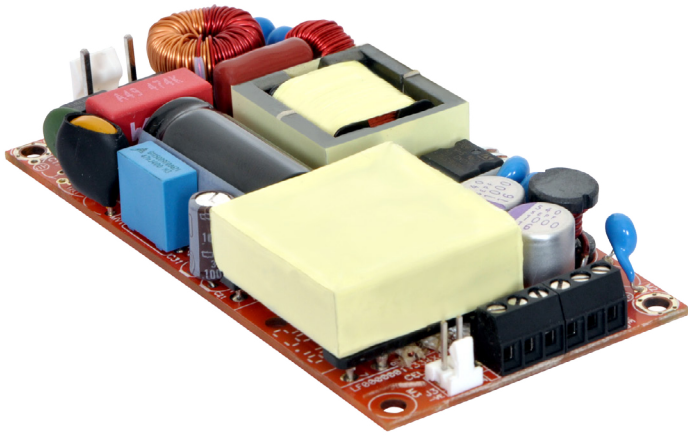


180 Watt Industrial



Features

- 4 x 2 x 0.75 Inches Form factor
- 180 Watts with Forced Air Cooling
- Efficiencies upto 92%
- -40 to 70 degree operating temperature*
- Now IEC/EN/UL62368-1 Compliant **New**
- 12V / 0.5A Fan Output, Thermal Shut-Down feature
- 3.37m Hours, Telcordia -SR332-issue 3 MTBF
- No Load Power < 0.5W
- Approved with metal enclosures/accessories

Electrical Specifications

| | | |
|------------------------------------|---|----------------------|
| Input Voltage | 80-264 VAC/390 VDC, Universal (Derate from 100% at 100V AC to 77% at 80V AC) | |
| Input Frequency | 47-63 Hz | |
| Input Current | 115 VAC: 2.2 A max. | 230 VAC: 1.1 A max. |
| No Load Power | <0.5W typical for ULP180-1XXX and <0.85W typical for ULP180-0XXX | |
| Inrush Current | 115 V AC – 25 A, 230 VAC – 45 A, 264 VAC – 75 A | |
| Leakage Current | 300 uA Typical, (N.A. For Class II Option) | Touch current <100uA |
| Efficiency | 92%(48V,58V), 90%(24V,30V), 88%(12V,15V) | |
| Hold-up Time | at 180W:10 ms ; 120W: 16 ms | |
| Power Factor | >0.95@115 VAC and 0.9@230 VAC | |
| Output Power | 180W with 13 CFM, upto 120W Convection | |
| Line Regulation | +/-0.5% | |
| Load Regulation | +/-1% | |
| Transient Response | 25% step load change, at 0.1A/uS slew rate, 50% duty cycle, 50Hz=4% , recovery time < 5 ms | |
| Rise Time | 55ms typical | |
| Set Point Tolerance | +/-1% | |
| Output Voltage adjustment | +/-3% (Ref. Note 9) | |
| Over Current Protection | >110% | |
| Over Voltage Protection | 110 to 140% | |
| Short Circuit Protection | Hiccup mode | |
| Switching Frequency | PFC – 70 to 130 KHz ,PWM – 50-80 KHz | |
| Operating Temperature ⁷ | - 40 to +70°C, * -40 to 0°C startup is guaranteed with spec deviation | |
| Storage Temperature | -40 to +85°C | |
| Relative Humidity | 5% to 95%, noncondensing | |
| Altitude | Operating: 16,000 ft.; Nonoperating: 40,000 ft. | |
| MTBF | 3.37m Hours, Telcordia -SR332-issue 3 | |
| Isolation Voltage | Input to Output – 4000V DC for ITE application Input to GND - 2500 VDC (Not Applicable For Class II Option) | |
| Cooling | 180W with 13 CFM forced air cooling ⁶ (refer Mechanical Drawing) upto 120 W with natural convection cooling ⁶ (refer Derating Curve) | |

| Model Number | Type of Connector | Voltage | Max. Load (Convection) (112.5W) @50°C | Max. Load (Convection) (120W) @40°C | Max. Load (13 CFM) | Min. Load | Ripple ¹ | Signal |
|---|--|---------|---------------------------------------|-------------------------------------|--------------------|-----------|---------------------|--------|
| ULP180-1012 | Header Molex @ I/P Screw Terminal @ O/P | 12 V | 9.37A | 10.00A | 15.00A | 0.0 A | 2% | N.A |
| ULP180-1312 | Header Molex @ I/P Header Molex @ O/P | 12 V | 9.37A | 10.00A | 15.00A | 0.0 A | 2% | N.A |
| ULP180-1015 | Header Molex @ I/P Screw Terminal @ O/P | 15 V | 7.50A | 8.00A | 12.00A | 0.0 A | 2% | N.A |
| ULP180-1315 | Header Molex @ I/P Header Molex @ O/P | 15 V | 7.50A | 8.00A | 12.00A | 0.0 A | 2% | N.A |
| ULP180-1024 | Header Molex @ I/P Screw Terminal @ O/P | 24 V | 4.68A | 5.00A | 7.50A | 0.0 A | 1% | N.A |
| ULP180-1324 | Header Molex @ I/P Header Molex @ O/P | 24 V | 4.68A | 5.00A | 7.50A | 0.0 A | 1% | N.A |
| ULP180-1030 | Header Molex @ I/P Screw Terminal @ O/P | 30 V | 3.75A | 4.00A | 6.00A | 0.0 A | 1% | N.A |
| ULP180-1330 | Header Molex @ I/P Header Molex @ O/P | 30 V | 3.75A | 4.00A | 6.00A | 0.0 A | 1% | N.A |
| ULP180-1048 | Header Molex @ I/P Screw Terminal @ O/P | 48 V | 2.34A | 2.50A | 3.75A | 0.0 A | 1% | N.A |
| ULP180-1348 | Header Molex @ I/P Header Molex @ O/P | 48 V | 2.34A | 2.50A | 3.75A | 0.0 A | 1% | N.A |
| ULP180-1058 | Header Molex @ I/P Screw Terminal @ O/P | 58 V | 1.94A | 2.07A | 3.10A | 0.0 A | 1% | N.A |
| ULP180-1358 | Header Molex @ I/P Header Molex @ O/P | 58 V | 1.94A | 2.07A | 3.10A | 0.0 A | 1% | N.A |
| ULP180-CK metal cover kit accessory | | | | | | | | |
| Add suffix "S1" to get model number with Input connector – Screw terminal and Output Connector – Screw Terminal. e.g. ULP180-1012-S1(Without PGPF) | | | | | | | | |
| Add suffix "S2" to get model number with Input connector – Right Angle Type and Output Connector – Right Angle Type. e.g. ULP180-1012-S2 (Without PGPF) | | | | | | | | |

- For Power supply unit with Base plate (metal accessory option) add "-B" suffix at the end of model number
- For Power supply unit with L bracket (metal accessory option) add "-L" suffix at the end of model number
- For Power supply unit with U channel (metal accessory option) add "-U" suffix at the end of model number
- For Power supply unit with CK Cover kit (metal accessory option) add "-CK" suffix at the end of model number



| Model Number | Type of Connector | Voltage | Max. Load (Convection) (112.5W) @50°C | Max. Load (Convection) (120W) @40°C | Max. Load (13 CFM) | Min. Load | Ripple ¹ | Signal |
|--------------|----------------------|---------|---------------------------------------|-------------------------------------|--------------------|-----------|---------------------|--------------------------|
| ULP180-0012 | Header Molex @ I/P | 12 V | 9.37A | 10.00A | 15.00A | 0.0 A | 2% | PG & AC PF ¹¹ |
| | Screw Terminal @ O/P | | | | | | | |
| ULP180-0312 | Header Molex @ I/P | 12 V | 9.37A | 10.00A | 15.00A | 0.0 A | 2% | PG & AC PF ¹¹ |
| | Header Molex @ O/P | | | | | | | |
| ULP180-0015 | Header Molex @ I/P | 15 V | 7.50A | 8.00A | 12.00A | 0.0 A | 2% | PG & AC PF ¹¹ |
| | Screw Terminal @ O/P | | | | | | | |
| ULP180-0315 | Header Molex @ I/P | 15 V | 7.50A | 8.00A | 12.00A | 0.0 A | 2% | PG & AC PF ¹¹ |
| | Header Molex @ O/P | | | | | | | |
| ULP180-0024 | Header Molex @ I/P | 24 V | 4.68A | 5.00A | 7.50A | 0.0 A | 1% | PG & AC PF ¹¹ |
| | Screw Terminal @ O/P | | | | | | | |
| ULP180-0324 | Header Molex @ I/P | 24 V | 4.68A | 5.00A | 7.50A | 0.0 A | 1% | PG & AC PF ¹¹ |
| | Header Molex @ O/P | | | | | | | |
| ULP180-0030 | Header Molex @ I/P | 30 V | 3.75A | 4.00A | 6.00A | 0.0 A | 1% | PG & AC PF ¹¹ |
| | Screw Terminal @ O/P | | | | | | | |
| ULP180-0330 | Header Molex @ I/P | 30 V | 3.75A | 4.00A | 6.00A | 0.0 A | 1% | PG & AC PF ¹¹ |
| | Header Molex @ O/P | | | | | | | |
| ULP180-0048 | Header Molex @ I/P | 48 V | 2.34A | 2.50A | 3.75A | 0.0 A | 1% | PG & AC PF ¹¹ |
| | Screw Terminal @ O/P | | | | | | | |
| ULP180-0348 | Header Molex @ I/P | 48 V | 2.34A | 2.50A | 3.75A | 0.0 A | 1% | PG & AC PF ¹¹ |
| | Header Molex @ O/P | | | | | | | |
| ULP180-0058 | Header Molex @ I/P | 58 V | 1.94A | 2.07A | 3.10A | 0.0 A | 1% | PG & AC PF ¹¹ |
| | Screw Terminal @ O/P | | | | | | | |
| ULP180-0358 | Header Molex @ I/P | 58 V | 1.94A | 2.07A | 3.10A | 0.0 A | 1% | PG & AC PF ¹¹ |
| | Header Molex @ O/P | | | | | | | |

ULP180-CKP metal cover kit accessory

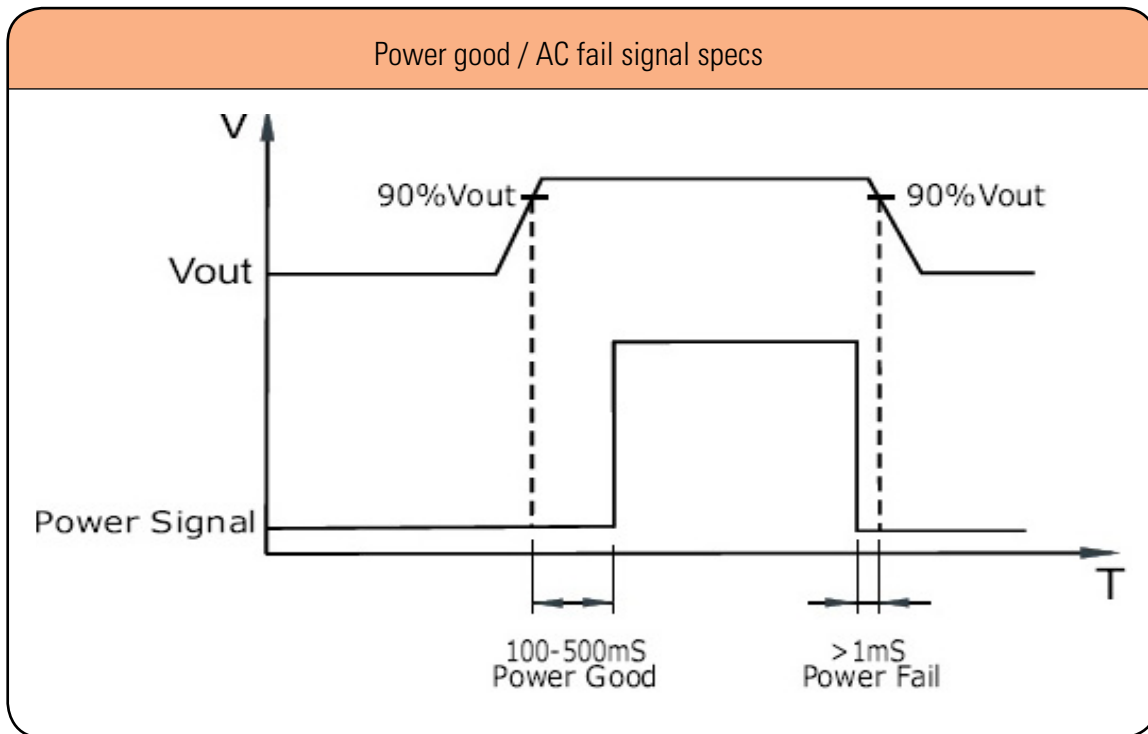
Add suffix "S1" to get model number with Input connector – Screw terminal and Output Connector – Screw Terminal. e.g. ULP180-0012-S1 (With PGPF)

Add suffix "S2" to get model number with Input connector – Right Angle Type and Output Connector – Right Angle Type. e.g. ULP180-0012-S2 (With PGPF)

| Connectors | | |
|------------------------------|-----------|------------|
| J1 | Pin 1 | AC LINE |
| | Pin 2 | NOT FITTED |
| | Pin 3 | AC NEUTRAL |
| J2 Option 1 & 2 | Pin 1,2,3 | V1 +VE |
| | Pin 4,5,6 | V1 -VE |
| J3 | Pin 1 | FAN +VE |
| | Pin 2 | FAN -VE |
| J4 (For PGPF Option Only) | Pin 1 | Vs |
| | Pin 2 | PGPF |
| | Pin 3 | GND |

Notes

1. Ripple is peak to peak with 20 MHz bandwidth and 10 μF (Electrolytic capacitor) in parallel with a 0.1 μF capacitor at rated line voltage and load ranges.
2. For Class II version Enquire with EOS Sales Rep before Order.
3. Combined output power of main output, fan supply shall not exceed max. Power rating.
4. Fan supply output voltage tolerance including set point accuracy, line and load regulation is $\pm 10\%$ and Ripple and noise is less than 10%.
5. Specifications are for nominal input voltage, 25°C unless otherwise stated.
6. 180W with 13CFM forced air cooling and 120W with natural convection cooling at 100 to 264VAC.
7. Output ripple can be more than 10% of the output voltage.
8. Fusing on neutral for ITE model is optional.
9. Adjustment potentiometer is located on the SMT side of the PCB.
10. When used in Cover Kit, de-rate output power to 70 % under all operating conditions
11. A TTL signal is available at pin 2 of J4 which goes high 100-500mS after output voltage reaches 90% of set value. It goes low a minimum of 1mS before output falls below 90% of the set value, when input AC is switched off.
12. Add suffix "S1" to get model number with Input connector – Screw terminal and Output Connector – Screw Terminal. e.g. ULP180-1012-S1 (Without PGPF)
13. Add suffix "S2" to get model number with Input connector – Right Angle Type and Output Connector – Right Angle Type. e.g. ULP180-1012-S2 (Without PGPF)
14. Add suffix "S1" to get model number with Input connector – Screw terminal and Output Connector – Screw Terminal. e.g. ULP180-0012-S1 (With PGPF)
15. Add suffix "S2" to get model number with Input connector – Right Angle Type and Output Connector – Right Angle Type. e.g. ULP180-0012-S2 (With PGPF)



Mechanical Specifications

| | |
|--|---|
| AC Input Connector (J1) Option 1 (Molex Connector @ I/P) | Molex: 26-60-4030 Mating: 09-50-3031; Pins: 08-50-0106 |
| AC Input Connector (J1) Option 2 (Screw Terminal @ I/P) | Molex: 39357 Series or equivalent |
| DC Output Connector (J2) Option 1 (Molex Connector @ O/P) | Molex: 26-60-4060 Mating: 09-50-3061; Pins: 08-50-0106 |
| DC Output Connector (J2) Option 2 (Screw Terminal @ O/P) | Molex: 39357 Series or equivalent |
| AC Input Connector (J1) Option 3 (Right Angle Type @ I/P) | TE Connectivity: 647676-3 Mating: 1-1123722-3 ; Crimp: 1123721-2 |
| DC Output Connector (J2) Option 3 (Molex Connector @ O/P) | TE Connectivity: 647676-6 Mating: 1-1123722-6 ; Crimp: 1123721-2 |
| Aux (Fan) Output(J3) | AMP :640456-2 Mating: 640440-2 |
| Signal Output (J4) | AMP :640456-3 Mating: 640440-3 |
| Dimensions | 4 x 2 x 0.75 inches (101.60 x 50.8x 19.05 mm) |
| Weight | 200 gm approx |

EMC

| Parameter | Conditions/Description | Criteria |
|------------------------------------|------------------------------------|--|
| Conducted Emissions | EN55032-B, CISPR22-B, FCC PART15-B | Pass |
| Radiated Emissions | EN 55032 A | Pass Level B with external core (King core K5B RC 25x12x15-M in input cable) |
| Input Current Harmonics | EN 61000-3-2 | Class D |
| Voltage Fluctuation and Flicker | EN 61000-3-3 | Pass |
| ESD Immunity | EN 61000-4-2 | Level 3, Criterion A |
| Radiated Field Immunity | EN 61000-4-3 | Level 3, Criterion A |
| Electrical Fast Transient Immunity | EN 61000-4-4 | Level 3, Criterion A |
| Surge Immunity | EN 61000-4-5 | Level 3, Criterion A |
| Conducted Immunity | EN 61000-4-6 | Level 3, Criterion A |
| Magnetic Field Immunity | EN 61000-4-8 | Level 3, Criterion A |
| Voltage dips, interruptions | EN 61000-4-11 | Criterion A & B |

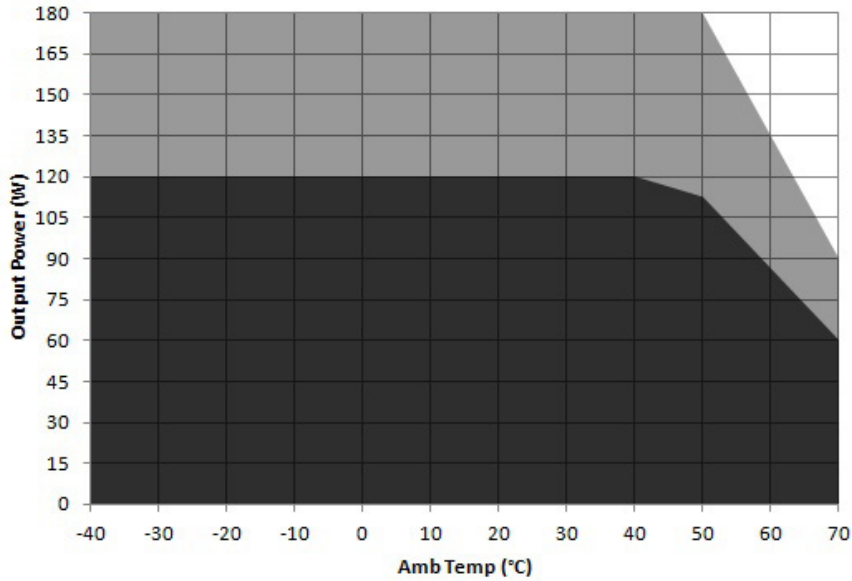
Safety

| | |
|-----------------------|---|
| CE Mark | Complies with LVD Directive |
| Approval Agency | Nemko, UL, C-UL |
| Safety Standard(s) | EN/IEC/UL 62368-1(Ed.3) |
| Safety File Number(s) | UL: Certificate No: E516414, Nemko: Certificate No: P20224771, CB Test Certificate No : NO113595 |



Derating Curve

Power de-rating

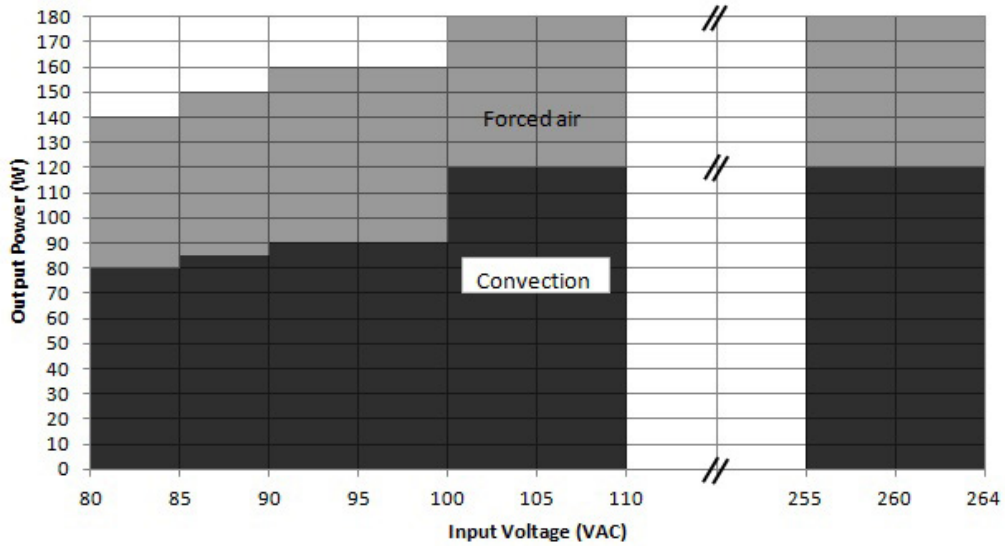


Convection load: 120W UP TO 40 °C
 De-rate between 40-50 °C @ 0.625% per °C
 De-rate above 50 °C @ 2.33% per °C

■ Forced air
 ■ Convection

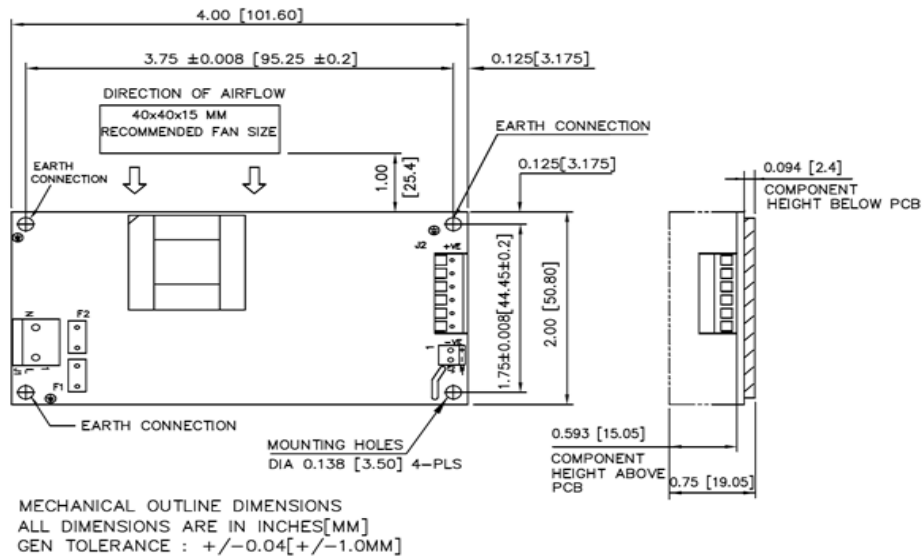
Forced air cooled load : 180W up to 50°C
 De-rate above 50 °C @ 2.5% per °C

Power de-rating : w.r.t. Input



Mechanical Drawing

Input connector – Header Molex and Output Connector – Screw Terminal (Without PGPF)

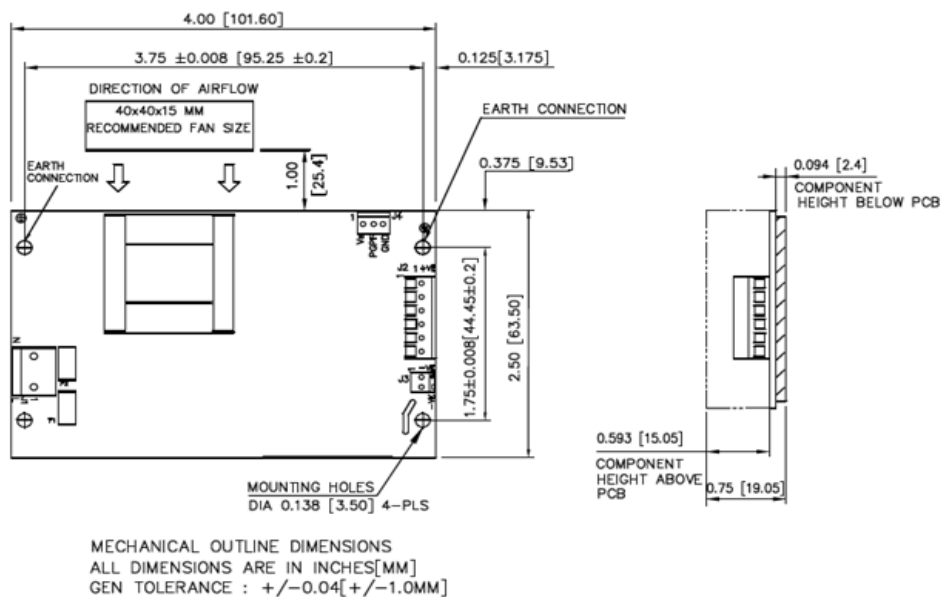


Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

Mechanical Drawing

Input connector – Header Molex and Output Connector – Screw Terminal. (With PGPF)



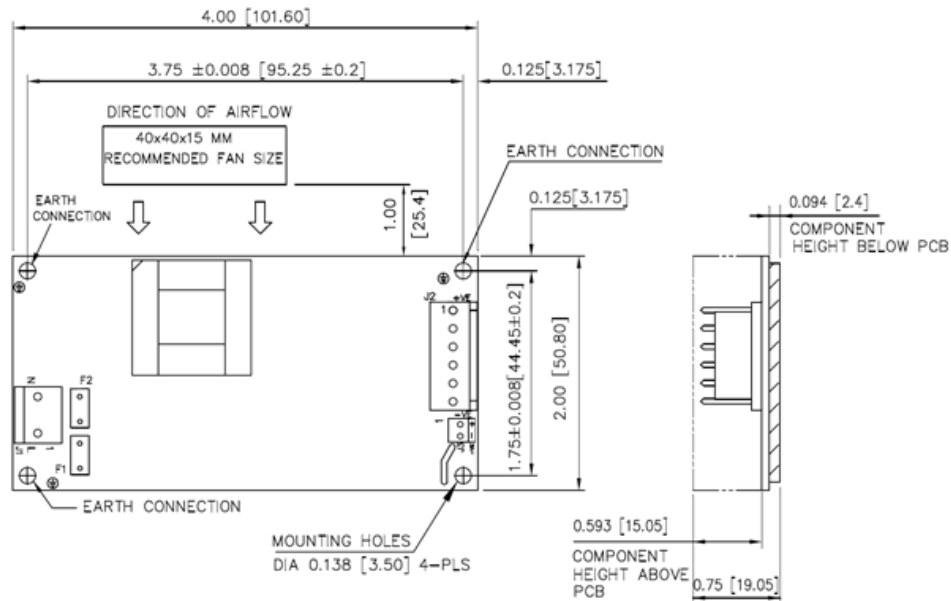
Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.



Mechanical Drawing

Input connector – Header Molex and Output Connector – Header Molex. (Without PGPF)



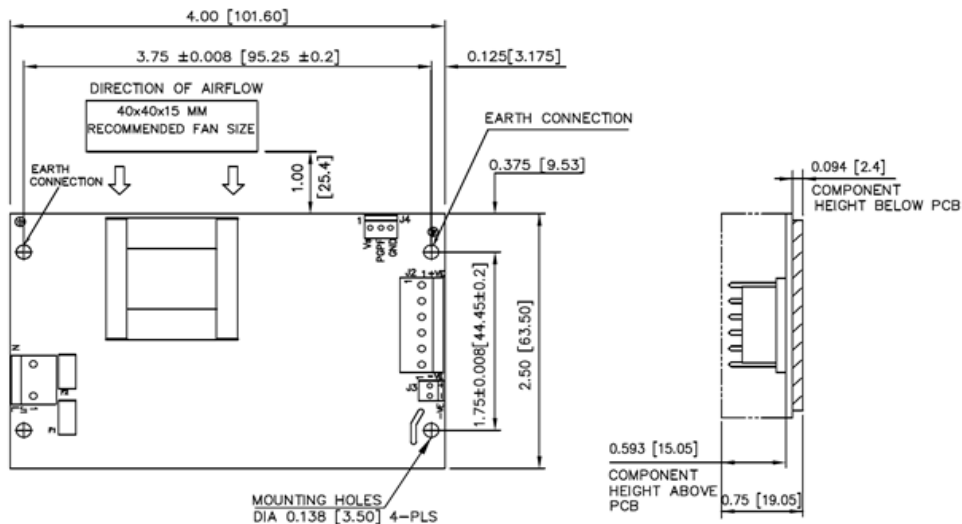
MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN INCHES[MM]
GEN TOLERANCE : +/-0.04[+/-1.0MM]

Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

Mechanical Drawing

Input connector – Header Molex and Output Connector – Header Molex. (With PGPF)



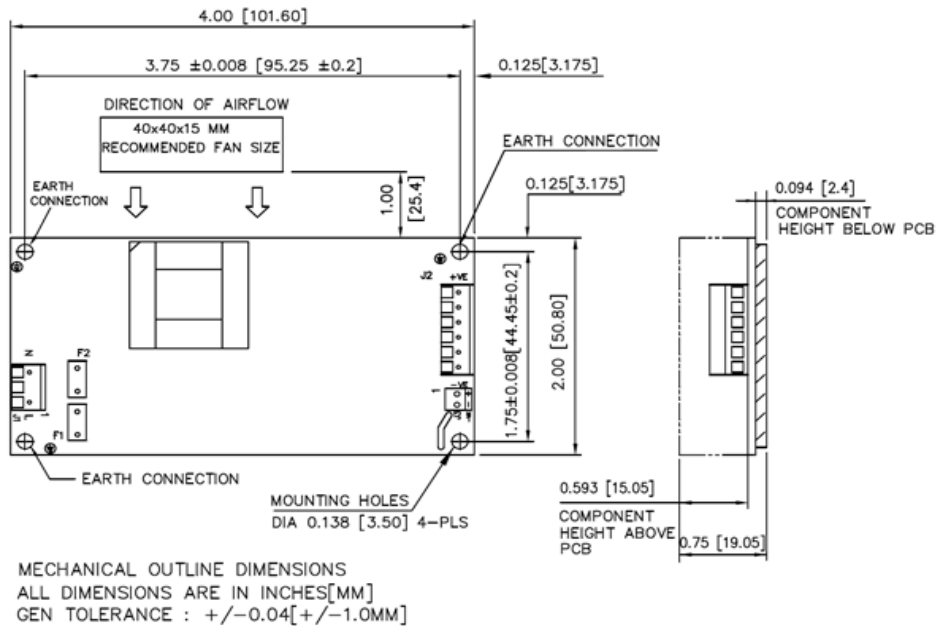
MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN INCHES[MM]
GEN TOLERANCE : +/-0.04[+/-1.0MM]

Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

Mechanical Drawing

Input connector – Screw terminal and Output Connector – Screw Terminal. (Without PGPF)

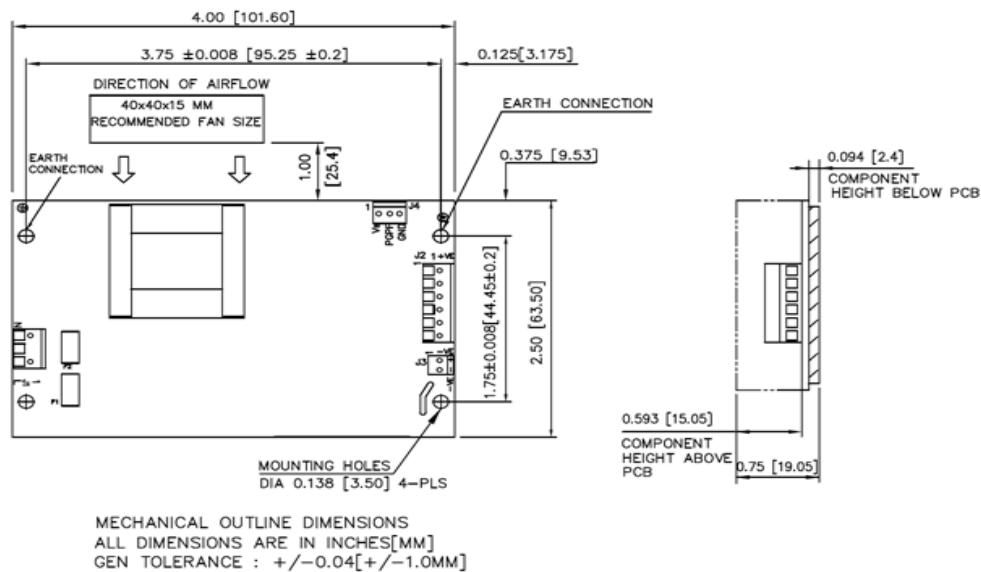


Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

Mechanical Drawing

Input connector – Screw terminal and Output Connector – Screw Terminal. (With PGPF)



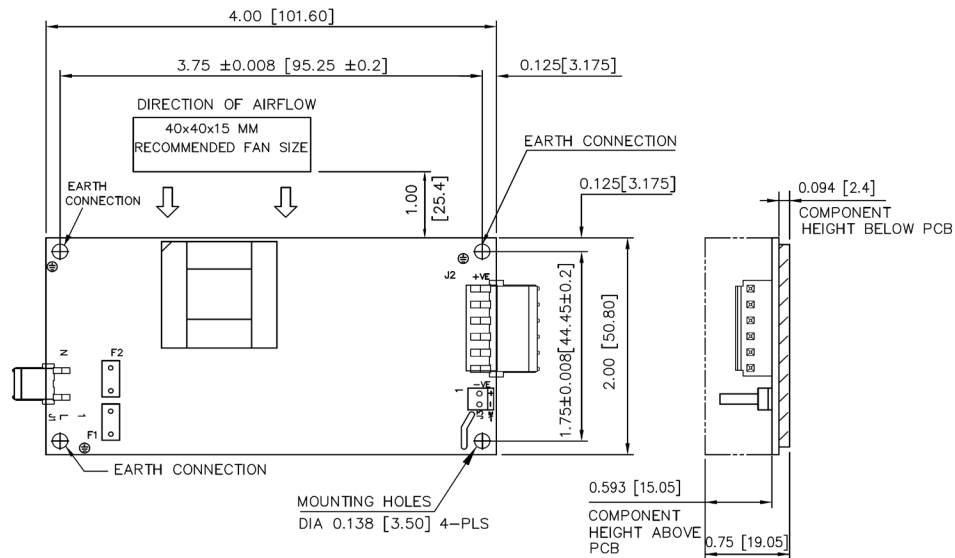
Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.



Mechanical Drawing

Input connector – Right Angle Type and Output Connector – Right Angle (Without PGPF)

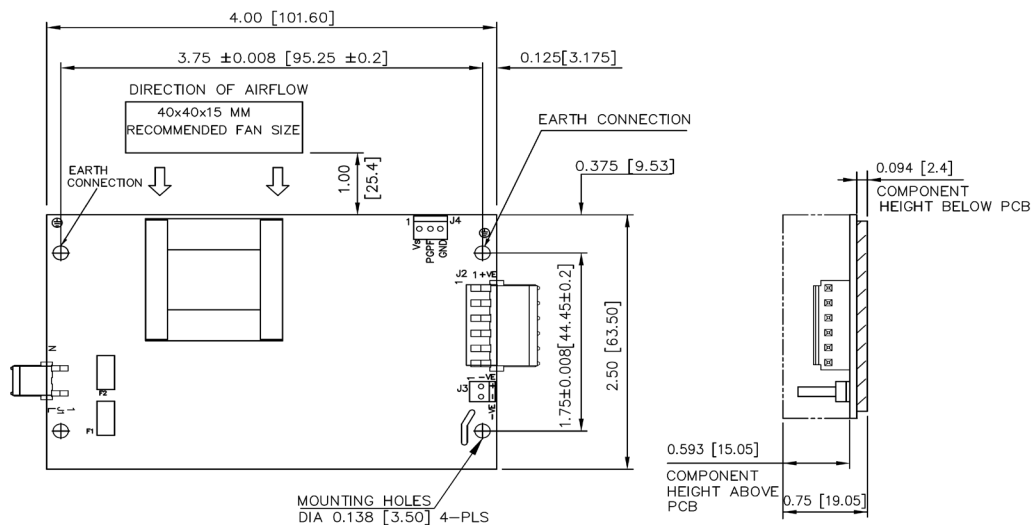


Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

Mechanical Drawing

Input connector – Right Angle Type and Output Connector – Right Angle (With PGPF)



Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

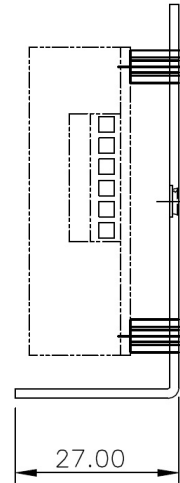
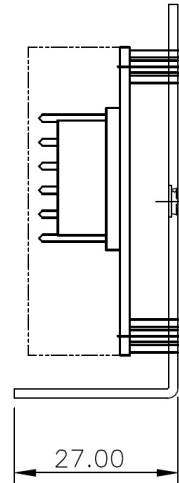
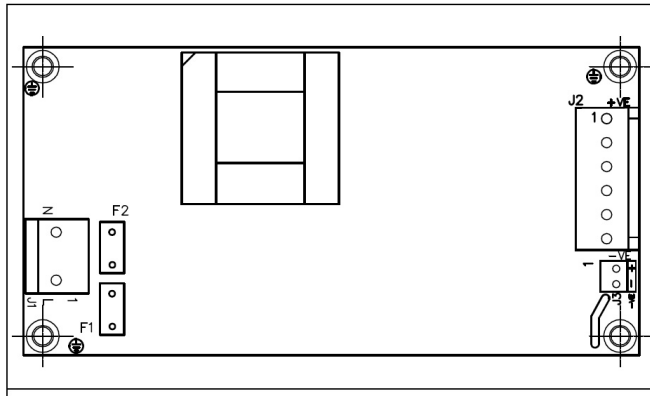
1. Stand off, used to mount PCB has OD of 5.4 mm max.
2. Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
3. Washer, if used, to have dia of 6.5 mm max.

Mechanical Drawing

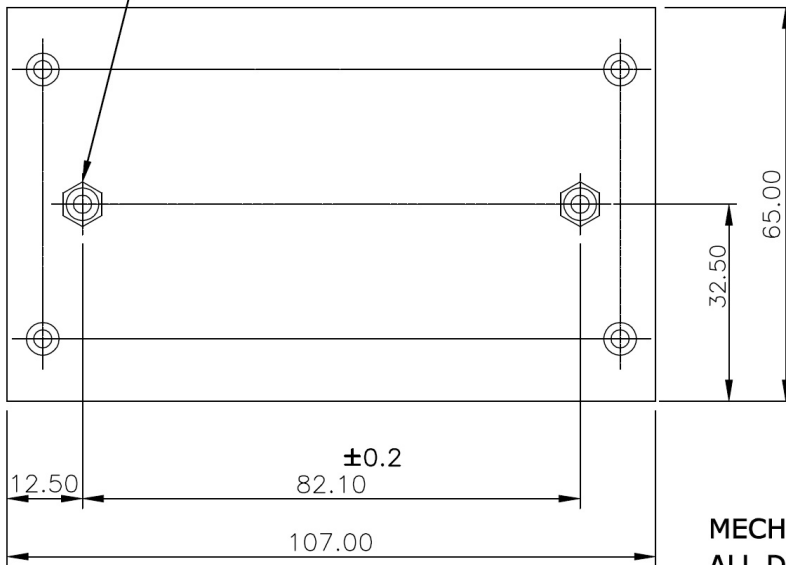
ULP180 WITH 'L' BRACKET

OPTION 1
-13XX SUFFIX.

OPTION 2
-10XX SUFFIX.



CUSTOMER MOUNTING HOLES
2-PLACES, THREAD M3x0.5
3.0 MAX.PENETRATION



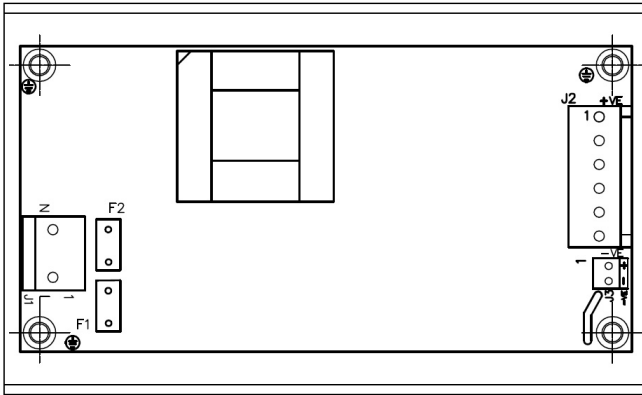
MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN MM
GEN.TOLERANCE: +/-0.5 MM



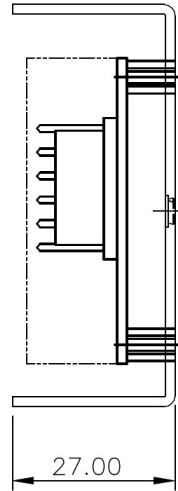
Innovations in Power

39-DE60-44950-002 / A7

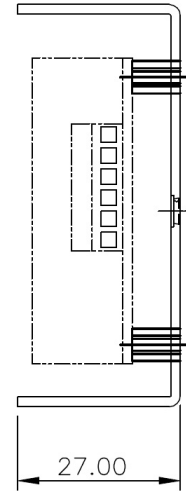
ULP180 WITH 'U' CHANNEL



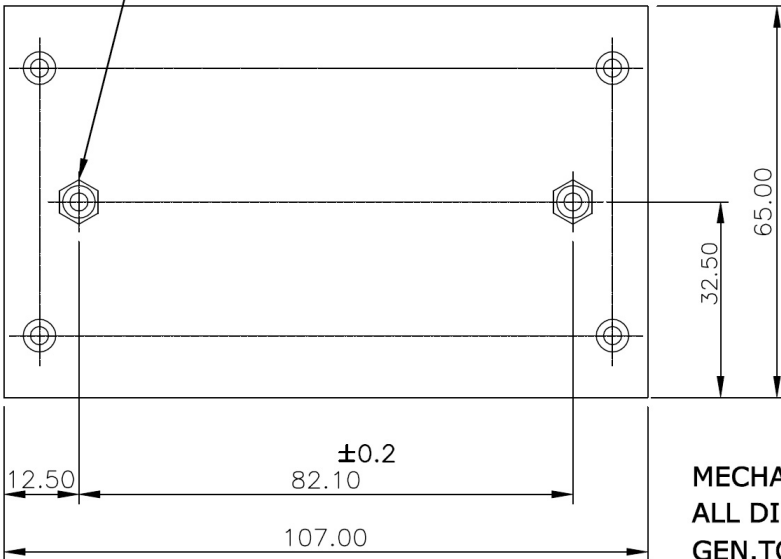
OPTION 1
-13XX SUFFIX.



OPTION 2
-10XX SUFFIX.

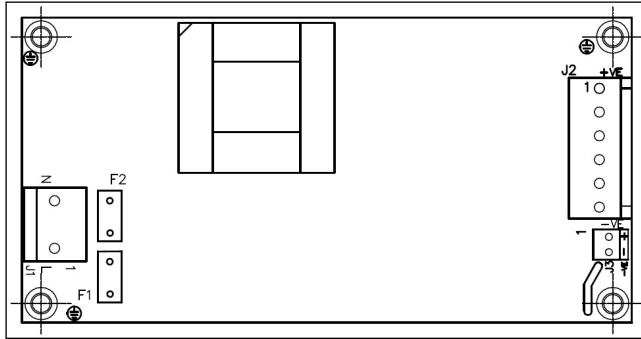


CUSTOMER MOUNTING HOLES
2-PLACES, THREAD M3x0.5
3.0 MAX.PENETRATION



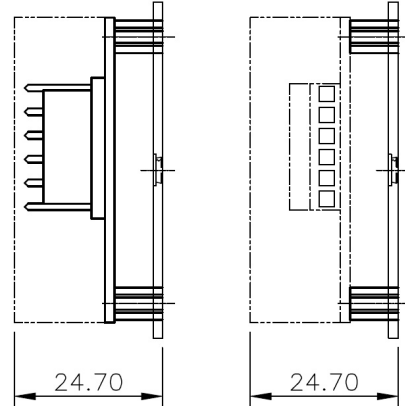
MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN MM
GEN.TOLERANCE: +/-0.5 MM

ULP180 WITH BASE PLATE

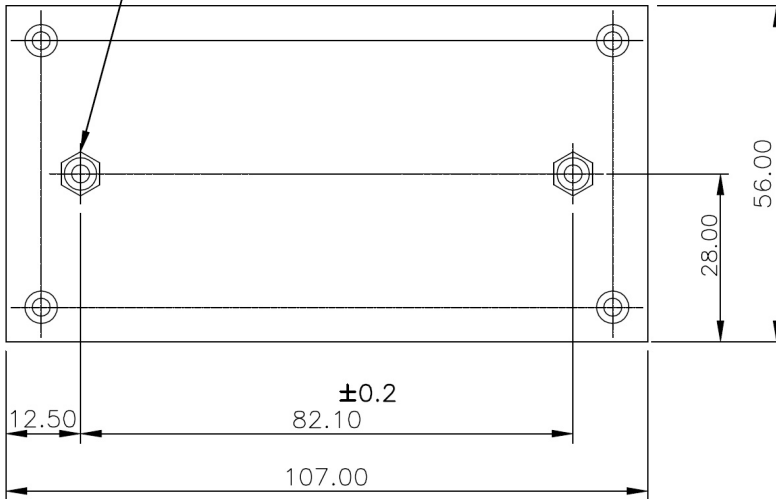


OPTION 1
-13XX SUFFIX.

OPTION 2
-10XX SUFFIX.

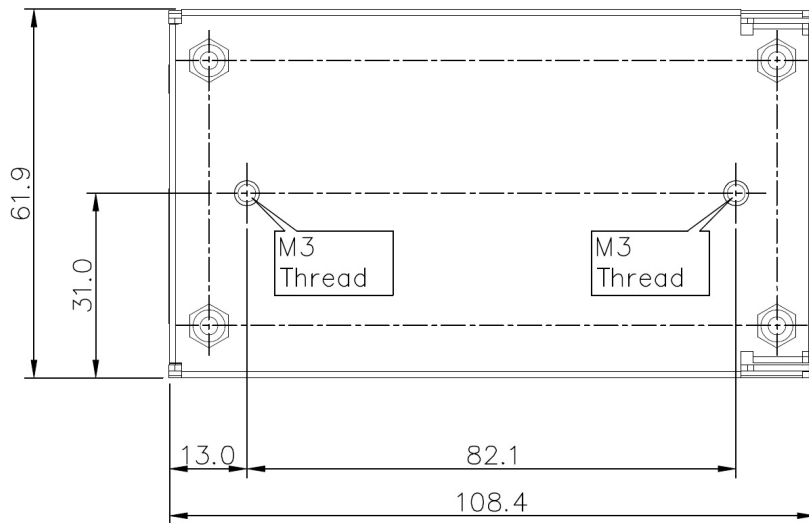
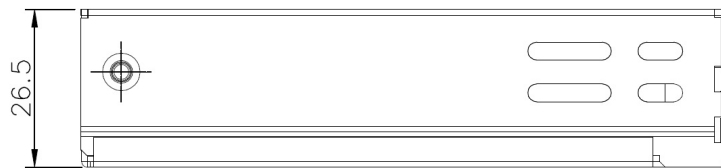
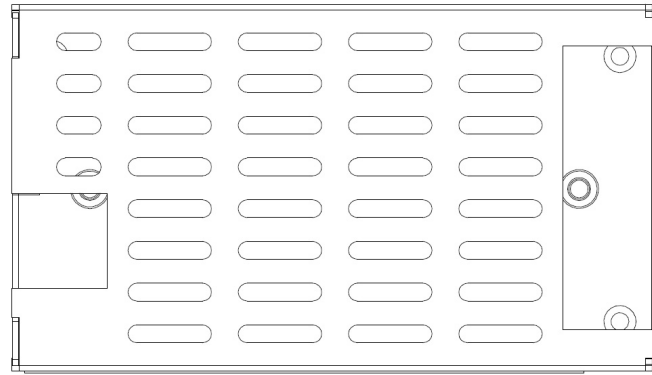


CUSTOMER MOUNTING HOLES
2-PLACES, THREAD M3x0.5
3.0 MAX.PENETRATION



MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN MM
GEN.TOLERANCE: +/-0.5 MM

ULP180 WITH COVER KIT



MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN MM.
GEN. TOLERANCE: ± 1.0 mm