

MPU60C series

63W External Medical Grade Power Supply

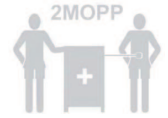
The MPU60C series of AC/DC switching mode power supplies provide 63 Watts of continuous output power . All supplies are UL94V-1 min compliant. All models meet FCC Part-18 class B and CISPR-11 EN55011 class B emission Limits and are designed to comply with ANSI/AAMI ES 60601-1: 2005(UL/cUL 3rd Edition), EN 60601-1:2006 (TUV/T-mark 3rd Edition) and new CE requirements. All units are 100% burned in and tested.

RoHS2
2011/65/EU



FEATURES:

- * Wide Operating Voltage, 80 to 275 VAC, 47 to 63 Hz
- * IEC-320-C6 Input Inlet
- * Single Output
- * Over Voltage and Over Load protection
- * Medical Safety 3rd (IEC60601-1 3rd Edition)
- * Input to Output : 2MOPP
- * Energy Star 2.0, Efficiency level V
- * Class I system
- * 5 year warranty



APPLICATIONS:

- * Medical Equipment
- * Patient Monitor
- * Blood Pressure system
- * Portable medical devices
- * ECG machine

GENERAL SPECIFICATION:

- * **Short Circuit Protection:** Auto Recovery
- * **Cooling:** Free Air Convection
- * **Flammability Rating:** UL94V-1
- * **Class of equipment:** Class I
- * **Safety:** ANSI/AAMI ES 60601-1:2005(UL/cUL 3rd Edition), EN 60601-1:2006 (TUV/T-mark 3rd Edition)

APPROVALS:



Electrical Characteristics:

| Symbol | Characteristic | Condition | Min. | Typ. | Max. | Unit |
|--------|---------------------------------------|--|------------------|------|-------|-------|
| Vins | Safety Approval Input Voltage Range | Safety Approval & Specification in Label | 100 | | 240 | VAC |
| Vin | Input Operate Voltage Range | Detail to see Fig.1 (Derate linearly from 100% load at 90VAC to 80% load at 80VAC) | 80 | | 275 | VAC |
| Fi | Input Frequency | Sine wave | 47 | | 63 | Hz |
| Po | Output Power Range | See Rating Chart | | | 63 | W |
| Iil | Low Line Input Current | Full Load, Vin=100VAC | | | 1.62 | A |
| Iih | High Line Input Current | Full Load, Vin=240VAC | | | 0.72 | A |
| Irl | Low Line Input Inrush Current | Full Load, 25°C, Cool start, Vin=100VAC | | | 37 | A |
| Irh | High Line Input Inrush Current | Full Load, 25°C, Cool start, Vin=240VAC | | | 74 | A |
| Ik | Safety Ground Leakage Current | Vin=240VAC, Fi=60Hz | | | 0.1 | mA |
| η | Efficiency | Full Load, Vin=230VAC, Detail to see Rating Chart | See Rating Chart | | | |
| ΔVoi | Line Regulation | Full Load, Vin=100~120VAC or 200~240VAC | | | 1 | % |
| OVP | Over Voltage Protection | | 112 | | 132 | % |
| OLP | Over Load Protection | Recovers automatically after fault condition is removed | 110 | | 150 | % |
| ttr | Time of Transient Response | Full Load, Vin=110VAC | | | 4 | ms |
| thu | Hold-Up Time | Full Load, Vin=110VAC | 12 | | | ms |
| ts | Start-up time | Full Load, Vin=100~240VAC | 0.3 | | 2 | s |
| Ris | Insulation Resistance | | 50 | | | MΩ |
| Tc | Temperature Coefficient | All Condition | | | ±0.04 | %/°C |
| HV | Dielectric Withstanding Voltage (P-S) | Primary to Secondary, limit current <10mA | | | 4000 | VAC |
| Vpg | Dielectric Withstanding Voltage (P-G) | Primary to PE, limit current <10mA | | | 1500 | VAC |
| EMI | EMC Emission | Compliance to EN55011 (CISPR11), EN61000-3-2,-3 | B | | | Class |

Environmental:

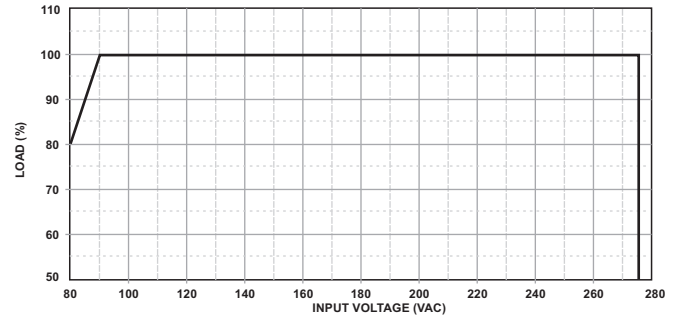
| Symbol | Characteristic | Condition | Min. | Typ. | Max. | Unit |
|--------|--------------------------------|--|------|------|------|------|
| To | Operating Temperature | Detail to see Fig.2 (Derate linearly from 100% load at 50°C to 50% load at 70°C) | -10 | | 70 | °C |
| Ts | Storage Temperature | 10 ~ 95% RH | -40 | | 85 | °C |
| Ho | Operating Humidity | non-condensing | 0 | | 95% | RH |
| Hs | Storage Humidity | See Rating Chart | 0 | | 95% | RH |
| Vsg | Surge Voltage | All Condition | | | 2 | kV |
| ESDa | Electro Static Discharge | Air Discharge, IEC61000-4-2 | | | 8 | kV |
| ESDc | Electro Static Discharge | Contact Discharge, IEC61000-4-2 | | | 6 | kV |
| MTBF | Mean Time Between Failure | Operating Temperature at 25°C, Calculated per MIL-HDBK-217F | 100k | | | h |
| ELEV | Operating Altitude (Elevation) | All condition | | | 3000 | m |
| VBR | Vibration | 10 ~ 500Hz, 10min./1cycle, 60min. each along X, Y, Z axes | 5 | | | G |

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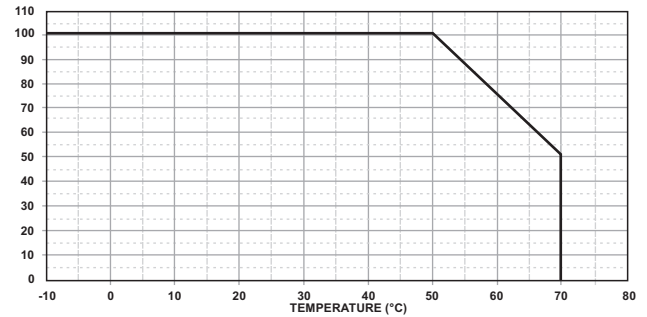
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SPECIFICATION NOTE :

- Output can provide up to peak load when the power supply starts up. Continuous staying in more than rated load is not allowed.
- At factory, in 60% rated load condition, each output is checked to be within voltage accuracy.
- Line regulation is defined by changing $\pm 10\%$ of input voltage from nominal line at rated load.
- Load regulation is defined by changing $\pm 40\%$ of measured output load from 60% rated load.
- Ripple & noise is measured by using 20MHz bandwidth limited oscilloscope and terminated each output with a 0.47uF capacitor at rated load and nominal line.
- Hold up time is measured from the end of the last charging pulse to the time which the main output drops down to low limit of main output at rated load and nominal line.
- Efficiency is measured at rated load, and nominal line.
- The specifics for testing the energy efficiency of this Series are outlined in a separate document titled "Test Method for Calculating the Energy Efficiency of Single-Voltage Interchangeable AC-DC and AC-AC Power Supplies (August 11, 2004)," which is available on the ENERGY STAR Website.

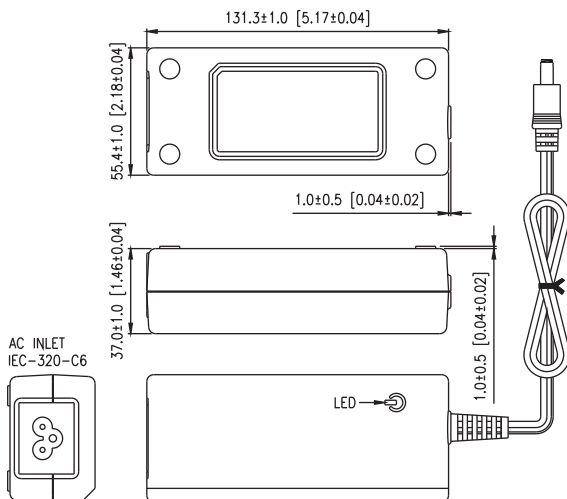


(FIG.1) INPUT VOLTAGE DERATING CURVE



(FIG.2) TEMPERATURE DERATING CURVE

MECHANICAL DIMENSIONS: (UNIT: mm)



OUTPUT CABLE RECOMMEND :

- Selected output connectors and wire, please refer to Appendix.
- MPU60C-105~107 are required to use AWG#16 / 4FT output cable.
- MPU60C-108~111 are required to use AWG#18/ 6FT output cable.
- The regulation and efficiency will be changed by modified output cable.

PACKING :

- Net weight: 330~380g approx.
- Optional output connectors available contact sales for details.

Rating Chart:

| MODEL NO. | Voltage Range | Output Current | Maximum Output Power (W) | Ripple & Noise (mVp-p) | Total Regulation (%) | Typ. Efficiency (%) | No Load Consumption (W) | Hold-Up Time (ms) | Protection Mode |
|------------|---------------|----------------|--------------------------|------------------------|----------------------|---------------------|-------------------------|-------------------|-----------------|
| | (VDC) | (A) | | | | | | | |
| MPU60C-105 | 12.0 | 5.25 | 63 | 100 | ± 5 | 84 | 0.5 | 16 | OLP |
| MPU60C-106 | 15.0 | 4.20 | 63 | 100 | ± 5 | 85 | 0.5 | 16 | OLP |
| MPU60C-107 | 18.0 | 3.50 | 63 | 100 | ± 5 | 85 | 0.5 | 16 | OLP |
| MPU60C-108 | 24.0 | 2.62 | 63 | 100 | ± 3 | 85 | 0.5 | 16 | OLP |
| MPU60C-109 | 30.0 | 2.10 | 63 | 100 | ± 3 | 86 | 0.5 | 16 | OLP |
| MPU60C-110 | 36.0 | 1.75 | 63 | 100 | ± 3 | 86 | 0.5 | 16 | OLP |
| MPU60C-111 | 48.0 | 1.31 | 63 | 100 | ± 3 | 86 | 0.5 | 16 | OLP |