

#### Features

- ◆ Compact metal case with screw terminal block
- ◆ Models with 60W, 100W, 150W and 300W
- ◆ Wide 2:1 input range
- ◆ I/O isolation 1500VDC
- ◆ Input reverse polarity protection
- ◆ Soft start, low inrush current
- ◆ Overload and short circuit protection
- ◆ EMC compliance with EN 61000-6-1 and EN 50082-1
- ◆ Adjustable output voltage
- ◆ 3-year product warranty



This new range of boxed DC/DC converter are designed for all applications, where high reliability and long lifetime are important. They provide excellent electric specifications and full compliance to the European EMC and low voltage directive. International safety approvals qualify these converter for worldwide use. With their low profile case and screw terminal block they are easy to install in any equipment.

#### Models with Single Output

Order Code	Power	Input Voltage	Output Voltage nom.	Output Current max.
TZL 060-2412	60 Watt	18 - 36 VDC	12 VDC	5.0 A
TZL 060-2424	60 Watt	18 - 36 VDC	24 VDC	2.5 A
TZL 060-4812	60 Watt	36 - 72 VDC	12 VDC	5.0 A
TZL 060-4824	60 Watt	36 - 72 VDC	24 VDC	2.5 A
TZL 100-2412	100 Watt	19 - 36 VDC	12 VDC	8.5 A
TZL 100-2424	100 Watt	19 - 36 VDC	24 VDC	4.2 A
TZL 100-4812	100 Watt	36 - 72 VDC	12 VDC	8.5 A
TZL 100-4824	100 Watt	36 - 72 VDC	24 VDC	4.2 A
TZL 150-2412	150 Watt	19 - 32 VDC	12 VDC	12.5 A
TZL 150-2424	150 Watt	19 - 32 VDC	24 VDC	6.3 A
TZL 150-4812	150 Watt	36 - 72 VDC	12 VDC	12.5 A
TZL 150-4824	150 Watt	36 - 72 VDC	24 VDC	6.3 A
TZL 300-4812	300 Watt	36 - 72 VDC	12 VDC	26.7 A
TZL 300-4824	300 Watt	36 - 72 VDC	24 VDC	13.4 A

### Input Specifications

Input voltage range	24 VDC input models:	18/19 - 32/36 VDC	
	48 VDC input models:	36 - 72 VDC	
Input current (at full load)		19(24) Vin	36(48)Vin
	TZL 060 models	4.6 A typ.	2.4 A typ.
	TZL 100 models	8.0 A typ.	4.0 A typ.
	TZL 150 models	12 A typ.	6.3 A typ.
	TZL 300 models	--	30 A typ.
Input current (at no load)		19(24) Vin	36(48)Vin
	TZL 060 models	max. 0.3 A	max. 0.2 A
	TZL 100 models	max. 0.2 A	max. 1.5 A
	TZL 150 models	max. 0.2 A	max. 0.2 A
	TZL 300 models	--	max. 0.15 A
Recommended circuit breaker (characteristic C) or slow blow fuse	TZL 060 models	5 A	tba.
	TZL 100 models	10 A	tba.
	TZL 150 models	15 A	tba.
	TZL 300 models	20 A	tba.

### Output Specifications

Output voltage adjustment range		±10 %
		– 35 Watt dual output models: range Vout 1-2
		– other multi output models: Vout 1
Regulation	– Input variation	1 % max.
	– Load variation (10–100%)	1 % max.
Minimum Load		not required
Ripple and noise (20 MHz bandwidth)	12 VDC output	<100mVpk-pk
	24 VDC output	<150mVpk-pk
Output current limitation		105 % – 150 % of Iout max.
Overload protection mode		Fold back, automatic recovery
Over voltage protection (only output 1)		115 % – 140 % of Vout nom.
Short circuit protection		foldback, automatic recovery
Capacitive load, max.	TZL 060: 12 VDC / 24 VDC output models	11'000 µF / 2'000 µF
	TZL 100: 12 VDC / 24 VDC output models	14'200 µF / 1'000 µF
	TZL 150: 12 VDC / 24 VDC output models	8'600 µF / 470 µF
	TZL 300: 12 VDC / 24VDC output models	2'700 µF / 1'000 µF

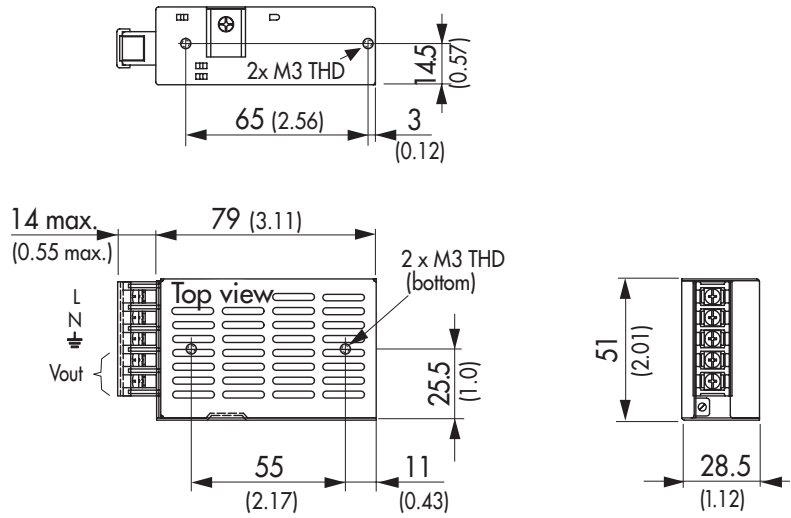
**General Specifications**

Temperature ranges	<ul style="list-style-type: none"> <li>– Operating</li> <li>– Load derating above 50°C</li> <li>– Storage (non operating)</li> </ul>	<ul style="list-style-type: none"> <li>–10°C to +60°C</li> <li>2.5 %/K</li> <li>–10°C to +75°C</li> </ul>
Temperature coefficient		0.03 %/°C
Efficiency		80 % (depending on model)
Humidity (non condensing)		85 % rel max. (non condensing)
Switching frequency		50 kHz typ. (pulse width modulation)
Hold-up time		20 ms min.
Isolation voltage (60sec.)	<ul style="list-style-type: none"> <li>– Input/Output</li> <li>– Input/Case</li> <li>– Output/Case</li> </ul>	<ul style="list-style-type: none"> <li>1'500 VAC</li> <li>1'500 VAC</li> <li>500 VAC</li> </ul>
Reliability /calculated MTBF (MIL-HDBK-217F, at+25°C, ground benign)		>250'000 h
Electromagnetic compatibility (EMC)		EN 61000-6-1
Electromagnetic compatibility (EMC), radiated emission		EN 55022, class B
Safety standards		UL/IEC/EN 60950-1
Casing material		cover: nickel plated steel chassis: natural aluminium
Environmental compliance	<ul style="list-style-type: none"> <li>– Reach</li> <li>– RoHS</li> </ul>	<a href="http://www.tracopower.com/products/tzl-reach.pdf">www.tracopower.com/products/tzl-reach.pdf</a> RoHS directive 2011/65/EU

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

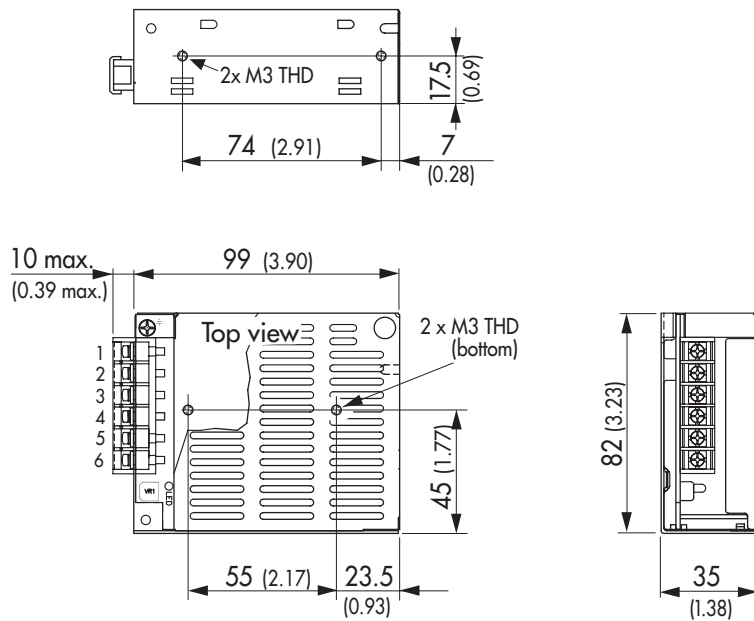
**Case Dimensions**

**Case C**



**Weight:** 0.19 kg (6.7 oz)

**Case D**



**Weight:** 0.3 kg (10 oz)

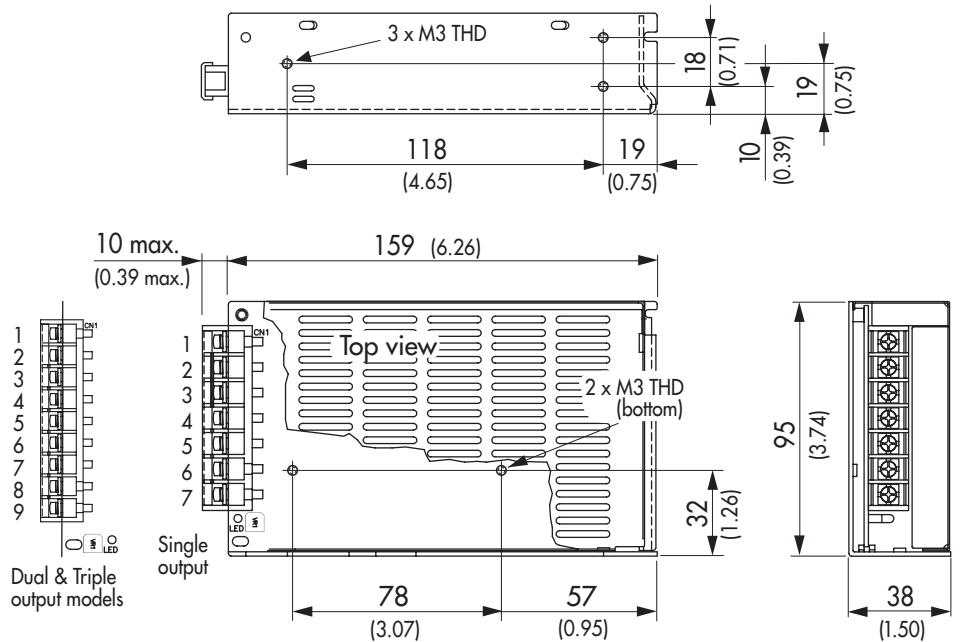
Connection		
	single	dual
1	AC L	AC L
2	AC N	AC N
3	AC FG	AC FG
4	-V out	Common
5	+V out	V out 1
6	No con.	V out 2

Tolerances and max. screw penetration see page 9

**Case Dimensions**

**Case E**

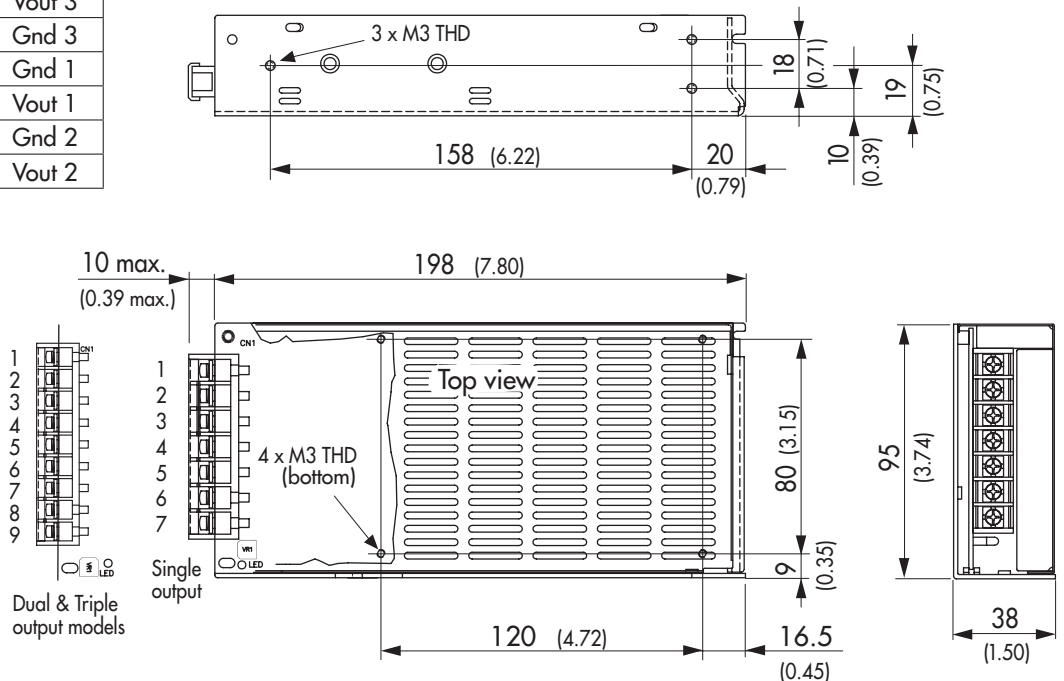
Connection			
	Single	Dual	Triple
1	AC L	AC L	AC L
2	AC N	AC N	AC N
3	AC FG	AC FG	AC FG
4	-Vout	No con.	Vout 3
5	-Vout	No con.	Gnd 3
6	+Vout	Gnd 1	Gnd 1
7	+Vout	Vout 1	Vout 1
8	-	Gnd 2	Gnd 2
9	-	Vout 2	Vout 2



**Weight:** 0.7 kg (25 oz)

**Case J**

Connection			
	Single	Dual	Triple
1	AC L	AC L	AC L
2	AC N	AC N	AC N
3	AC FG	AC FG	AC FG
4	-Vout	No con.	Vout 3
5	-Vout	No con.	Gnd 3
6	+Vout	Gnd 1	Gnd 1
7	+Vout	Vout 1	Vout 1
8	-	Gnd 2	Gnd 2
9	-	Vout 2	Vout 2

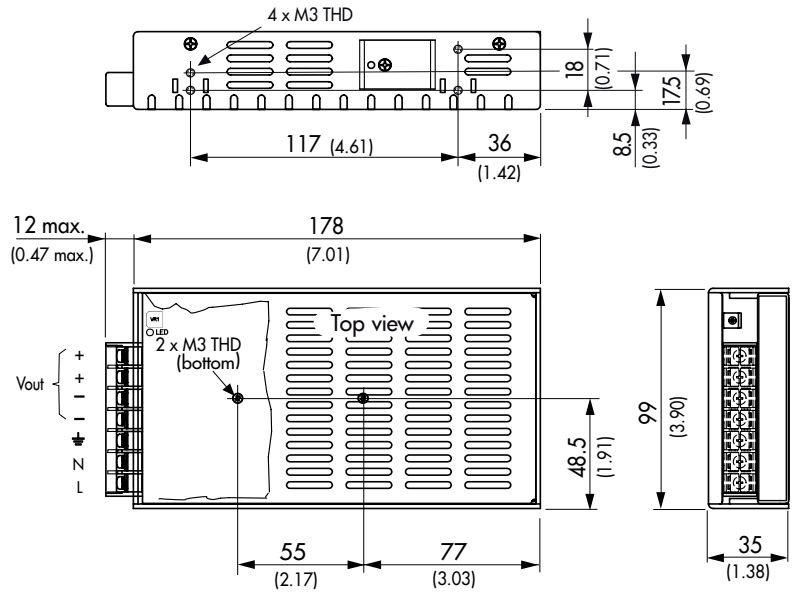


**Weight:** 0.8 kg (28 oz)

Tolerances and max. screw penetration see page 9

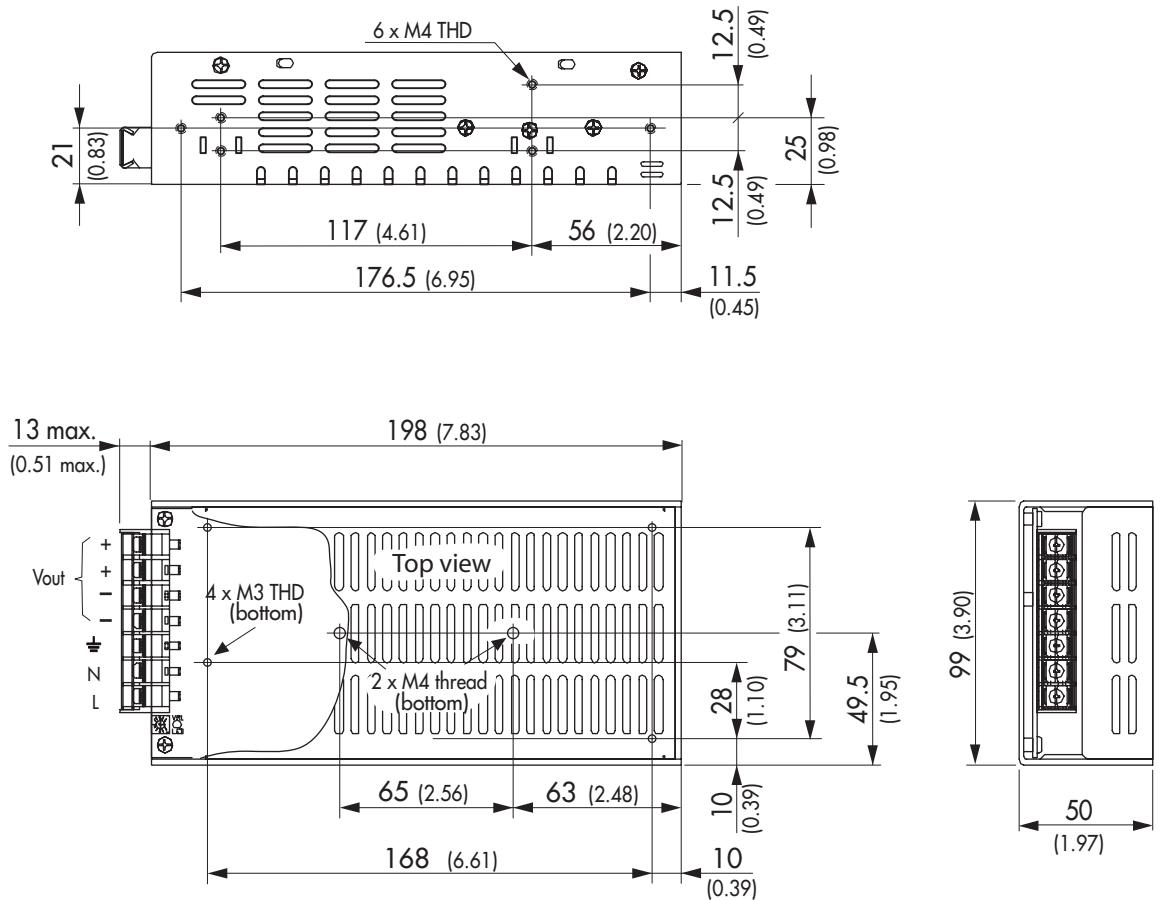
**Case Dimensions**

**Case K**



**Weight:** 0.82 kg (29 oz)

**Case L**

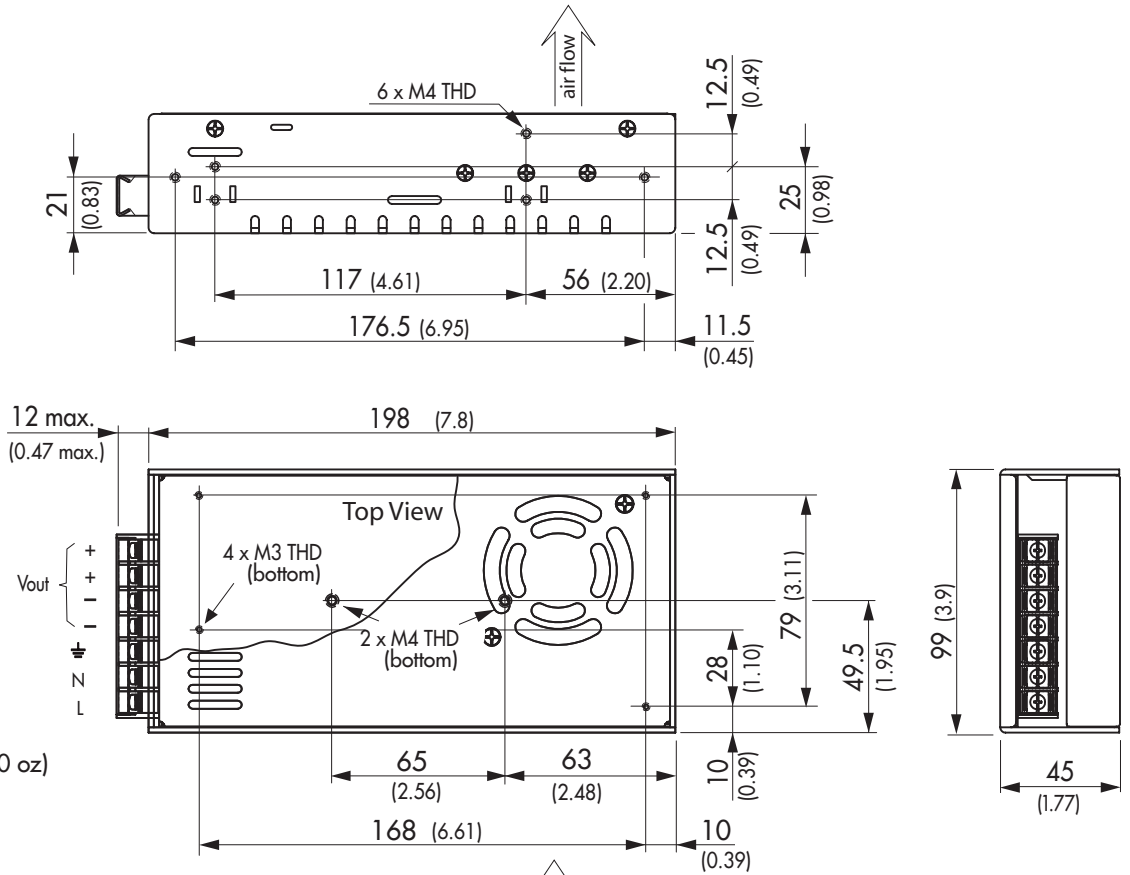


**Weight:** 0.89 kg (31 oz)

Tolerances and max. screw penetration see page 9

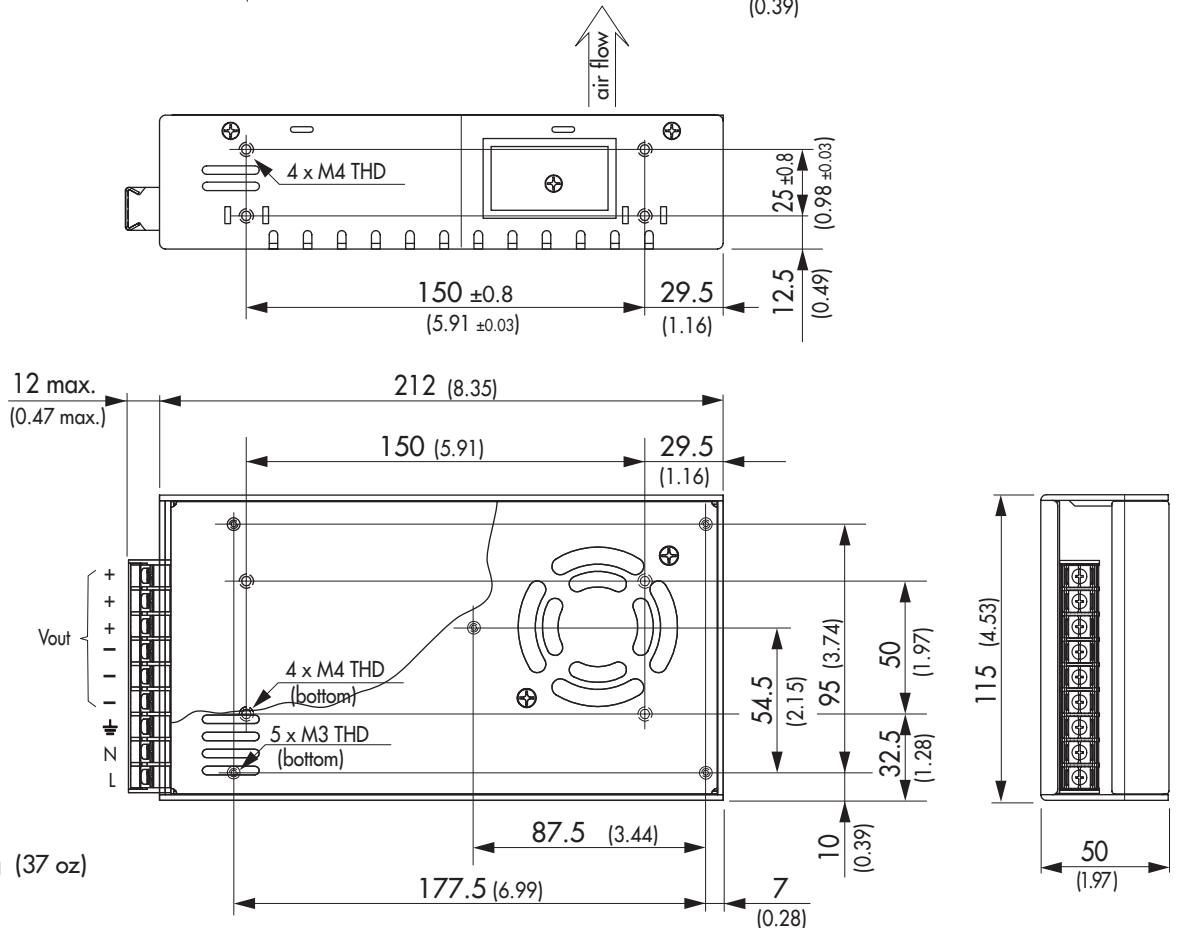
**Outline Dimensions**

**Case N**



**Weight:** 0.86 kg (30 oz)

**Case O**

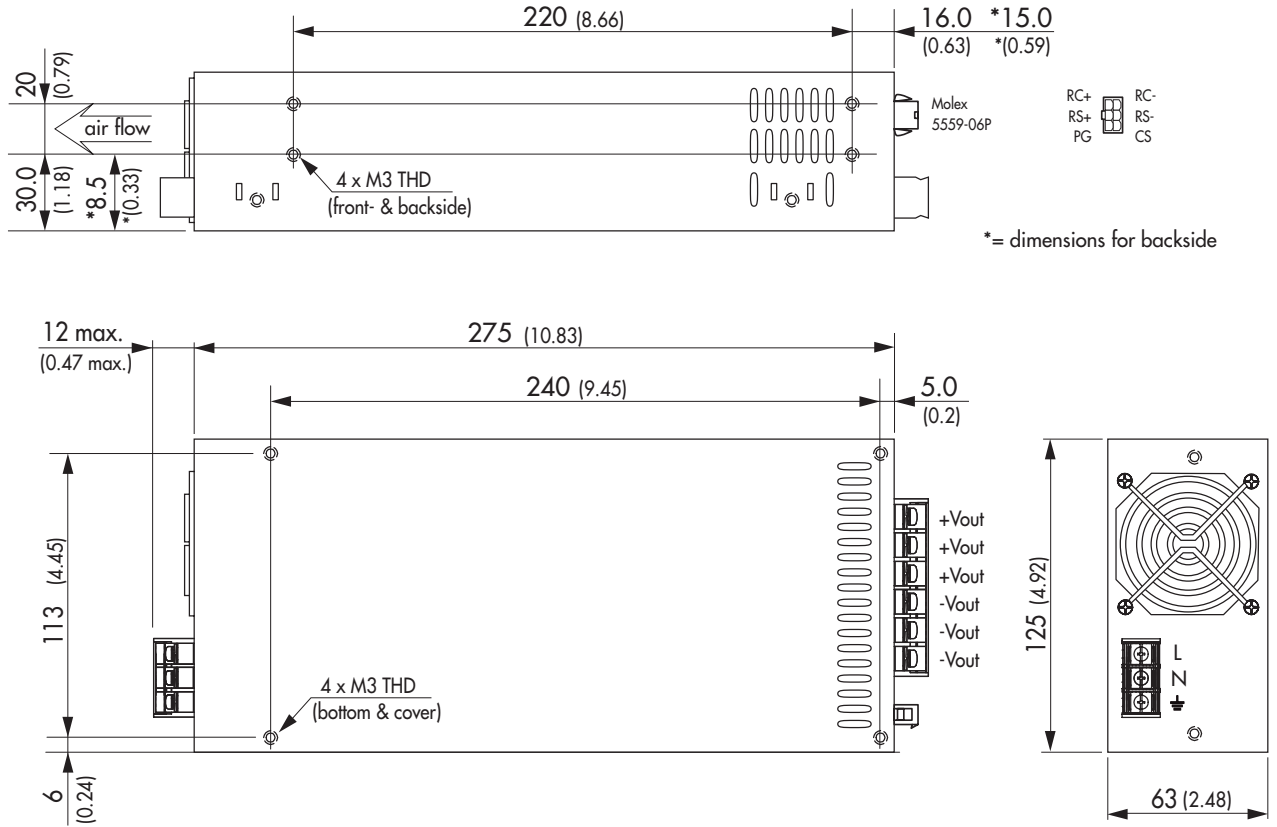


**Weight:** 1.05 kg (37 oz)

Tolerances and max. screw penetration see page 9

**Outline Dimensions**

**Case P**



\*= dimensions for backside

**Weight:** 2.3 kg (81 oz)

**Caution!** Max mounting screw penetration: 3.0 mm (0.12)

Dimensions in [mm], ( ) = Inch  
Tolerances ±0.8 (0.03)  
Mounting hole pitch tolerances ±0.5 (0.02)

Specifications can be changed any time without notice.

Molex Connector	
<b>RC</b>	<b>Remote Control On/Off:</b> RC+/RC-: 0–0.7 V = On 3–5 V = Off. Sink Current: 3–10 mA.
<b>RS</b>	<b>Remote Sense</b> Can be open or connected to the load under regard of polarity
<b>PG</b>	<b>Power Good Signal:</b> High level TTL signal within 100–500 ms after power On
<b>CS</b>	<b>Current Sharing:</b> For parallel operation