TRACO POWER

# AC/DC Power Supplies

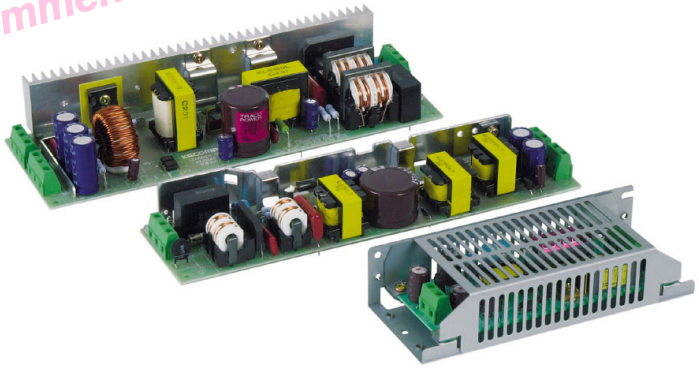
## TOF Series, 10–150 Watt



CE CB Scheme cULus

### Features

- Compact open-frame power supplies
- Easy connection via screw terminal block or molex pin connector terminal
- Universal input 85–264 VAC
- Industrial grade components
- Low ripple and noise
- Overload protection
- EMI meets EN55022, Class B
- Optional with case
- Low profile
- Lead free design, RoHS compliant
- 3-year product warranty



The TOF Series power supplies are the choice for demanding applications. They feature compact dimensions and a low profile. They are easy to instal and connect via screw terminals or pin connector. Chassi and cover kit are available as an accessory. Compliance with international safety standards (CE/UL) and EMC requirements qualify this product for worldwide use. A very high reliability is guaranteed by the use of industrial quality grade components.

## Single Output Models

| Ordercode Screw Terminal Block | Ordercode Molex Pin Connector | Output Power | Output Voltage | Output Current max. |
|---|---|---|---|---|
| TOF 10-05S | TOF 10-05SM | 10 Watt | 5 VDC | 2.0 A |
| TOF 10-12S | TOF 10-12SM | | 12 VDC | 0.9 A |
| TOF 10-15S | TOF 10-15SM | | 15 VDC | 0.7 A |
| TOF 10-24S | TOF 10-24SM | | 24 VDC | 0.5 A |
| TOF 15-05S | TOF 15-05SM | 15 Watt | 5 VDC | 3.0 A |
| TOF 15-12S | TOF 15-12SM | | 12 VDC | 1.3 A |
| TOF 15-15S | TOF 15-15SM | | 15 VDC | 1.0 A |
| TOF 15-24S | TOF 15-24SM | | 24 VDC | 0.7 A |
| TOF 30-05S | TOF 30-05SM | 30 Watt | 5 VDC | 6.0 A |
| TOF 30-12S | TOF 30-12SM | | 12 VDC | 2.5 A |
| TOF 30-15S | TOF 30-15SM | | 15 VDC | 2.0 A |
| TOF 30-24S | TOF 30-24SM | | 24 VDC | 1.3 A |
| TOF 50-05S | | 50 Watt | 5 VDC | 10.0 A |
| TOF 50-12S | TOF 50-12SM | | 12 VDC | 4.3 A |
| TOF 50-15S | TOF 50-15SM | | 15 VDC | 3.5 A |
| TOF 50-24F | TOF 50-24FM | | 24 VDC | 2.1 A (3.0 A)* |
| TOF 75-05S | | 75 Watt | 5 VDC | 15.0 A |
| TOF 75-12S | TOF 75-12SM | | 12 VDC | 6.3 A |
| TOF 75-15S | TOF 75-15SM | | 15 VDC | 5.0 A |
| TOF 75-24F | TOF 75-24FM | | 24 VDC | 3.2 A (4.5 A)* |
| TOF 100-05S | | 100 Watt | 5 VDC | 20.0 A |
| TOF 100-12S | TOF 100-12SM | | 12 VDC | 8.5 A |
| TOF 100-15S | TOF 100-15SM | | 15 VDC | 6.7 A |
| TOF 100-24F | TOF 100-24FM | | 24 VDC | 4.2 A (6.3 A)* |
| TOF 150-05S | | 150 Watt | 5 VDC | 30.0 A |
| TOF 150-12S | TOF 150-12SM | | 12 VDC | 12.5 A |
| TOF 150-15S | TOF 150-15SM | | 15 VDC | 10.0 A |
| TOF 150-24F | TOF 150-24FM | | 24 VDC | 6.3 A (9.1 A)* |

* () = Peak current for max. 10 sec.

## Triple Output Models: Not recommended for new design in!

| Order code<br>Screw Terminal Block | Output Power max. | *Output 1 | *Output 2/3 |
|---|---|---|---|
| TOF 15-0522T | 15 Watt | 5 VDC/2A | ±12 VDC/0.5A |
| TOF 15-0533T | | 5 VDC/2A | ±15 VDC/0.45A |
| TOF 30-0522T | 30 Watt | 5 VDC/4A | +12 VDC/1.2A<br>–12 VDC/0.5A |
| TOF 30-0533T | | 5 VDC/4A | +15 VDC/1.0A<br>–15 VDC/0.5A |

Obsolete
Discontinued Y 2015

* Total power should not exceed nominal power

## Order Codes for Chassis/Cover Kit

| Code | for Models | Code | for Models | Code | for Models |
|---|---|---|---|---|---|
| TOF 10-MC | TOF 10-xx | TOF 50-MC | TOF 50-xx | TOF 150-MC | TOF 150-xx |
| TOF 15-MC | TOF 15-xx | TOF 75-MC | TOF 75-xx | TOF 15T-MC | TOF 15-xxxT |
| TOF 30-MC | TOF 30-xx | TOF 100-MC | TOF 100-xx | TOF 30T-MC | TOF 30-xxxT |

**Molex Mating Connectors for TOF .....M Series (to purchase on local market)**

**TOF.....M units are equiped with Molex Pin Connector SPOX 5273-NA (3.96 mm pitch)**

**Connector mates with**

**1x Housing 09-50-1051, 3x Crimp Terminal 08-70-1028: For all Models Input**

**1x Housing 09-50-1031, 2x Crimp Terminal 08-70-1028: For up to 50 W models output**

**2x Housing 09-50-1031, 4x Crimp Terminal 08-70-1028: For 75 and 100W models output**

**2x Housing 09-50-1051, 6x Crimp Terminal 08-70-1028: For 150W models output**

## Input Specifications

| | | |
|---|---|---|
| Input voltage range | | 85 – 264 VAC<br>110 – 370 VDC (10...50 W single output models ) |
| Input frequency | | 47 – 63 Hz |
| Recommended circuit breaker (characteristic C) or slow blow fuse | 10...75 Watt models:<br>100 & 150 Watt models: | 5.0 A<br>10.0 A |

## Output Specifications

| | | | |
|---|---|---|---|
| Voltage adjustment range | 10...50 Watt single output models:<br>75...150 Watt single output models:<br>15...30 Watt multi output models: | ±5 %<br>±10 %<br>±15 % on output 1 | <br><br>±2.5 % on output 2&3 |
| Regulation | – Input variation<br>– Load variation single output mod. (10–90%)<br>– Load variation multi output mod. (10–90%) | 0.5 % max.<br>0.5 % max.<br>2.0 % on output 1 | <br><br>1.0 % on output 2&3 |
| Ripple and noise (20Mhz Bandwidth) | | <1 % Vout +50 mVp-p | |
| Overload protection by current limit at | | >105 % Inom. | |
| Short circuit protection | | indefinite (automatic recovery) | |
| Overvoltage protection | | 115 – 140 % Vout nom. | |
| Capacitive load | | 10'000 µF max. | |

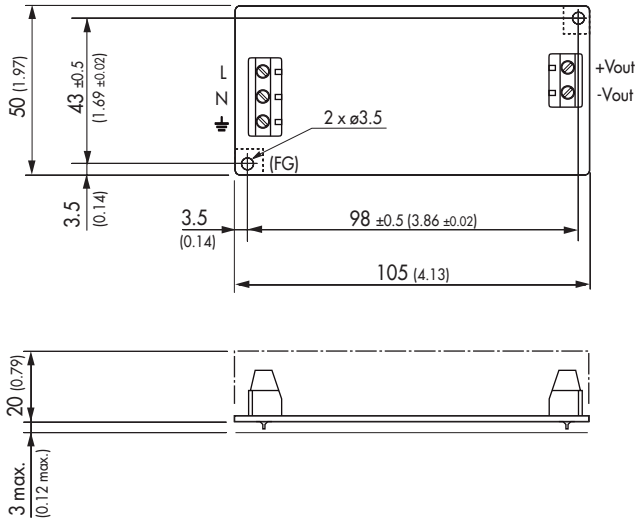
## General Specifications

| | | |
|---|---|---|
| Temperature ranges | – Operating<br>– Derating<br>– Storage (non operating) | –10°C to +60°C<br>above +50°C: 5 %/K<br>–20°C to +75°C |
| Temperature coefficient | | 0.02 %/K |
| Efficiency | – Single output models<br>– Multi output models | 78 % typ.<br>70 % typ. |
| Humidity (non condensing) | | 85 % rel H max. |
| Switching frequency | – Single output models<br>– Multi output models | 140 kHz typ. (puls width modulation)<br>150 kHz typ. at 50 % load (frequency modulation) |
| Hold-up time | – Single output models Vin = 115/230 VAC<br>– Multi output models Vin = 115/230 VAC | 30 ms typ.<br>20 ms typ. |
| Isolation voltage (60sec.) | – Input/Output | 3'000 VDC |
| Leakage current | | 0.75 mA RMS typ. / 230 VAC / 50 Hz |
| ELectromagnetic compatibility (EMC), Emissions | | |
| | – Conducted input RI suppression | EN 55022, class B, FCC part 15, level B |
| | – Harmonic current emissions | IEC/EN 61000-3-2, class A (75-150 Watt models) |
| ELectromagnetic compatibility (EMC), Immunity | | |
| | – Electrostatic discharge ESD | IEC/EN 61000-4-2 level 2 — 4 kV / 4 kV |
| | – RF field susceptibility | IEC/EN 61000-4-3 level 2 — 3 V /m |
| | – Electrical fast transients/bursts on mainsline | IEC/EN 61000-4-4 level 2 — 1 kV |
| | – Surge | IEC/EN 61000-4-5 level 2 — 0.5 kV / 1kV |
| | – Voltage dip | IEC/EN 61000-4-11 |
| Safety standards | | IEC/EN 60950-1, cUL/UL 60950-1 |
| Safety approvals | – UL/cUL 60950-1<br>– CB report (IEC 60950-1, 2nd edition) | www.ul.com -> certifications -> File e141988<br>www.tracopower.com/products/tof-cb.pdf |
| Reliability, calculated MTBF | (MIL-HDBK-217F, at +25°C, ground benign) | >250'000 h |
| Vibration | | 10–55 Hz 0.5 mm width/ 1 minute cycle<br>(3 directions each 30 minutes) |
| Shock | | 20 G (3 directions each 3 times) |
| Environmental compliance | – Reach<br>– RoHS | www.tracopower.com/products/tof-reach.pdf<br>RoHS directive 2011/65/EU |

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

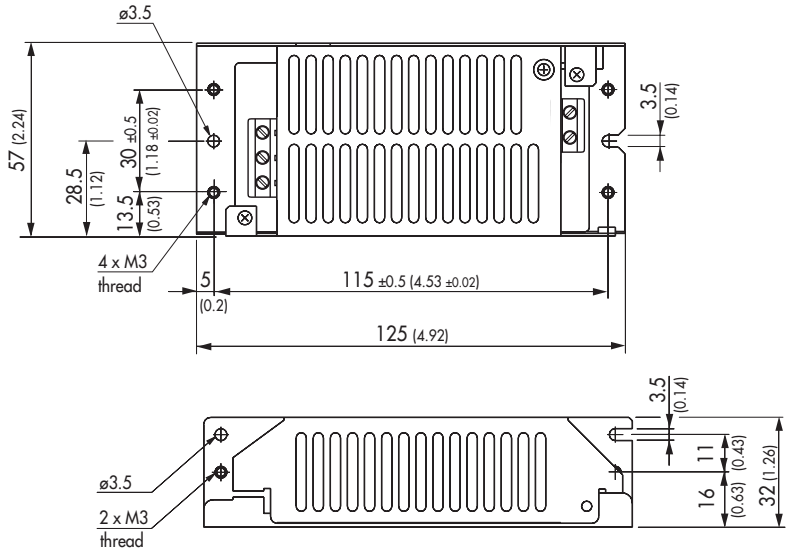
## Outline Dimensions mm (inches)

### TOF 10 standard open frame version




**Weight:** 75 g (2.6 oz)

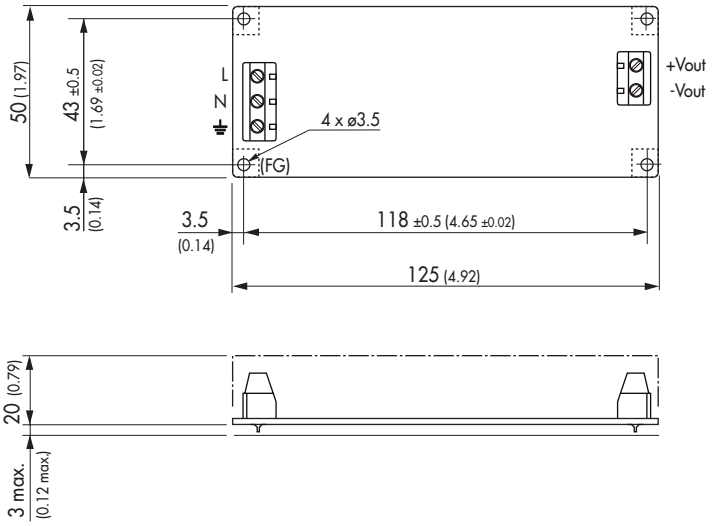
### TOF 10 with chassis / cover option




**Weight:** 175g (6.2 oz)

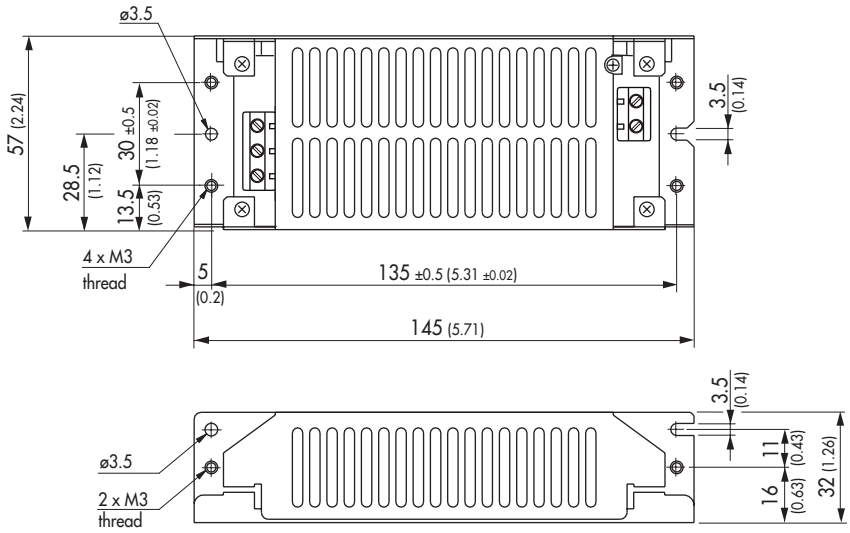
## Outline Dimensions mm (inches)

### TOF 15 standard open frame version




**Weight:** 90 g (3.2 oz)

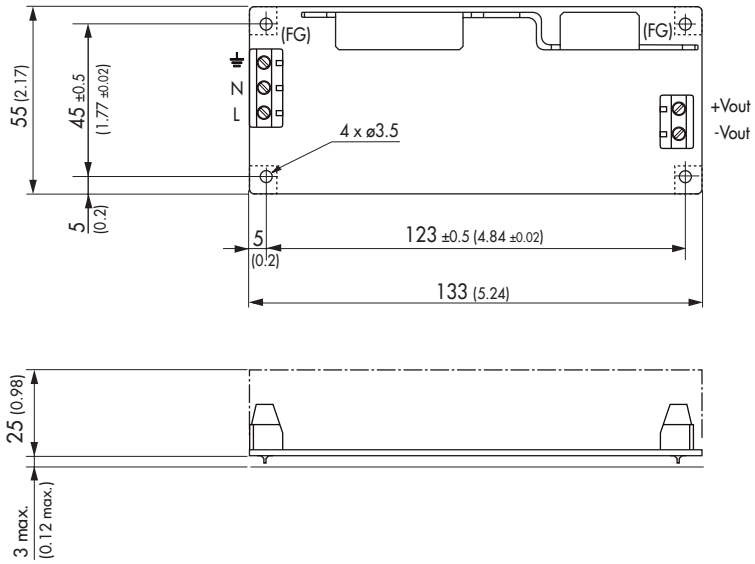
### TOF 15 with chassis / cover option




**Weight:** 210 g (7.4 oz)

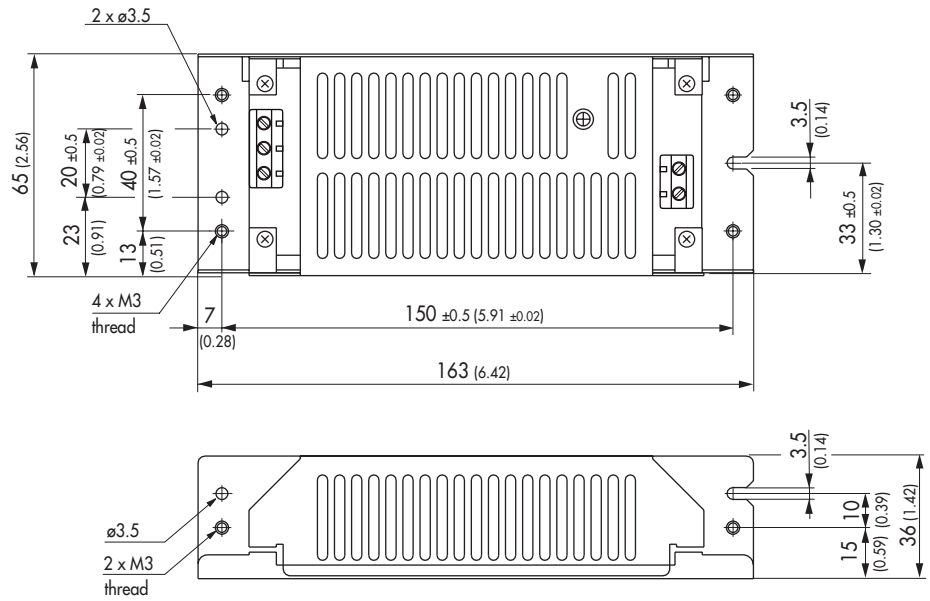
## Outline Dimensions mm (inches)

### TOF 30 standard open frame version




**Weight:** 170 g (6 oz)

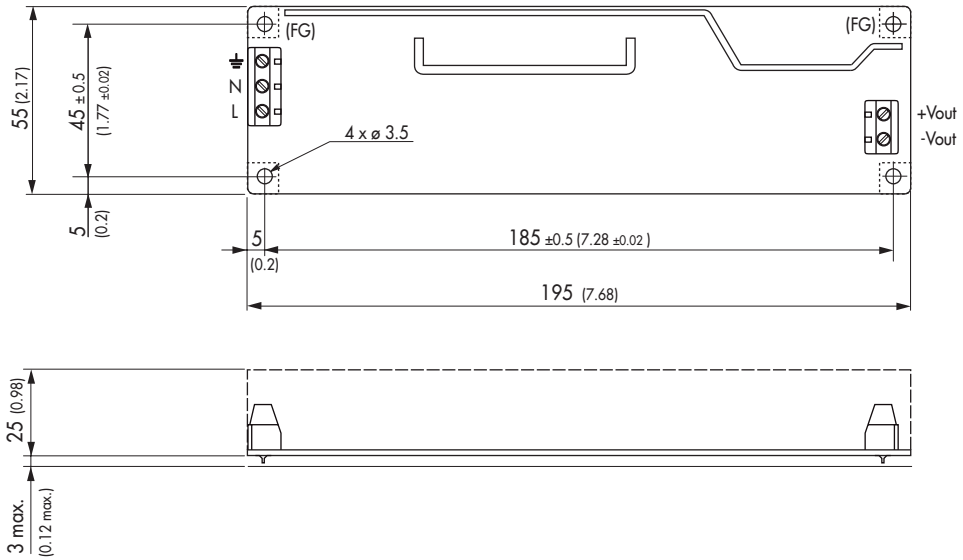
### TOF 30 with chassis / cover option




**Weight:** 320 g (11.3 oz)

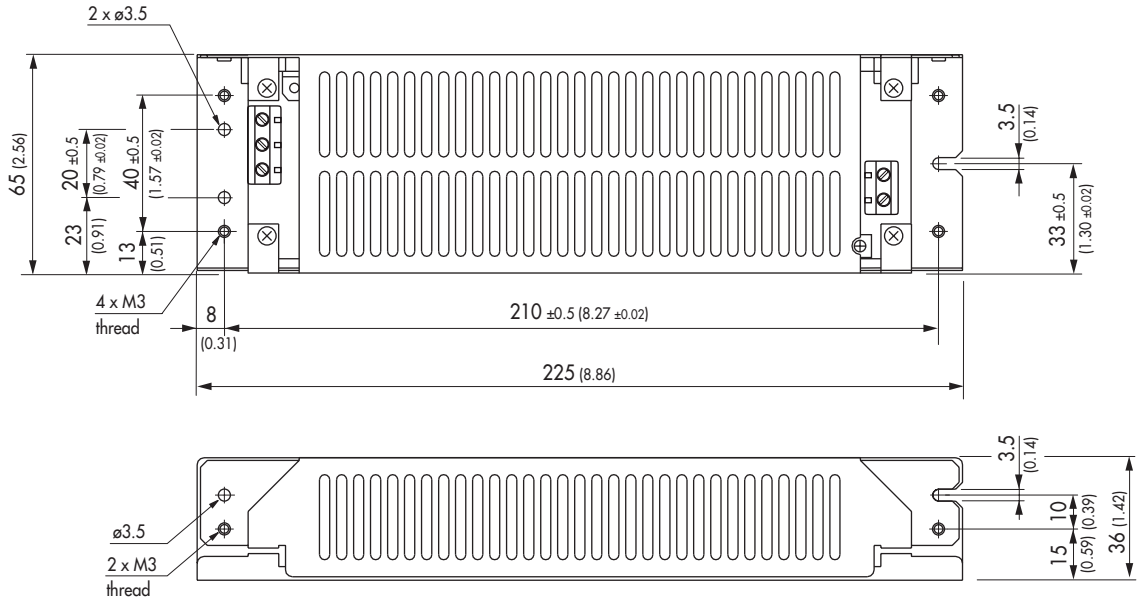
## Outline Dimensions mm (inches)

### TOF 50 standard open frame version




**Weight:** 245 g (8.6 oz)

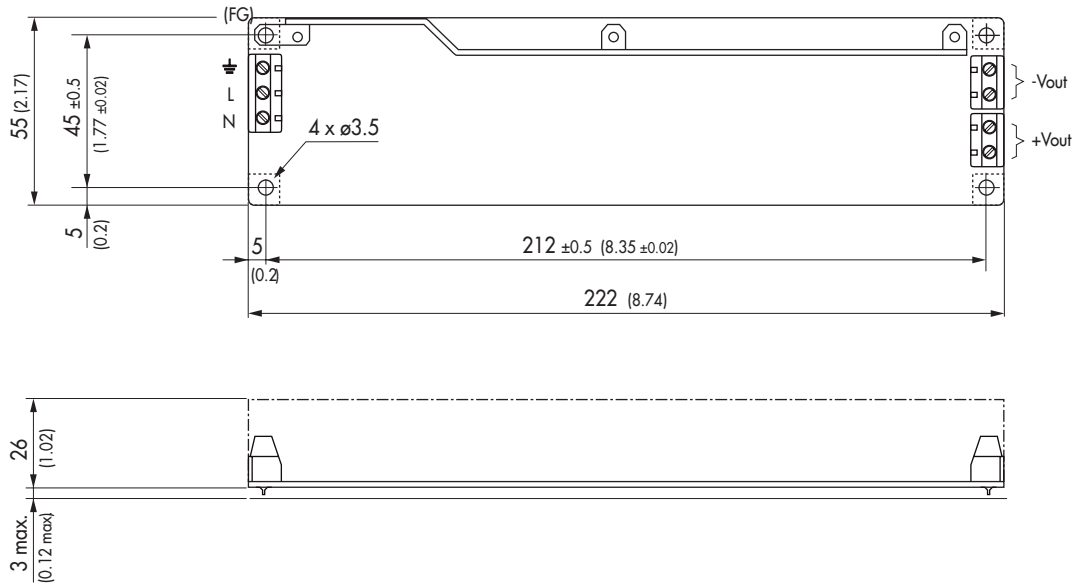
### TOF 50 with chassis / cover option




**Weight:** 455 g (16.0 oz)

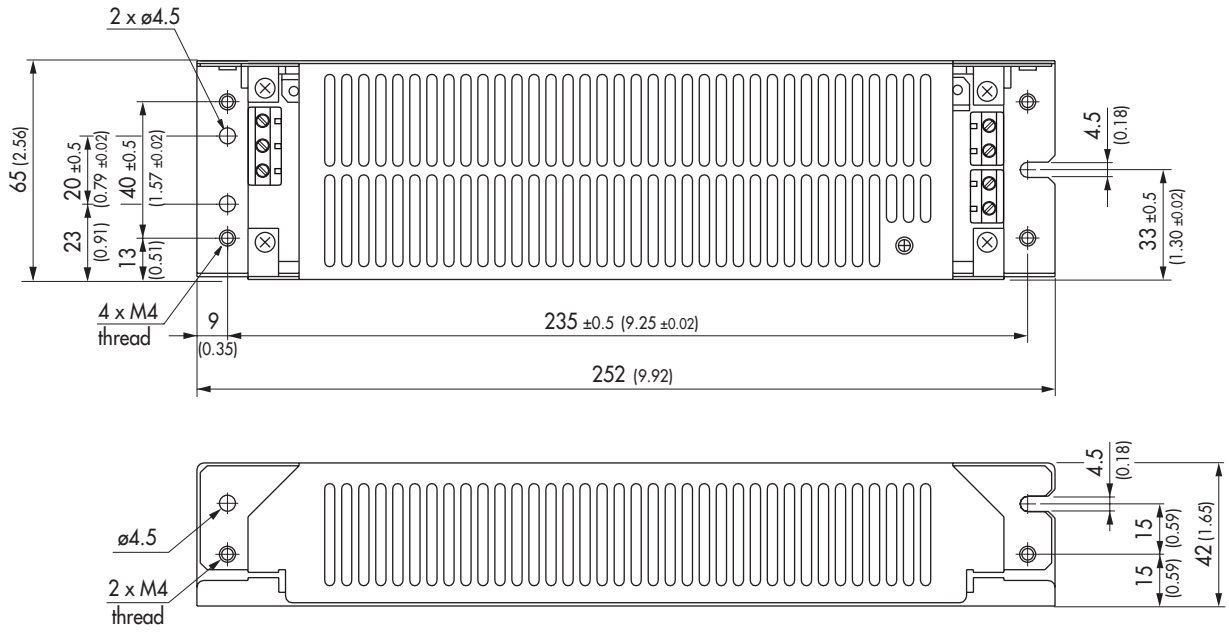
## Outline Dimensions mm (inches)

### TOF 75 standard open frame version




**Weight:** 280 g (9.9 oz)

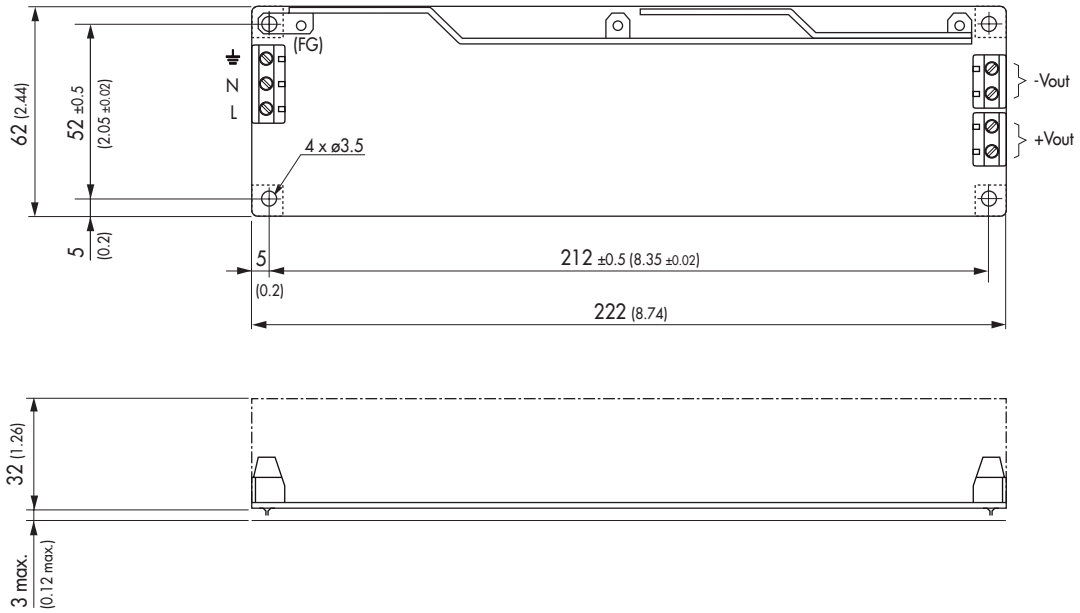
### TOF 75 with chassis / cover option




**Weight:** 525 g (18.5 oz)

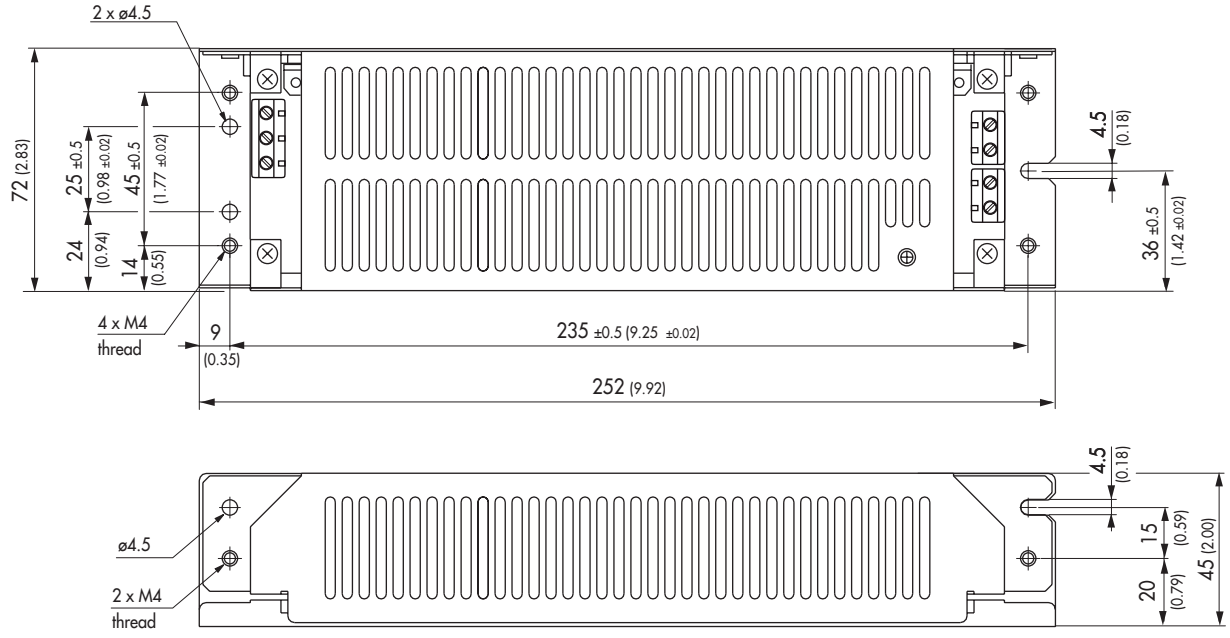
## Outline Dimensions mm (inches)

### TOF 100 standard open frame version




**Weight:** 380 g (13.4 oz)

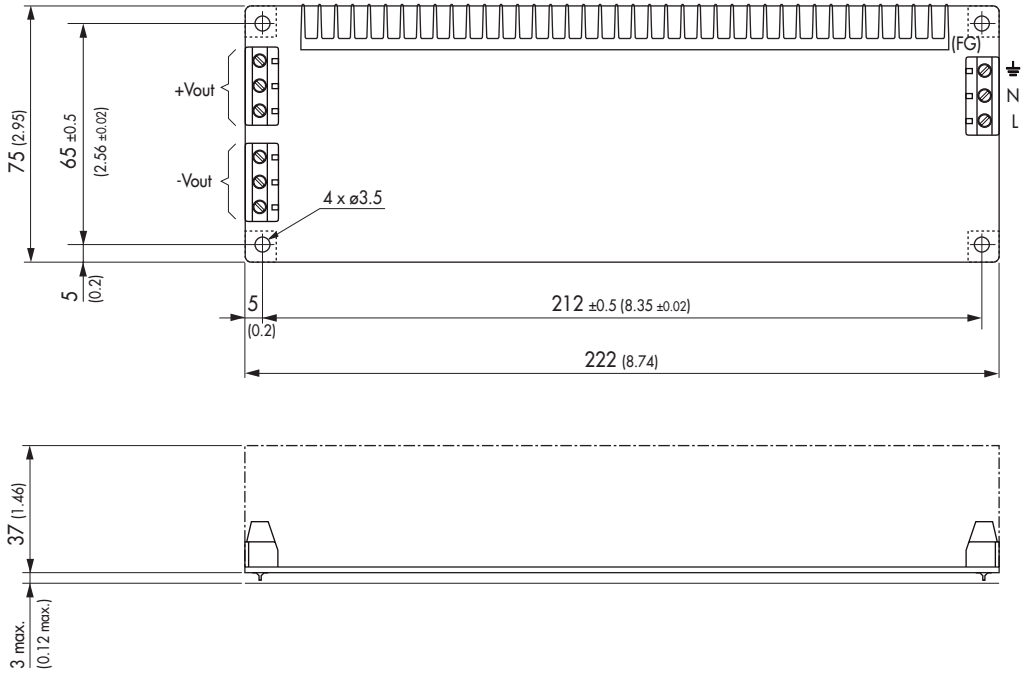
### TOF 100 with chassis / cover option




**Weight:** 655 g (23.1 oz)

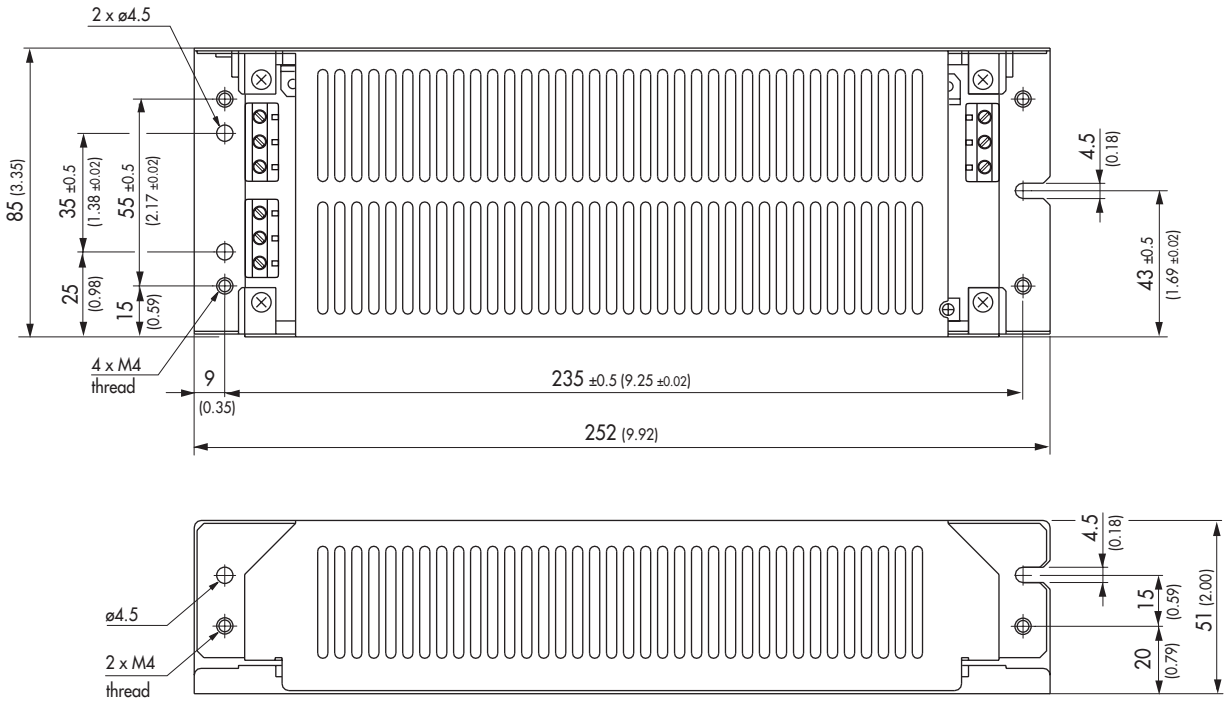
## Outline Dimensions mm (inches)

### TOF 150 standard open frame version




**Weight:** 540 g (19.0 oz)

### TOF 150 with chassis / cover option

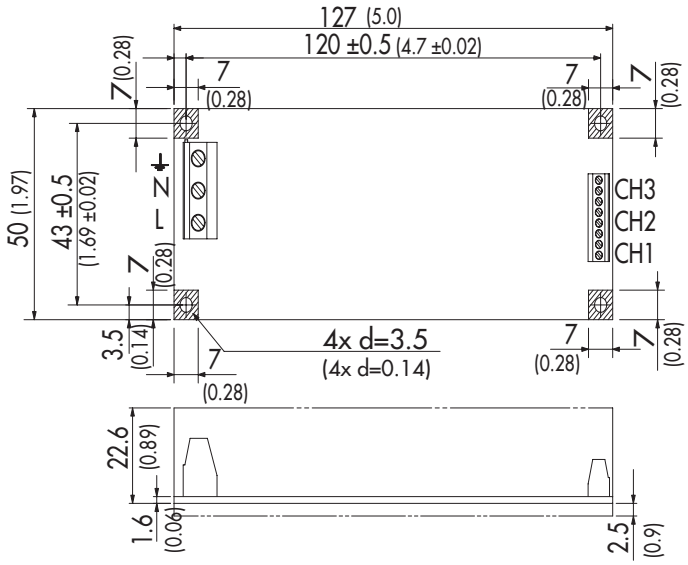



Tolerances: ±1.0 mm (±0.04)

**Weight:** 865 g (30.5 oz)

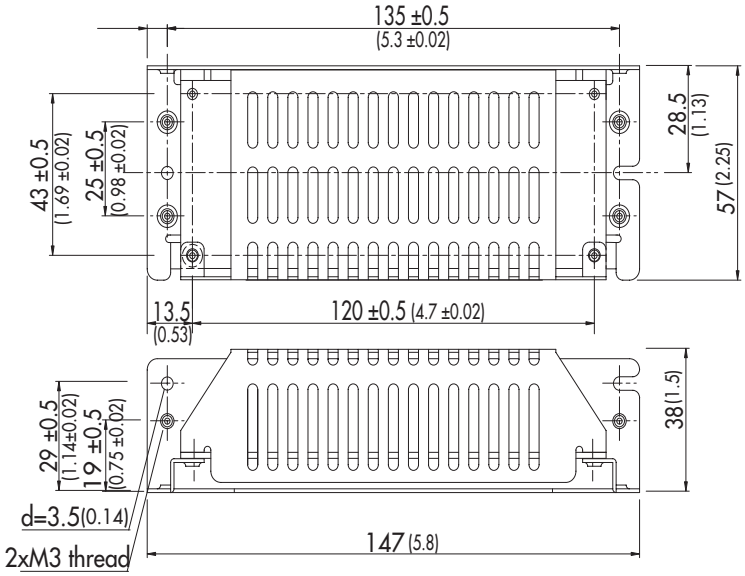
## Outline Dimensions mm (inches)

**TOF 15-T standard open frame version**




**Weight:** 107g (3.8 oz)

**TOF 15-T with chassis / cover option**

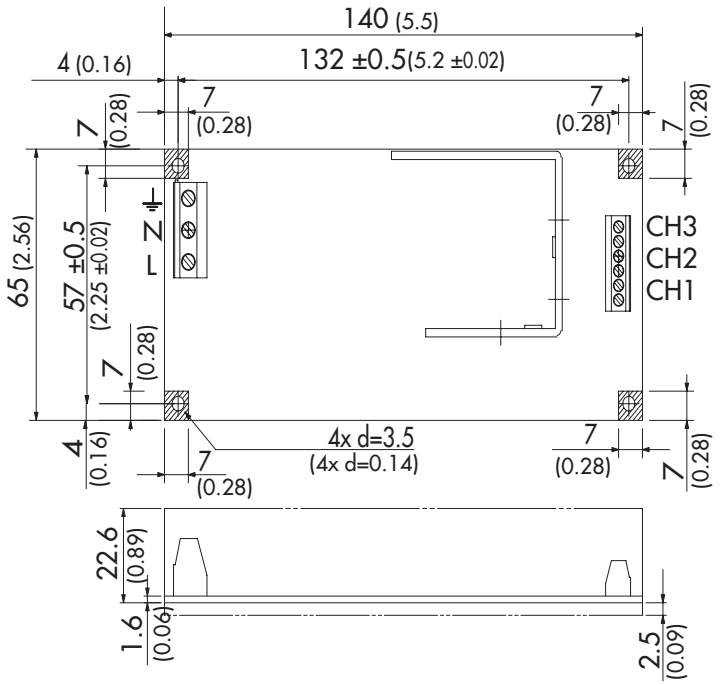



**Weight:** 226g ( 8 oz)

Tolerances: ±1.0 mm (±0.04)

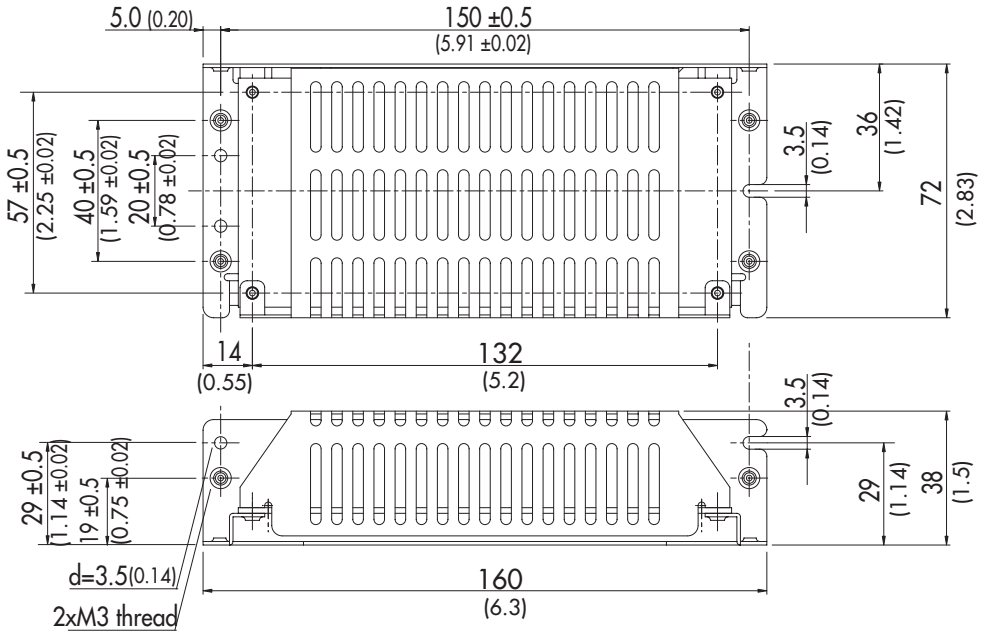
## Outline Dimensions mm (inches)

**TOF 30-T standard open frame version**




**Weight:** 170g (6 oz)

**TOF 30-T with chassis / cover option**




**Weight:** 337g (11.9 oz)