ARCH ELECTRONICS CORP.

AC -DC Medical Power Module

# MFC15 SERIES 15 Watts

## KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC
- Regulated Output and Low Ripple and Noise
- <0.1W No Load Input Power
- Isolation Class II
- Small Size
- CE, CB, UL, cUL Approvals
- 3-Year Product Warranty

E308218

## ELECTRICAL SPECIFICATIONS

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

| Model No. | | MFC15-5S | MFC15-9S | MFC15-12S | MFC15-15S | MFC15-24S |
|---|---|---|---|---|---|---|
| Max Output Wattage (W) | | 15W | | | | |
| Input | Voltage (Note 1) | 90-264 VAC or 120-370 VDC, " N " to DC " + " ; "L " to DC " - " | | | | |
| | Frequency (Hz) | 47-440 Hz | | | | |
| | Current (Full load) | 385 mA max. (115 VAC) / 250 mA max. (230 VAC) | | | | |
| | Inrush current (<2ms,Cold Start) | 20 A max. (115 VAC) / 40 A max. (230 VAC) | | | | |
| | Leakage Current | < 0.1mA / 264 VAC (Touch Current) | | | | |
| | External fuse (recommend) | 3.15 A slow blow type | | | | |
| Output | Voltage (V.DC.) | 5V | 9V | 12V | 15V | 24V |
| | Voltage Accuracy | ±2% | | | | |
| | Current (mA) max | 3000 | 1666 | 1250 | 1000 | 625 |
| | Maximum Capacitive Load (at 230 VAC) | 7000uF | 5000uF | 1500uF | 1000uF | 470uF |
| | Line Regulation (LL-HL) (typ.) | ±0.5% | | | | |
| | Load Regulation (5-100%) (typ.) | ±1%. | | | | |
| | Ripple (Full load) (Note 2) | 75mV max (Vp-p) | | 1% of Vout | | |
| | Noise (Full load) (Note 2) | 120mV max (Vp-p) | | 1% of Vout | | |
| | Efficiency (at 230 VAC) | 79% | 80% | 84% | 84% | 85% |
| | Hold-up Time(typ) | 15 ms (115VAC) / 56ms (230VAC) | | | | |
| Protection | Over Power Protection | Hiccup technique, auto-recovery | | | | |
| | Over Voltage Protection | Zener diode clamp | | | | |
| | Short Circuit Protection | Hiccup mode, indefinite (automatic recovery) | | | | |
| Isolation | Input-Output (V.AC) | 4000V | | | | |
| Environment | Operating Temperature | -40°C…+80°C (with derating) | | | | |
| | Storage Temperature | -40°C…+90°C | | | | |
| | Max Case Operating Temperature | Under 115 VAC 83°C , others 90°C | | | | |
| | Temperature Coefficient | ±0.05%/°C | | | | |
| | Altitude During Operation | 5000m | | | | |
| | Humidity | up to 95% RH | | | | |
| | MTBF | >350,000 h @ 25°C (MIL-HDBK-217F) | | | | |
| | Atmospheric Pressure | 70 kPa to 106 kPa | | | | |
| Physical | Dimension (L x W x H) | 2.07 x 1.08 x 0.93 Inches ( 52.5 x 27.5 x 23.5 mm ) Tolerance ±0.5 mm | | | | |
| | Case Material | Plastic resin (flammability to UL 94V-0) | | | | |
| | Weight | 59 g | | | | |
| | Cooling Method | Free air convection | | | | |

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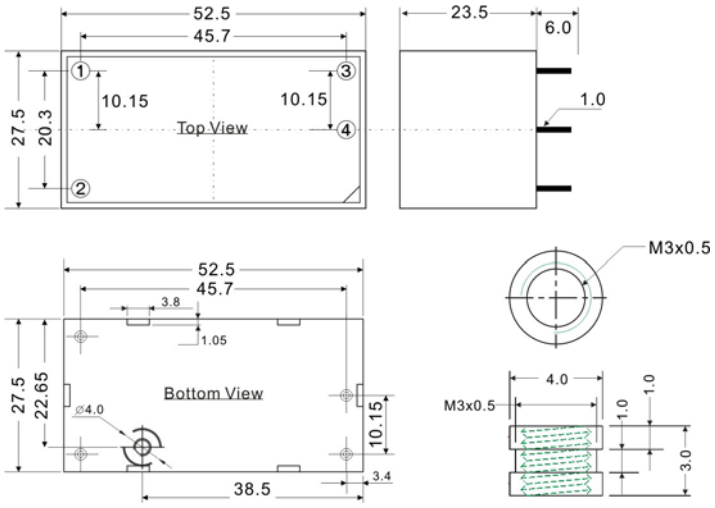
|---|---|---|---|---|---|---|
| Safety | Approval | cUL / UL Standard:<br>UL 60950-1, CAN/CSA C22.2 No. 60950-1-07<br>ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10), CAN/CSA-C22.2 No. 60601-1 (2008), 2 x MOPP<br>CB Standard:<br>IEC 60950-1:2005 (2nd Edition) + Am 1:2009 + Am 2:2013<br>IEC 60601-1:2005 (3rd Edition) + CORR. 1 (2006) + CORR. 2 (2007) + AM1 (2012) or IEC 60601-1 (2012 reprint), 2 x MOPP | | | | |
| EMC | Conducted and radiated EMI | EN55011 class B | | | | |
| | ESD | EN61000-4-2 air ± 8kV , Contact ± 4Kv | | | | |
| | Radiated Immunity | EN61000-4-3 10V/m | | | | |
| | Fast Transient | EN61000-4-4 ± 2kV | | | | |
| | Surge | EN61000-4-5 ±1kV | | | | |
| | Conducted Immunity | EN61000-4-6 10Vrms | | | | |
| | PFMF | EN61000-4-8 30A/m | | | | |
| | Dips | EN61000-4-11 30% 10ms | | | | |
| | Interruption | EN61000-4-11 >95% 5000ms | | | | |

## NOTE

1. **This product is not designed for use in critical life support systems, equipment used in hazardous environment, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet.**
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
3. Safety approvals cover frequency 47-63 Hz.
4. That “natural convection” is about 20LFM but is not equal to still air (0 LFM).
5. It's recommended to add Varistor 14S471K at L / N input side in parallel.
6. Please refer to our PDF file "AC-DC Application" on our website: www.archcorp.com.tw

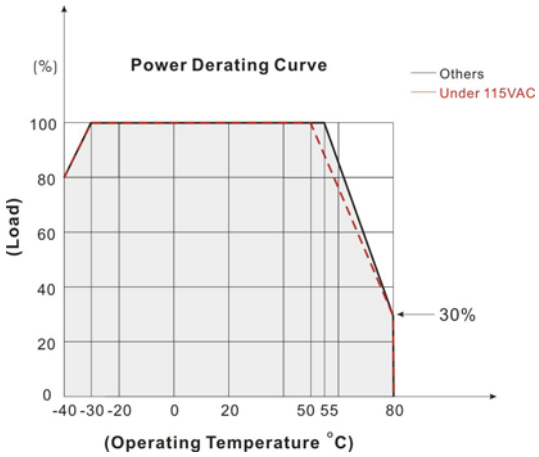
## MECHANICAL DIMENSION

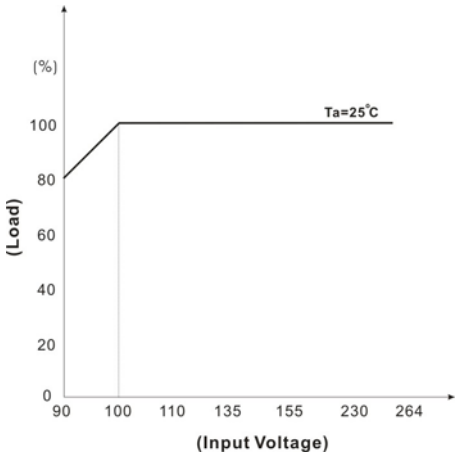



| PIN# | Single |
|---|---|
| 1 | AC IN (L) |
| 2 | AC IN (N) |
| 3 | +DC OUT |
| 4 | -DC OUT |

Maximum Torque 12{1.21} (kgf.cm{N.m})

## DERATING




## BLOCK DIAGRAM

Single Output