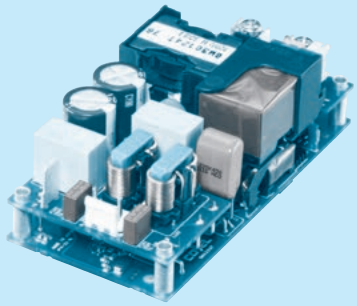
COSEL AC-DC Power Supplies Medical Type

# GMA300F

## Ordering information

GM ① A ② 300 ③ F ④ -□□ ⑤ -□ ⑥



Example recommended EMI/EMC filter
EAC-06-472

High voltage pulse noise type : EAP series
Low leakage current type : EAM series

＊A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑥Optional ＊6
C : with Coating
J1 : Input connector VH (J.S.T.) connector type
J3 : Horizontal input connector VH (J.S.T.) connector type
R3 : with Subfeatures (5V1A AUX, 12V1A AUX, Remote ON/OFF)

Specification changes when options are added. Please refer to the instruction manual for more detail.

This power supply is manufactured using SMD technology. The stress to P.C.B like twisting or bending causes the defect of the unit, please handle the unit with care.
＊Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

| MODEL | GMA300F-12 | GMA300F-24 | GMA300F-48 | GMA300F-56 |
|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | 300 | 300 | 302.4 | 302.4 |
| DC OUTPUT | 12V 25A | 24V 12.5A | 48V 6.3A | 56V 5.4A |

## SPECIFICATIONS

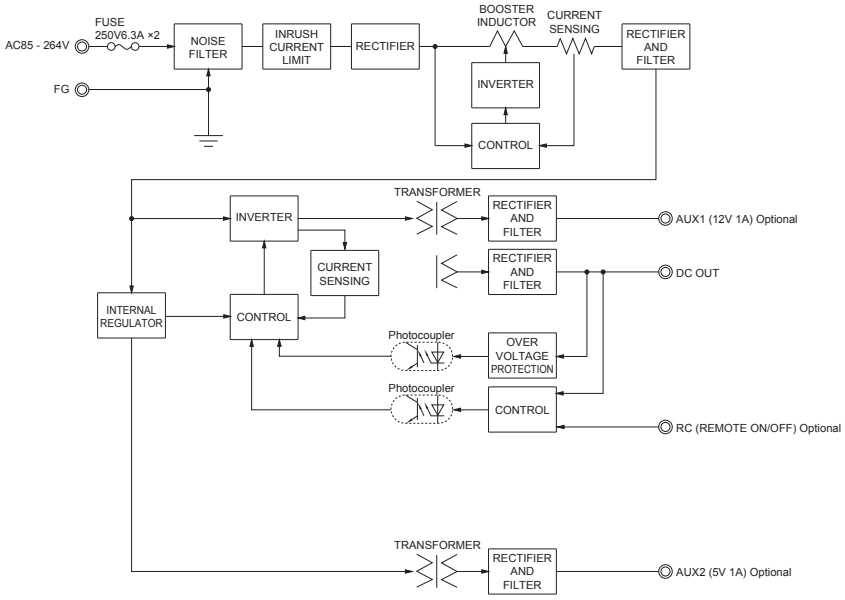
| | MODEL | | GMA300F-12 | GMA300F-24 | GMA300F-48 | GMA300F-56 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] ＊3 | | AC85 - 264 1φ (Output derating is required at AC85V - 115V. See 3.1 in Instruction Manual) | | | |
| | CURRENT[A] | ACIN 115V | 3.3typ | | | |
| | | ACIN 230V | 1.8typ | | | |
| | FREQUENCY[Hz] | | 50 / 60 (45 - 66) | | | |
| | EFFICIENCY[%] | ACIN 115V | 90typ | 91typ | 91typ | 91typ |
| | | ACIN 230V | 92typ | 93typ | 93typ | 93typ |
| | POWER FACTOR (Io=100%) | ACIN 115V | 0.95typ | | | |
| | | ACIN 230V | 0.90typ | | | |
| | INRUSH CURRENT[A] | ACIN 115V | 30typ (Io=100%) (At cold start, Ta=25℃ ) | | | |
| | | ACIN 230V | 60typ (Io=100%) (At cold start, Ta=25℃ ) | | | |
| | LEAKAGE CURRENT[mA] | | 0.13 / 0.30max (ACIN 100/240V 60Hz, Io=100%, According to IEC60601-1) | | | |
| OUTPUT | VOLTAGE[V] | | 12 | 24 | 48 | 56 |
| | CURRENT[A] | | 25 | 12.5 | 6.3 | 5.4 |
| | LINE REGULATION[mV] ＊4 | | 48max | 96max | 192max | 192max |
| | LOAD REGULATION[mV] ＊4 | | 100max | 150max | 240max | 240max |
| | RIPPLE[mVp-p] ＊1 | 0 to +50℃ | 240max | 240max | 400max | 400max |
| | | -20 to 0℃ | 320max | 320max | 500max | 500max |
| | RIPPLE NOISE[mVp-p] ＊1 | 0 to +50℃ | 300max | 300max | 500max | 500max |
| | | -20 to 0℃ | 360max | 360max | 580max | 580max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 120max | 240max | 480max | 480max |
| | | -20 to +50℃ | 150max | 290max | 600max | 600max |
| | DRIFT[mV] ＊2 | | 48max | 96max | 192max | 192max |
| | START-UP TIME[ms] | | 400typ (ACIN 115V, Io=100%)<br>＊Start-up time is 900ms typ for less than 1minute of applying input again from turning off the input voltage. | | | |
| | HOLD-UP TIME[ms] | | 16typ (ACIN 115V, Io=85%) / 12typ (ACIN 115V, Io=100%) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | | 11.40 ～ 13.20 | 22.80 ～ 26.40 | 45.60 ～ 52.80 | 52.00 ～ 56.00 |
| | OUTPUT VOLTAGE SETTING[V] | | 12.00 ～ 12.48 | 24.00 ～ 24.96 | 48.00 ～ 49.92 | 55.00 ～ 56.00 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION[V] | | 13.80 to 16.80 | 27.60 to 33.60 | 55.20 to 67.20 | 60.00 to 70.50 |
| | AUX1 (12V1A) | | Optional | | | |
| | AUX2 (5V1A) | | Optional | | | |
| | REMOTE ON/OFF | | Optional | | | |
| ISOLATION | INPUT-OUTPUT · RC · AUX ＊7 | | AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP | | | |
| | OUTPUT · RC · AUX-FG ＊7 | | AC1,500V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP | | | |
| | OUTPUT-RC · AUX ＊7 | | AC100V 1minute, Cutoff current = 25mA, DC100V 10MΩ min (At Room Temperature) | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -20 to +70℃, 20 - 90%RH (Non condensing), 5,000m (16,000feet) max ＊3 ＊8 | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -30 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max | | | |
| | VIBRATION | | 10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | | |
| | IMPACT | | 196.1m/s² (20G), 11ms, once each X, Y and Z axis | | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS | | UL62368-1, ANSI/AAMI ES60601-1, C-UL, EN62368-1, EN60601-1 3rd, Complies with IEC60601-1-2 4th Ed. | | | |
| | CONDUCTED NOISE | | Complies with FCC Part15 classB, VCCI-B, CISPR32-B, EN55011-B, EN55032-B | | | |
| | HARMONIC ATTENUATOR ＊5 | | Complies with IEC61000-3-2 (class A) | | | |
| OTHERS | CASE SIZE/WEIGHT | | 50.8×37×101.6mm [2.0×1.5×4.0 inches] (W×H×D) / 230g max | | | |
| | COOLING METHOD | | Forced air (Requires external fan) | | | |

＊1 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
＊2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃ , with the input voltage held constant at the rated input/output.
＊3 Derating is required.
＊4 Please contact us about dynamic load and input response.
＊5 Please contact us about another class.
＊6 Specification is changed at option, refer to Instruction Manual.
＊7 Applicable when AUX and remote control (optional) is added.
＊8 Please contact us about for more detail.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ Parallel operation is not possible.
＊ Sound noise may be generated by power supply in case of pulse load.
＊ Substrate bottom has a Electric potential. Insulation is required.

## Features

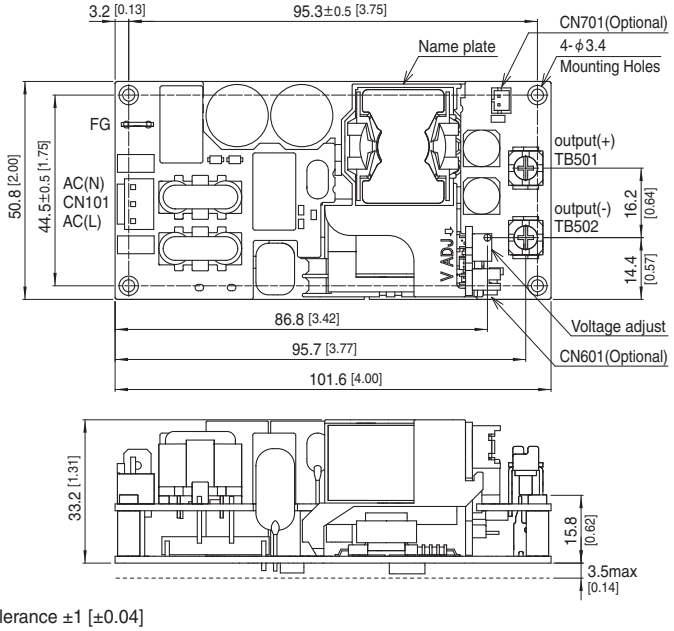
- High power density : 25.7W/inch³
- High efficiency : 93% typ (Input Voltage 230V, Output Voltage 24V)
- For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- Suitable for BF application (Output-FG : 1MOPP, Input-Output : 2MOPP)
- 2"× 4"standard footprint
- With Remote ON/OFF (Optional)
- With AUX1 (12V 1A), AUX2 (5V 1A) (Optional)

## Block diagram




## External view

✻ External size of option J3 is different from standard model and refer to 4 Option and Others of instruction manual for details.




✻ Tolerance ±1 [±0.04]
✻ Weight : 230g max
✻ There is a total of four attachment holes.
✻ Dimensions in mm, [ ]=inches
✻ Screw tightening torque : (TB501, 502) : 1.25N・m max
✻ Mounting toque : 0.6N・m max
✻ Avoid contact between TB501 and 502 wiring with mounting parts.

| I/O Connector | | | Mating connector | Terminal | Mfr |
|---|---|---|---|---|---|
| Standard | CN101 | 1-1123724-2 | 1-1123722-3 | 1123721-1<br>1318912-1 | Tyco Electronics |
| R3 | CN101 | | | | |
| | CN601 | B8B-PHDSS | PHDR-08VS | SPHD-002T-P0.5 | J.S.T. |
| | CN701 | B2B-PH | PHR-2 | SPH-002T-P0.5S | |
| J1 | CN101 | B2P3-VH | VHR-3N | SVH-21T-P1.1 | |
| J1R3 | CN101 | | | | |
| | CN601 | B8B-PHDSS | PHDR-08VS | SPHD-002T-P0.5 | |
| | CN701 | B2B-PH | PHR-2 | SPH-002T-P0.5S | |

| FG | Mating connector | Terminal | Mfr |
|---|---|---|---|
| 250 (62409-1) | - | 170603-2 | Tyco Electronics |

<Pin Assignments>

<CN101>

| Pin No. | Input |
|---|---|
| 1 | AC(L) |
| 2 | |
| 3 | AC(N) |

<CN601(Optional)>

| Pin No. | Function |
|---|---|
| 1 | RC : REMOTE ON/OFF |
| 2 | RCG : REMOTE ON/OFF(GND) |
| 3 | N.C. : No connection |
| 4 | N.C. : No connection |
| 5 | N.C. : No connection |
| 6 | N.C. : No connection |
| 7 | AUX2 : AUX2 (5V 1A) |
| 8 | AUX2G : AUX2 (GND) |

CN601

<CN701(Optional)>

| Pin No. | Function |
|---|---|
| 1 | AUX1G : AUX1 (GND) |
| 2 | AUX1 : AUX1 (12V 1A) |

CN701