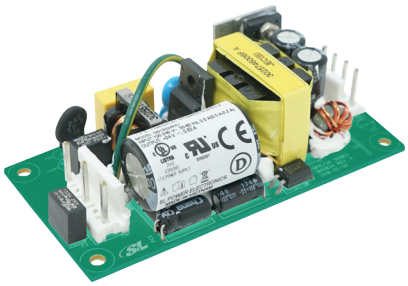
# GB10 Family

12W Single Output
Medical/Industrial Grade



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 4th Edition Levels of EMC |
| Approved to CSA/EN/IEC/UL60601-1 3rd Edition | |

Notes:
1. *Consult factory for compliance information.

## MODEL SELECTION

| Model Number[2] | Volts | Rated Current | Output Power | Ripple & Noise[1] | 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:
1. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor.
2. Other output voltages available, consult factory.
3. 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<br><1mA@264VAC, 60Hz, SFC |
| Earth Leakage Current (Output to Earth) | <100µA@264VAC, 60Hz, NC<br><500µA@264VAC, 60Hz, SFC |
| Efficiency | >88%, typical |

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

## ISOLATION

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

## PROTECTION

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|---|---|
| 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<br>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, Δi/Δt<0.2A/µs<br>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:
1. All specifications are typical at 230VAC input, full load, at 25°C ambient unless noted.

## RELIABILITY

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|---|---|
| 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

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|---|---|
| ITE/Industrial Safety | EN/IEC/UL62368-1 |
| Medical Safety | EN/IEC/UL60601-1 3rd 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"<br>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<br>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<br>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

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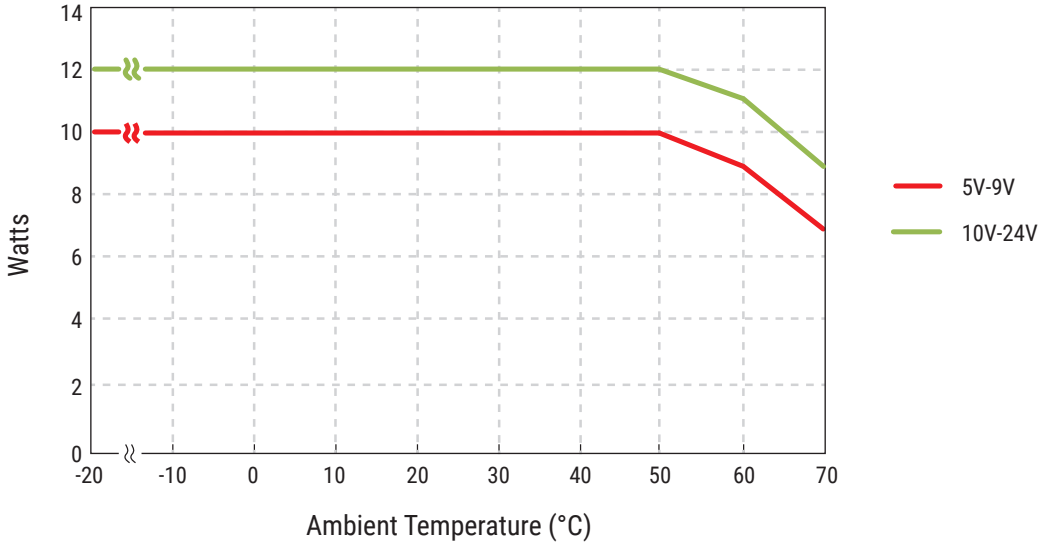
|---|---|
| Conducted Emissions | EN55032, EN55011/CISPR11 Class B, FCC Part 15.107, Class B: 6db margin type, at 115VAC and 230VAC |
| Radiated Emissions | EN55032, EN55011/CISPR11 Class B, FCC Part 15.109, Class B: 3db margin type, at 115VAC and 230VAC |
| Electro-Static Discharge (ESD) Immunity on Power Ports | EN55024/IEC61000-4-2, Level 4: ±8kV contact, ±15kV air, Criteria A<br>IEC60601-1-2 4th Edition, Table 4 |
| Radiated RF EM Fields Susceptibility[3] | EN55022/EN61000-4-3, 10V/m, 80MHz–2.7GHz, 80% AM at 1kHz<br>IEC60601-1-2 4th Edition, Table 4 |
| Electrical Fast Transients (EFT)/Bursts | EN55024/IEC61000-4-4, Level 4, ±4.4kV, 100Khz rep rate, 40A, Criteria A<br>IEC60601-1-2 4th 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<br>Surpasses IEC60601-1-2 4th 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<br>IEC60601-1-2 4th Edition, Table 5 |
| Power Frequency Magnetic Field Immunity | EN55024/IEC1000-4-8, Level 4: 30 A/m, 50Hz/60Hz, IEC60601-1-2 4th Edition, Table 4 |
| Voltage Dip Immunity | EN55024/IECEN61000-4-11:<br>--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)<br>--100% dip for 5000mS (250/300 cycles), Criteria B<br>--60% dip for 100mS, Criteria B<br>--30% dip for 500mS, Criteria A<br>IEC60601-1-2 4th Edition, Table 5 |
| Harmonic Current Emissions | EN55011/EN61000-3-2, Class A |
| Flicker Test | EN61000-3-3 |

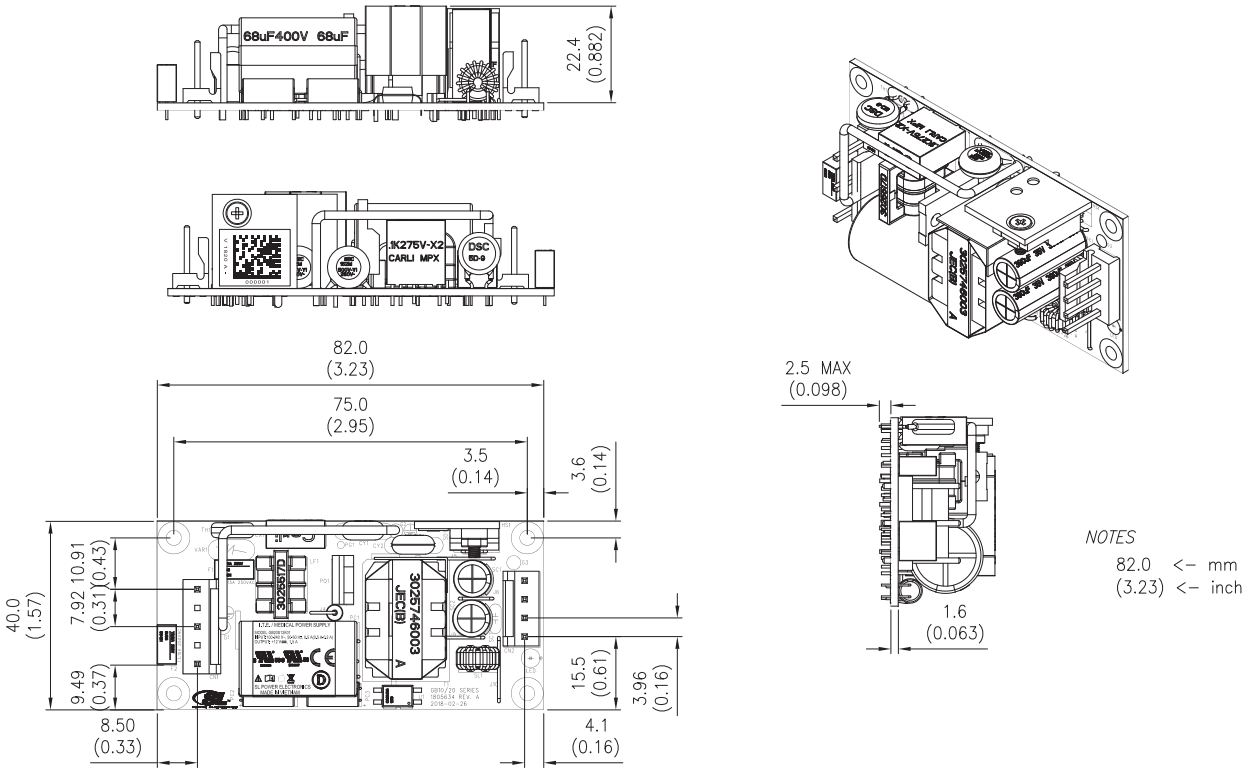
Notes:

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:<br>"K", "C" | Pin 1: AC LINE<br>Pin 2: EMPTY<br>Pin 3: AC NEUTRAL | Pin 1: AC LINE<br>Pin 2: N/C<br>Pin 3: GROUND<br>Pin 4: N/C<br>Pin 5: AC NEUTRAL | Connector:<br>TE/AMP P/N 640445-5<br>Mating Connector: TE/AMP P/N 640250-5<br>Pins= 770476-1 | Pin 1: +Vout<br>Pin 2: +Vout<br>Pin 3: -Vout<br>Pin 4: -Vout | Connector:<br>TE/AMP P/N 640445-4<br>Mating Connector:<br>TE/AMP P/N 640250-4,<br>Pins= 770476-1 |