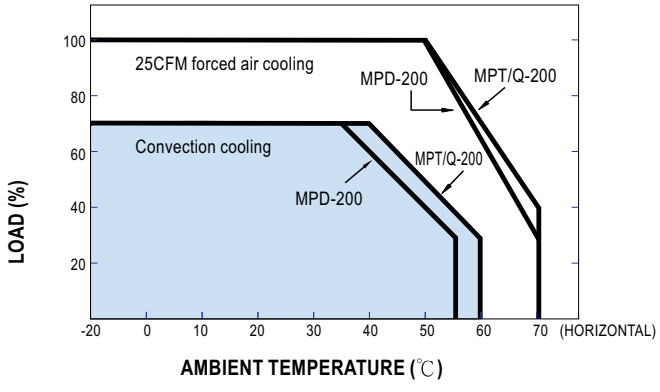
DC Output Connector (CN4) : TKP DH2I-2*3 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	PG	TKP DH2-2*3 or equivalent	TKP DHT or equivalent
2	RS-		
3	GND		
4	RC+		
5	RS+		
6	RC-		

DC Output Connector (CN2,3) : JST B8P-VH*2 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2,3,4	V1	JST VHR or equivalent	JST SVH-21T-P1.1 or equivalent
5~11	COM		
12,13	V2		
14	V3		
15	No pin		
16	V4		

■ Derating Curve (MPD/T/Q-200)



■ Static Characteristics (MPD,T,Q-200)

