

Medical



Industrial

## FEATURES AND BENEFITS

12W Open Frame Power Supply

E-cap Life of >10 Years

1.6" x 3.38" x 1.0" (40.6mm x 85.8mm x 25.4mm)

>1,000,000 Hours MTBF

Universal Input 90VAC~264VAC

3 Year Warranty

<0.1W No Load Input Power

Meets Class B Radiated & Conducted EMI, with Margin

Approved to CSA/EN/IEC/UL62368-1

Meets Heavy Industrial and IEC60601-1-2 4<sup>th</sup> Edition Levels of EMC

Approved to CSA/EN/IEC/UL60601-1 3<sup>rd</sup> Edition



### Notes:

- \*Consult factory for compliance information.

## MODEL SELECTION

Model Number <sup>2</sup>	Volts	Rated Current	Output Power	Ripple & Noise <sup>1</sup>	Line Regulation	Load Regulation	Input Class/Termination	Output Termination
GB10S05K01	5.0V	2.0A	10.0W	75mV pk-pk	±1%	±5%	Class I (Grounded) input, 3-pin AMP/Molex type connector Change "K" to "C" for Class II input	4-pin AMP/Molex type connector for "K" and "C" versions
GB10S07K01	7.5V	1.3A	10.0W	75mV pk-pk	±1%	±5%		
GB10S09K01	9.0V	1.0A	10.0W	90mV pk-pk	±1%	±5%		
GB10S12K01	12.0V	1.0A	12.0W	120mV pk-pk	±1%	±5%		
GB10S15K01	15.0V	0.8A	12.0W	150mV pk-pk	±1%	±5%		
GB10S24K01	24.0V	0.5A	12.0W	240mV pk-pk	±1%	±5%		

### Notes:

- Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.
- Other output voltages available, consult factory.
- All specifications are typical at 230VAC, full load, at 25°C ambient unless noted.

### INPUT

Input Voltage and Frequency	100VAC–240VAC, ±10%, 47Hz–63Hz, 1Ø
Input Current	115VAC: 0.45A, 230VAC: 0.22A
Inrush Current	264VAC, cold start: will not exceed 40A peak
Input Fuses	3.15A, 250VAC fuse in both line and neutral
Earth Leakage Current (Input to Earth)	<500µA@264VAC, 60Hz, NC <1mA@264VAC, 60Hz, SFC
Earth Leakage Current (Output to Earth)	<100µA@264VAC, 60Hz, NC <500µA@264VAC, 60Hz, SFC
Efficiency	>88%, typical

Notes:

- All specifications are typical at 230VAC input, full load, at 25°C ambient unless noted.

### ISOLATION

Isolation	Input-Output: 4000VAC (2 MOPP) Input-Ground: 1500VAC (1 MOPP) Output-Ground: 1500VAC (1 MOPP)
Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG: TBD

### PROTECTION

Overtemperature Protection	Will shutdown upon an overtemperature condition, Auto-recovery
Overload Protection	130% to 160% of rated output current value, Hiccup mode
Short Circuit Protection	Hiccup mode
Overvoltage Protection	120% to 150% of nominal output voltage, Hiccup Mode

### OUTPUT

Output Voltage	See models chart
Output Power	10W–12W continuous - See models chart for specific voltage model ratings
Turn On Time	<800mS
Hold-up Time	20mS/100VAC at full load, "K" and "C" input options 10mS/100VAC at full load, "P" input options
Transient Response	500µs resp. time for return to w/in 0.5% of final value for any 50% load step from 5% to 100% of rated load, $\Delta i/\Delta t < 0.2A/\mu s$ Max voltage deviation is ±3.5%
Total Load Regulation	See models chart
Power Factor	0.9min., 230VAC, 80%–100% load vector, 25°C ambient

Notes:

- All specifications are typical at 230VAC input, full load, at 25°C ambient unless noted.

### RELIABILITY

MTBF	>1,000,000 hours, full load, 110VAC & 220VAC input, 25°C amb., per telcordia 332 issue 6, stress method
E-cap Life	>10 year life based on calculations at 115VAC/60Hz & 230VAC/50Hz, ambient 25°C at 24 hrs/day, 365 days/year, 6 power up cycles/day

### SAFETY

ITE/Industrial Safety	EN/IEC/UL62368-1
Medical Safety	EN/IEC/UL60601-1 3 <sup>rd</sup> Edition

### ENVIRONMENT

Operating Temperature	-25°C ~ +70°C, see derating curve for operation above 50°C
Relative Humidity	5% to 90%, non-condensing
Weight	100 grams
Dimensions	1.60" x 3.23" x 1.04" 40.0mm x 82.0mm x 26.5mm
Storage Temperature	-40°C ~ +85°C
Vibration	Operating: 0.003g/Hz, 1.5 grams overall, 3 axes, 10 min/axis, 1Hz–500Hz Non-Oper.: random waveform, 3 mins/axis, 3 axes and Sine waveform, Vib. frequency/acceleration: 10Hz–500Hz/1g, sweep rate of 1 octave/minutes, Vibration time of 10 sweeps/axes, 3 axes
Shock	Operating: Half-sine, 20gpk, 10mS, 3 axes, 6 shocks total Non-Operating: Half-sine waveform, impact acceleration of 50G, pulse duration of 6mS, Number of shocks: 3 for each of the 3 axis
Cooling	Convection

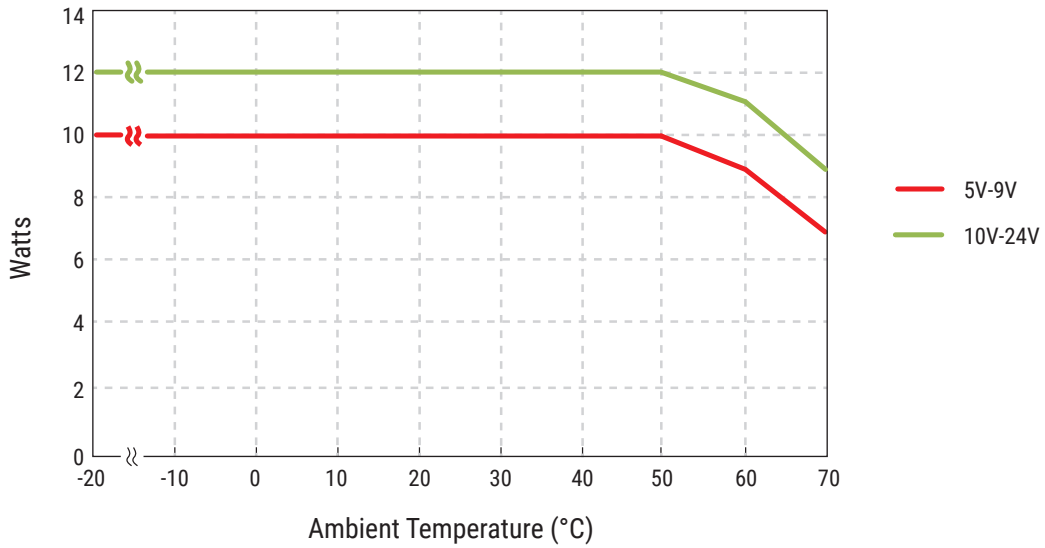
### EMI/EMC COMPLIANCE

Conducted Emissions	EN55032, EN55011/CISPR11 Class B, FCC Part 15.107, Class B: 6db margin type, at 115VAC and 230VAC
Radiated Emissions	EN55032, EN55011/CISPR11 Class B, FCC Part 15.109, Class B: 3db margin type, at 115VAC and 230VAC
Electro-Static Discharge (ESD) Immunity on Power Ports	EN55024/IEC61000-4-2, Level 4: ±8kV contact, ±15kV air, Criteria A IEC60601-1-2 4 <sup>th</sup> Edition, Table 4
Radiated RF EM Fields Susceptibility <sup>3</sup>	EN55022/EN61000-4-3, 10V/m, 80MHz–2.7GHz, 80% AM at 1kHz IEC60601-1-2 4 <sup>th</sup> Edition, Table 4
Electrical Fast Transients (EFT)/Bursts	EN55024/IEC61000-4-4, Level 4, ±4.4kV, 100Khz rep rate, 40A, Criteria A IEC60601-1-2 4 <sup>th</sup> Edition, Table 5
Surges, Line to Line (DM) and Line to Ground (CM)	EN55024/IEC61000-4-5, Level 4, ±2kV DM, ±4kV CM, Criteria A Surpasses IEC60601-1-2 4 <sup>th</sup> Edition requirements
Conducted RF Immunity	EN55022/IEC61000-4-6, 3.6V/m – Level 4, (0.15MHz to 80MHz; and 12V/m) in ISM and amateur radio bands between 0.15MHz and 80MHz, 80% AM at 1KHz IEC60601-1-2 4 <sup>th</sup> Edition, Table 5
Power Frequency Magnetic Field Immunity	EN55024/IEC1000-4-8, Level 4: 30 A/m, 50Hz/60Hz, IEC60601-1-2 4 <sup>th</sup> Edition, Table 4
Voltage Dip Immunity	EN55024/IECEN61000-4-11: --100% dip for 10mS, at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°, 100% dip for 20mS, 0°, Criteria A(Criteria B for "P" option) --100% dip for 5000mS (250/300 cycles), Criteria B --60% dip for 100mS, Criteria B --30% dip for 500mS, Criteria A IEC60601-1-2 4 <sup>th</sup> Edition, Table 5
Harmonic Current Emissions	EN55011/EN61000-3-2, Class A
Flicker Test	EN61000-3-3

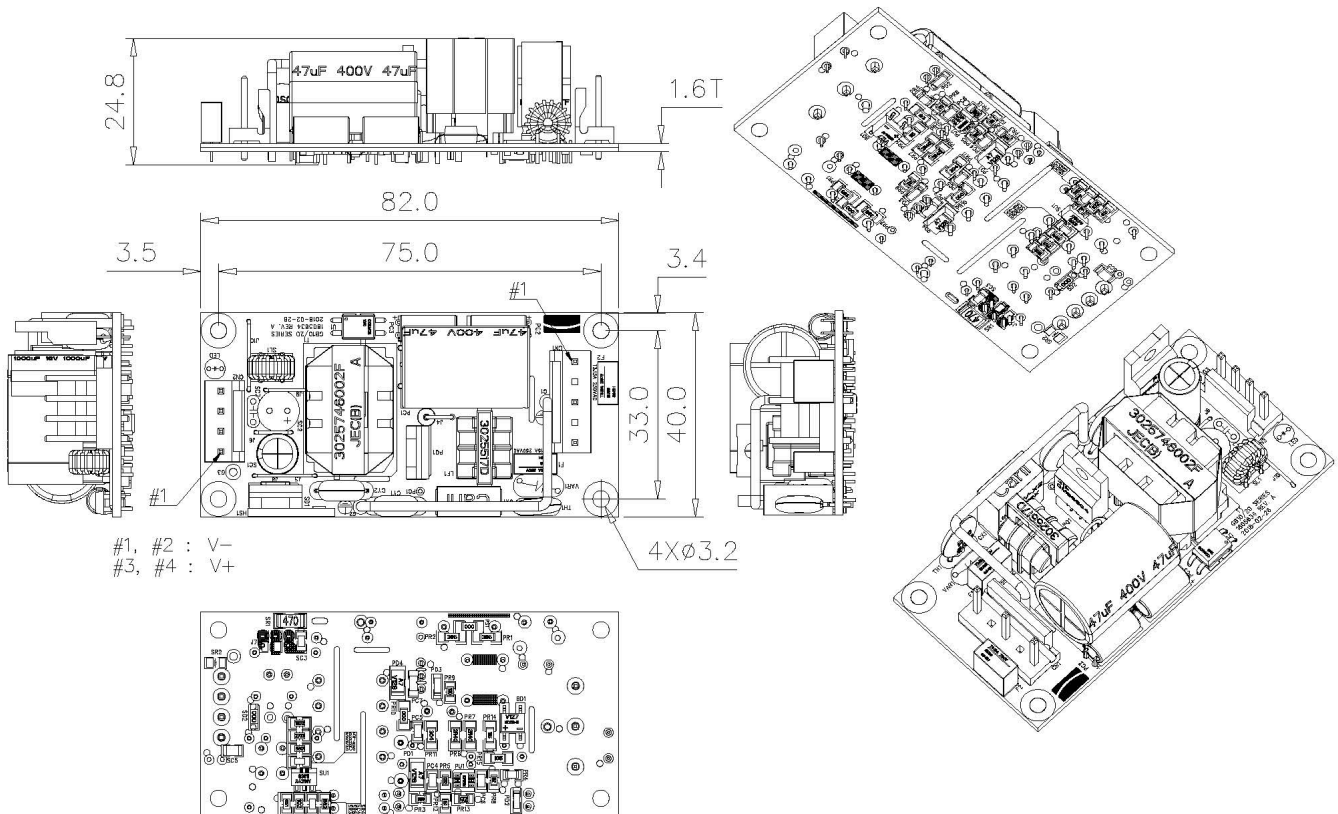
#### Notes:

1. 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.
2. All specifications are typical at nominal input, full load, at 25°C ambient unless noted. Consult factory for information regarding testing or for usage under special environments.

**DERATING CURVE**



**MECHANICAL DRAWING**



**CONNECTOR AND TERMINATION INFORMATION**

Input Connections				Ground	
Version	Connector Pinout	Ground	Connector Type/Part No.	Connector Pinout	Connector Type/Part No.
Open Frame: "K", "C"	Pin 1: AC LINE Pin 2: EMPTY Pin 3: AC NEUTRAL	Pin 1: AC LINE Pin 2: N/C Pin 3: GROUND Pin 4: N/C Pin 5: AC NEUTRAL	Connector: TE/AMP P/N 640445-5 Mating Connector: TE/ AMP P/N 640250-5 Pins= 770476-1	Pin 1: +Vout Pin 2: +Vout Pin 3: -Vout Pin 4: -Vout	Connector: TE/AMP P/N 640445-4 Mating Connector: TE/AMP P/N 640250-4, Pins= 770476-1