



E-Star Power Development Co., Ltd. (E-STAR)  
 1F., No.40, Juren Ln., Sec. 2, Sanmin Rd., Banciao Dist., New Taipei City  
 22069, Taiwan (R.O.C.)  
 Phone : 886-2-2957 5580 Fax : 886-2-2957 7473

**20W Open Frame type Medical power supply > CFM21M**



**Features**

- \* Universal Input Range 90~264VAC
- \* Class II
- \* Miniature Size Low Profile 0.8"
- \* Industry-Standard Pin Out
- \* Efficiency to 86%
- \* Option for On-Board, Connector, Screw Terminal or Encapsulated type
- \* Continuous Short Circuit Protection
- \* Over Voltage Protection
- \* No Load Input Power < 0.1W
- \* Leakage Current < 100uA
- \* UL60601-1/IEC60601-1/EN60601-1 Ed.3.1 Medical Safety Approved
- \* 2 MOPP
- \* Peak Load 130% (note 8)
- \* Meet UL62368/IEC62368/EN62368
- \* Meet UL60335-1/IEC60335-1/EN60335-1



MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE NOTE 1	VOLTAGE ACCURACY NOTE2	LINE REGULATION NOTE 3	LOAD REGULATION NOTE 4	OUTPUT RATED POWER	% EFF.
CFM21M050	5.0 V	4.0 A	50 mV	±1%	±0.5%	±1.0%	20.0 W	81%
CFM21M090	9.0 V	2.3 A	90 mV	±1%	±0.5%	±1.0%	20.7 W	83%
CFM21M120	12 V	1.7 A	100 mV	±1%	±0.5%	±1.0%	20.4 W	85%
CFM21M150	15 V	1.4 A	100 mV	±1%	±0.5%	±1.0%	21.0 W	85%
CFM21M240	24 V	0.9 A	100 mV	±1%	±0.5%	±1.0%	21.6 W	86%

Specifications are subject to change without notice.



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**Specifications**

**INPUT SPECIFICATIONS:**

Voltage ..... 90~264Vac  
 Frequency ..... 47 to 63Hz  
 Input Current ..... 0.3 to 0.5A  
 Inrush Current ..... Cold Start@25°C ..... 40A max. @230Vac  
 Leakage Current ..... 70uA Typical - 100uA max.

**OUTPUT SPECIFICATIONS:**

Isolation ..... Input to Output = 4000VAC  
 Hold-up Time ..... 10ms typ. @115Vac  
 Short Circuit Protection ..... Continuous  
 Over Voltage Protection (TVS) .... 110%-140% of Nominal Output Voltage

**GENERAL SPECIFICATIONS:**

Efficiency ..... See Table  
 Switching Frequency ..... 65KHz typ.  
 Operating Temperature ..... -25 ~ 70°C (with De-Rating)  
 Storage Temperature ..... -40~85°C  
 Cooling ..... Natural Convection  
 Humidity ..... 93% RH max. Non Condensing  
 Operating Altitude..... 5000m  
 MTBF ..... MIL-HDBK-217F, GB ..... 500Khrs min.  
 Dimensions ..... 2.38x1.60x0.80inches (60.5x40.6x19.5mm)  
   -T: 3.00x1.60x0.77inches (76.2x40.6x19.5mm)  
   -E: 2.53x1.74x0.80inches (64.2x44.2x20.4mm)  
   -S: 3.00x1.60x0.77inches (76.2x40.6x19.5mm)  
 Weight ..... 55g, 60g (-T, -S), 110g(-E)

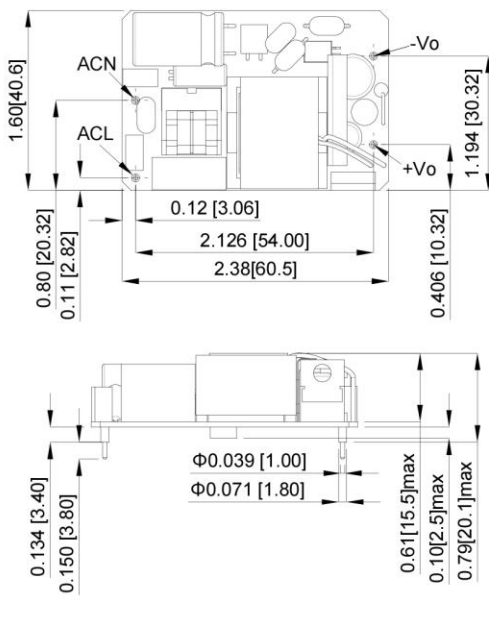
**SAFETY AND EMISSION:**

Emissions and Immunity (Ed. 4.0) ..... EN55011 Class B, EN61000-3-2(3)  
   EN60601-1-2 2015, IEC 61000-4-2(3/4/5/6/8/11)  
 Safety Approved (Ed.3.1) ..... IEC60601-1  
 ANSI/AAMI ES 60601-1:2005/A1:2012&C1:2009/®2012&2010/®2012  
 CAN/CSA-C22.2 NO. 60601-1:14, EN 60601-1: 2006+A11:2011+A1:2013,  
   IEC 60601-1:2005+A1:2012

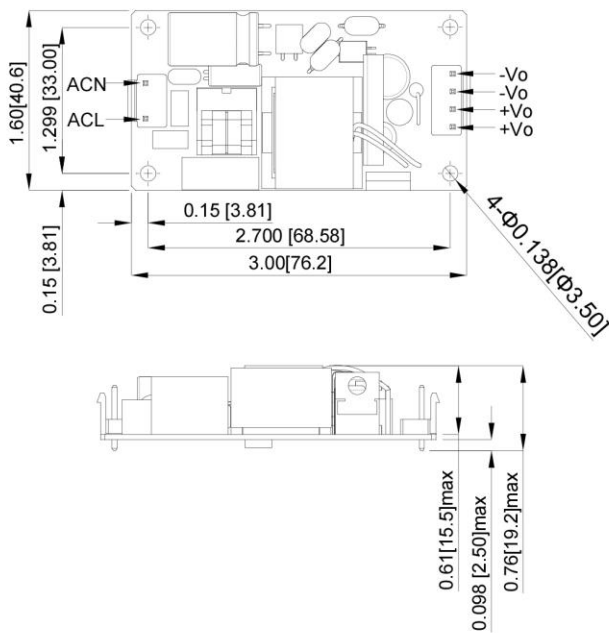
**Mechanical Specification**

Annotations: For all models, height does not exceed 34mm max.

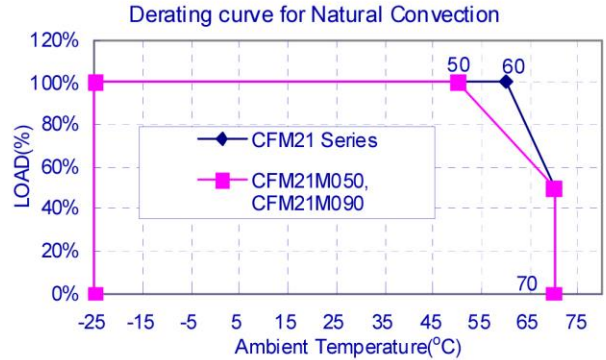
**CFM21MXXX**



**CFM21MXXX-T**



**CFM21M Series De-rating Curve**



**NOTE:**

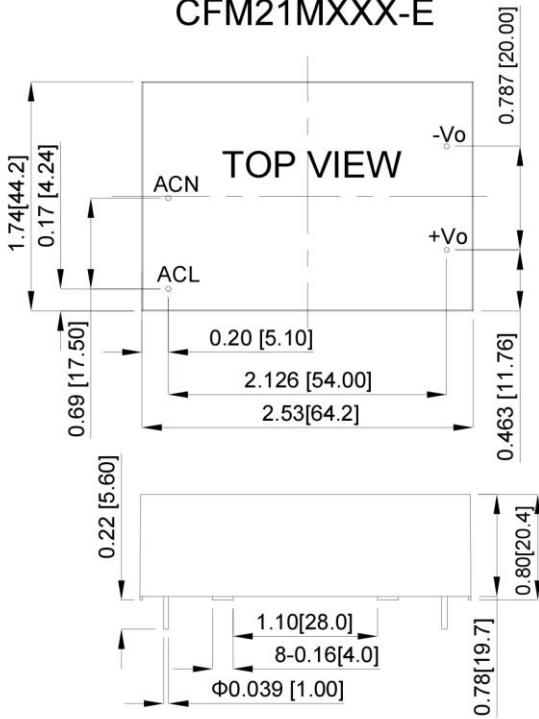
- 1. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple&noise measuring @20MHz BW.
- 2. Voltage accuracy is set of 100% rated load.
- 3. Line regulation is measured from high line to low line with full load.
- 4. Load regulation is measured from 10% to 100% full load.
- 5. T Version Connection: JST B3P-VH / B4P-VH or equivalent.
- 6. S Version Connection: DECA MB332-381A or equivalent.
- 7. Typical efficiency at 230VAC and 100% load at 25°C.
- 8. Peak load 130% lasting < 10 seconds with a maximum duty cycle of 10% at nominal Line.



**20W Open Frame type Medical power supply > CFM21M**

**Mechanical Specification**

**CFM21MXXX-E**



**CFM21MXXX-S**

