Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

5–30 Watts
ECL Series

GREEN XP POWER

- Ultra Compact Size
- Single, Dual & Triple Outputs
- Open Frame PCB & Chassis Mount
- Encapsulated PCB & Chassis Mount
- <0.3 W No Load Input Power
- Peak Load Capability
- 3 Year Warranty

Specification

Input

Input Voltage	• 85-264 VAC (120-370 VDC)
Input Frequency	• 47-63 Hz
Input Current	• ECL05: 0.1 A rms, ECL10: 0.2 A rms ECL15: 0.3 A rms, ECL25: 0.4 A rms ECL30: 0.8 A rms at 230 VAC
Inrush Current	• 20 A at 115 VAC, 40 A at 230 VAC, cold start at 25 °C
Earth Leakage Current	• Class II construction no earth
Power Factor	• EN61000-3-2, class A
No Load Input Power	• <0.3 W
Input Protection	• ECL05/10: Internal T1 A/250 VAC fuse ECL15/25/30: Internal T2 A/250 VAC fuse

Output

Output Voltage	• See tables
Output Voltage Trim	• ±5% on output 1 only, on multiple output versions, V2 & V3 will track by same percentage, (not '-E' or '-S' versions)
Initial Set Accuracy	• ±1% for output 1, ±1% for output 2 of UD01 & UD02 versions, ±5% for output 2 & output 3 of other versions
Minimum Load	• Single output versions: none, Multi output versions: UD01 & UD02: 10% V1 & V2 UD03: 10% V1, 20% V2 UT02 & UT03: 10% V1, 20% V2 & V3 to meet regulation specifications
Start Up Delay	• 3 s max
Start Up Rise Time	• 14 ms max
Hold Up Time	• 16 ms typical for single output versions, 12 ms typical for multiple output versions, at full load & 115 VAC
Line Regulation	• ±0.5% max for single output versions and output 1 of multiple output versions, ±0.9% max for output 2 & output 3 of multiple output versions
Load Regulation	• 1% max for single output versions, for multiple output versions (see note 5)
Cross Regulation	• Multi output versions only (see note 5)
Transient Response	• 4% max deviation, recovery to within 1% in 500 µs for a 25% load change
Ripple & Noise	• Single output versions: 3.3-5 V versions: 50 mV pk-pk, 12-15 V versions: 120 mV pk-pk, 24-48 V versions: 200 mV pk-pk, Multiple output versions: 1% pk-pk on any output, 20 MHz bandwidth
Overvoltage Protection	• 115-140% Vnom, 195-216% Vnom ECL05/10/15/25 with 3.3 V
Overload Protection	• Single output versions: ECL05/10/15: 120-150%, ECL25: 120-170% of total power Multiple output versions: 140-200% of total power
Short Circuit Protection	• Trip and restart (hiccup mode)
Temperature Coefficient	• 0.05%/°C

General

Efficiency	• See tables
Isolation	• 3000 VAC Input to Output
Switching Frequency	• 70 kHz typical
Power Density	• ECL05: 2.25 W/In³ (PCB Mount version) ECL10: 5.50 W/In³ (PCB Mount version) ECL15: 5.30 W/In³ (PCB Mount version) ECL25: 5.90 W/In³ (PCB Mount version) ECL30: 7.10 W/In³ (PCB Mount version)
MTBF	• ECL05/10: >450 kHrs, ECL15/25/30: >400 kHrs, to MIL-HDBK-217F at 25 °C, GB

Environmental

Operating Temperature	• -20 °C to +70 °C, derate linearly from 100% at +50 °C to 50% at +70 °C
Cooling	• Convection-cooled
Operating Humidity	• 95% RH, non-condensing
Storage Temperature	• -40 °C to +85 °C
Operating Altitude	• 3000 m
Vibration	• 2 g, 10 Hz to 500 Hz, 10 mins/cycle, 60 mins each cycle

EMC & Safety

Emissions	• EN55022, level B conducted & radiated
Harmonic Currents	• EN61000-3-2, class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, level 3 Perf Criteria A
Radiated Immunity	• EN61000-4-3, 10 V/m 80% mod Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3, Perf Criteria A
Surge	• EN61000-4-5, installation class 3, Perf Criteria A
Conducted Immunity	• EN61000-4-6, 10 Vrms Perf Criteria A
Magnetic Fields	• EN61000-4-8, 10 A/m, Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% for 10 ms, 60% for 100 ms, 100% for 5000 ms Perf Criteria A, B, B
Safety Approvals	• IEC60950-1, EN60950-1, UL60950-1, CSA22.2 No. 234 per cUL

Models and Ratings

Output Power	Output Voltage	Output Current		Efficiency	Model Number[2]
		Nominal	Peak[1]		
4.3 W	3.3 VDC	1.30 A	1.69 A	72%	ECL05US03
5.0 W	5.0 VDC	1.00 A	1.30 A	75%	ECL05US05
5.0 W	9.0 VDC	0.55 A	0.71 A	78%	ECL05US09
5.0 W	12.0 VDC	0.41 A	0.54 A	78%	ECL05US12
5.0 W	15.0 VDC	0.33 A	0.44 A	80%	ECL05US15
5.0 W	24.0 VDC	0.21 A	0.27 A	82%	ECL05US24
5.0 W	48.0 VDC	0.10 A	0.13 A	82%	ECL05US48
8.6 W	3.3 VDC	2.60 A	3.38 A	72%	ECL10US03
10.0 W	5.0 VDC	2.00 A	2.60 A	75%	ECL10US05
10.0 W	9.0 VDC	1.10 A	1.43 A	78%	ECL10US09
10.0 W	12.0 VDC	0.83 A	1.08 A	78%	ECL10US12
10.0 W	15.0 VDC	0.67 A	0.87 A	80%	ECL10US15
10.0 W	24.0 VDC	0.42 A	0.55 A	82%	ECL10US24
10.0 W	48.0 VDC	0.21 A	0.27 A	82%	ECL10US48

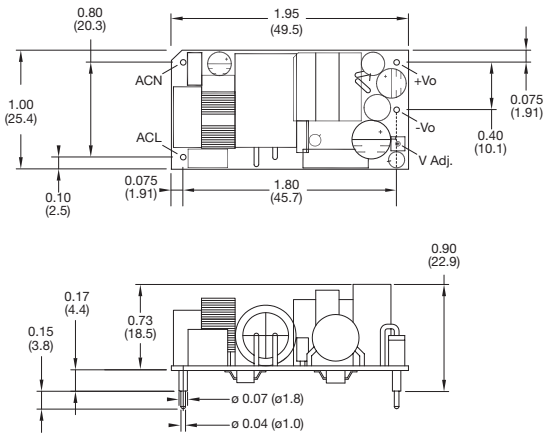
Notes

1. Peak load lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal.
2. Add suffix to model number to define type: add '-P' for PCB mount, add '-T' for chassis mount, add '-E' for encapsulated.

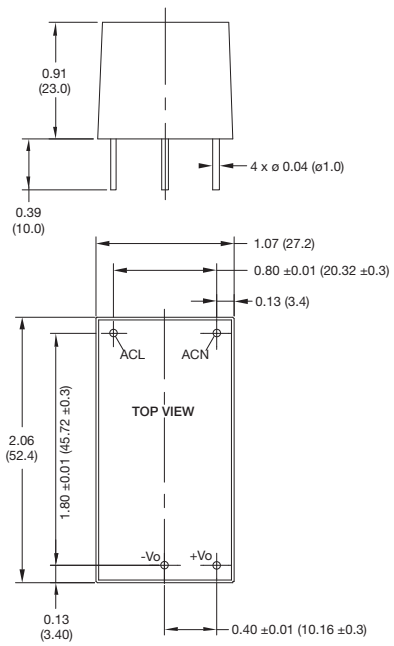
Mechanical Details

Open Frame – PCB Mount (-P)

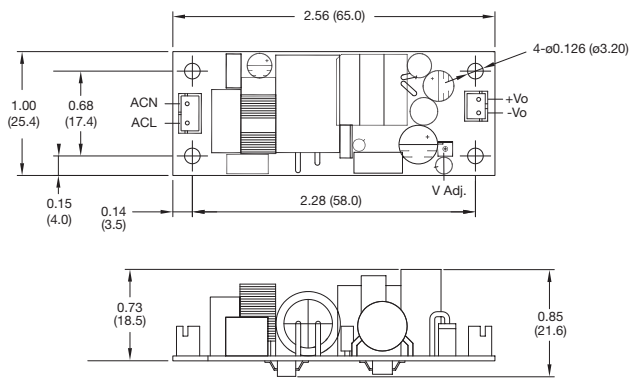
3D MODELS AVAILABLE ONLINE



Encapsulated (-E)



Open Frame – Chassis Mount (-T)



Notes

1. All dimensions in inches (mm).
2. Weight: ECL05/10 P Version: 0.057 lbs (26 g)
   ECL05/10 T Version: 0.057 lbs (26 g)
   ECL05/10 E Version: 0.13 lbs (60 g)
3. Tolerances: x.xx = ± 0.02 (x.x = ± 0.5)
   x.xxx = ± 0.01 (x.xx = ± 0.25)

Mating Connectors (-T version only)
Input Connector: JST PHR-3
Output Connector: JST PHR-2
Crimps: SPH-002T-P0.5S
Cable harness with 300 mm wire available, order part no. ECL10 LOOM KIT

Models and Ratings

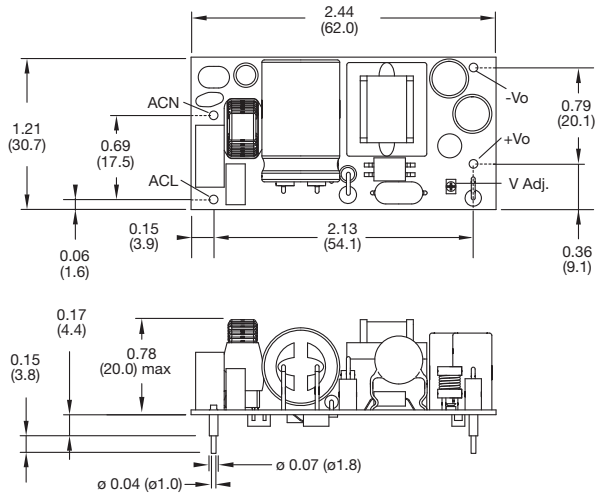
Output Power	Output Voltage	Output Current		Efficiency	Model Number[2,3]
		Nominal	Peak[1]		
10 W	3.3 VDC	3.00 A	3.90 A	75%	ECL15US03
15 W	5.0 VDC	3.00 A	3.90 A	78%	ECL15US05
15 W	9.0 VDC	1.67 A	2.17 A	80%	ECL15US09
15 W	12.0 VDC	1.25 A	1.62 A	80%	ECL15US12
15 W	15.0 VDC	1.00 A	1.30 A	80%	ECL15US15
15 W	24.0 VDC	0.63 A	0.82 A	82%	ECL15US24
15 W	48.0 VDC	0.32 A	0.41 A	82%	ECL15US48

Notes

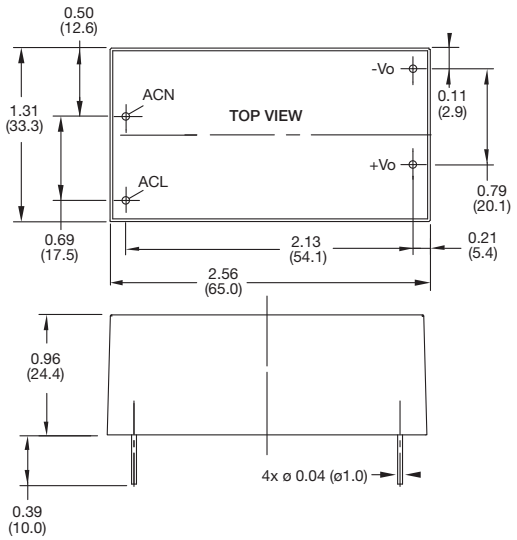
1. Peak load lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal.
2. Add suffix to model number to define type: add '-P' for PCB mount, add '-T' for chassis mount, add '-E' for encapsulated, add '-S' for screw terminals.
3. A screw terminal version (-S) is available with DIN clip attached, add suffix 'D', e.g. ECL15US24-SD,
DIN rail mounting kit is available as a separate item, order code ECL15 DIN CLIP.
4. For medically-approved 15 W power supplies contact sales or see www.xppower.com for details of CU15-M series and VCP15 series.

Mechanical Details

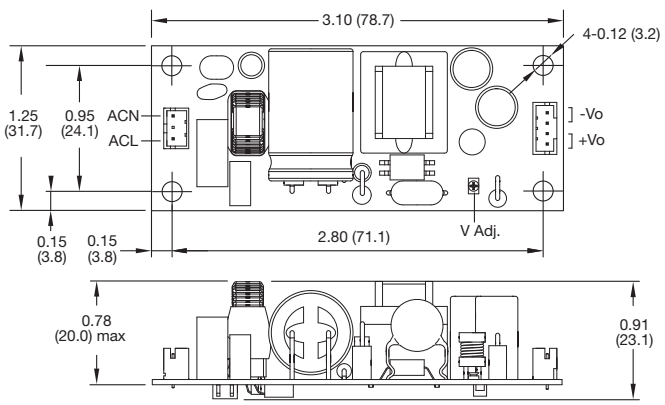
Open Frame – PCB Mount (–P)



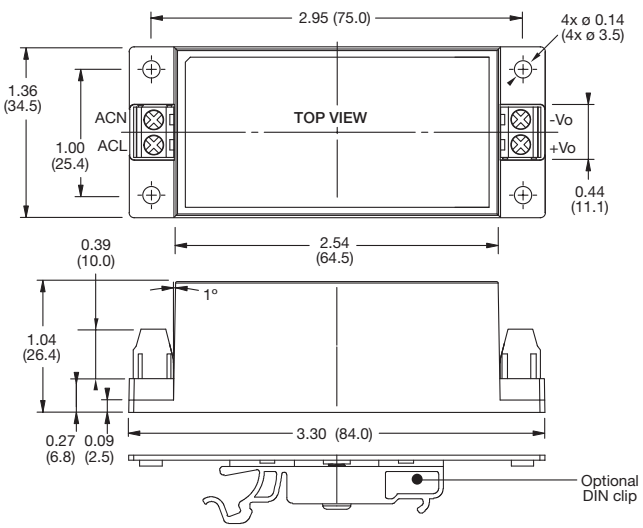
Encapsulated (–E)



Open Frame – Chassis Mount (–T)



Screw Terminal (–S)



Notes

1. All dimensions in inches (mm).
2. Weight: ECL15 P Version: 0.07 lbs (35 g)
T Version: 0.07 lbs (35 g)
E Version: 0.20 lbs (90 g)
S Version: 0.24 lbs (110 g)
3. Tolerances: x.xx = ± 0.02 (x.x = ± 0.5)
x.xxx = ± 0.01 (x.xx = ± 0.25)

Mating Connectors (-T version only)
Input Connector: JST PHR-3
Output Connector: JST PHR-4
Crimps: SPH-002T-P0.5S
Cable harness with 300 mm wire available, order part no. ECL15 LOOM KIT

ECL15UD/UT

Models and Ratings

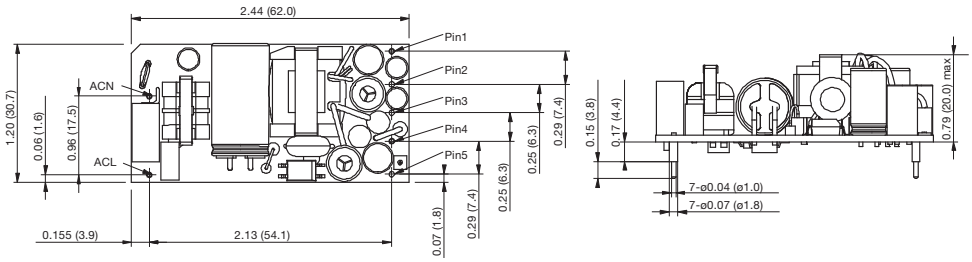
Output Power	Output 1		Output 2		Output 3		Efficiency	Model Number[3,4]
	Voltage	Current[2]	Voltage	Current[2]	Voltage	Current[2]		
15 W	+12.0 V	0.65 A	-12.0 V	0.650 A			82%	ECL15UD01
15 W	+15.0 V	0.50 A	-15.0 V	0.500 A			82%	ECL15UD02
15 W	5.0 V[1]	1.50 A	12.0 V[1]	0.625 A			81%	ECL15UD03
15 W	5.0 V[1]	2.00 A	+12.0 V	0.200 A	-12.0 V	0.200 A	81%	ECL15UT02
15 W	5.0 V[1]	2.00 A	+15.0 V	0.150 A	-15.0 V	0.150 A	81%	ECL15UT03

Notes

1. *Isolated output*
2. *Peak load of 130% lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal.*
3. *Add suffix to model number to define type: add '-P' for PCB mount, add '-T' for chassis mount, add '-E' for encapsulated, add '-S' for screw terminals.*
4. *A screw terminal version (-S) is available with DIN clip attached, add suffix 'D' e.g. ECL15UT02-SD, DIN rail mounting kit is available as a separate item, order code ECL15 DIN CLIP.*
5. *UD01/UD02: Load regulation <3%, 10-100% load. Cross regulation <3%, one output fixed, the other varied from 10-100% load*
   UD03: Load regulation <1% V1, <10% V2 Cross regulation <10% V2, V1 varied from 10-100% load
   UT02/UT03: Load regulation <1% V1, <10% V2 & V3 Cross regulation <10% V2 & V3, V2 & V3 at 50% load & V1 varied from 20-100% load

Mechanical Details

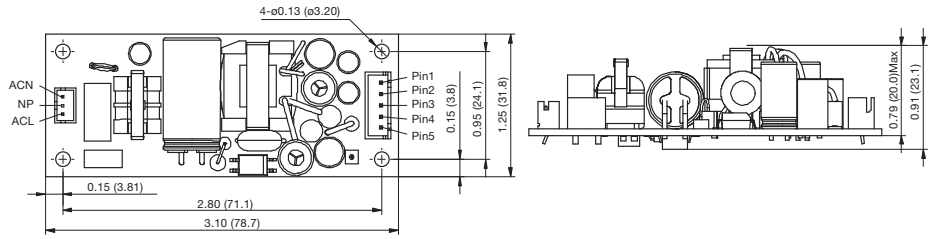
Open Frame – PCB Mount (–P)



Pin	UD01/02	UD03	UT02/03
1	V2	NP	V3
2	NP	V2 RTN	COM
3	COM	V2	V2
4	V1	V1	V1
5	NP	V1 RTN	V1 RTN

NP = No pin.

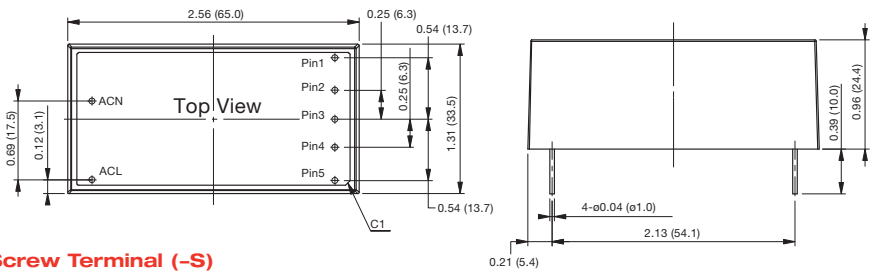
Open Frame – Chassis Mount (–T)



Pin	UD01/02	UD03	UT02/03
1	V2	NC	V3
2	COM	V2 RTN	COM
3	COM	V2	V2
4	COM	V1	V1
5	V1	V1 RTN	V1 RTN

NC = No connection.

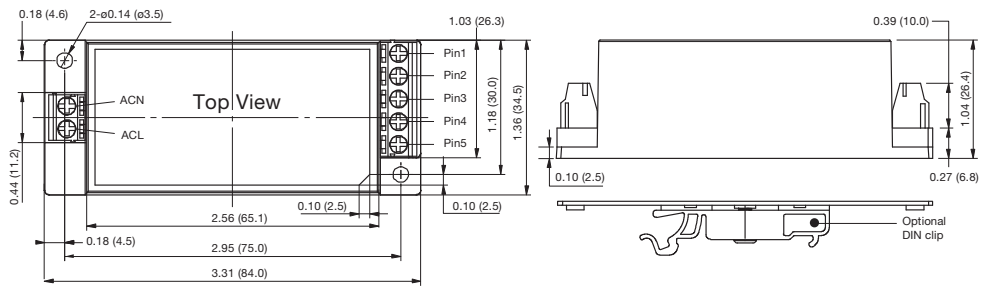
Encapsulated (–E)



Pin	UD01/02	UD03	UT02/03
1	V2	NP	V3
2	NP	V2 RTN	COM
3	COM	V2	V2
4	V1	V1	V1
5	NP	V1 RTN	V1 RTN

NP = No pin.

Screw Terminal (–S)



Pin	UD01/02	UD03	UT02/03
1	V2	NC	V3
2	COM	V2 RTN	COM
3	COM	V2	V2
4	COM	+V1	V1
5	V1	V1 RTN	V1 RTN

NC = No connection.

Notes

1. All dimensions in inches (mm).
2. Tolerances: x.xx = ± 0.02 (x.x = ± 0.5)
   x.xxx = ± 0.01 (x.xx = ± 0.25)
3. Weight: ECL15 UD/UT: P Version: 0.09 lbs (40 g)
   T Version: 0.09 lbs (40 g)
   E Version: 0.21 lbs(95 g)
   S Version: 0.26 lbs (120 g)

Mating Connectors (-T version only)
Input Connector: JST PHR-3
Output Connector: JST XHP-5

Models and Ratings

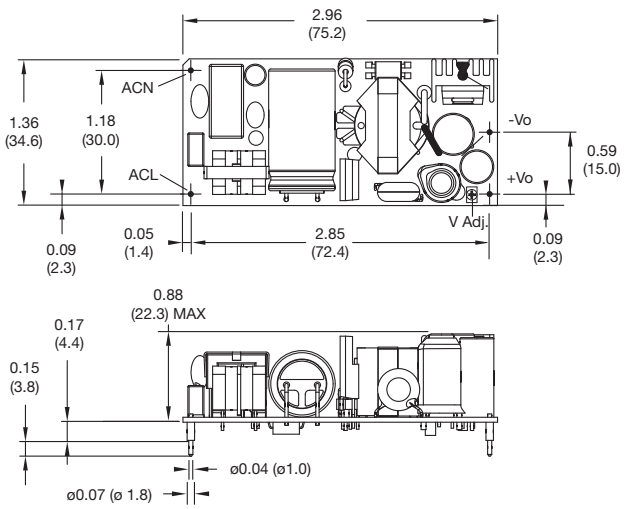
Output Power	Output Voltage	Output Current		Efficiency	Model Number[2,3]
		Nominal	Peak[1]		
20 W	3.3 VDC	6.00 A	7.80 A	75%	ECL25US03
25 W	5.0 VDC	5.00 A	6.50 A	78%	ECL25US05
25 W	9.0 VDC	2.80 A	3.64 A	80%	ECL25US09
25 W	12.0 VDC	2.10 A	2.73 A	80%	ECL25US12
25 W	15.0 VDC	1.67 A	2.17 A	80%	ECL25US15
25 W	24.0 VDC	1.04 A	1.35 A	82%	ECL25US24
25 W	48.0 VDC	0.52 A	0.68 A	82%	ECL25US48

Notes

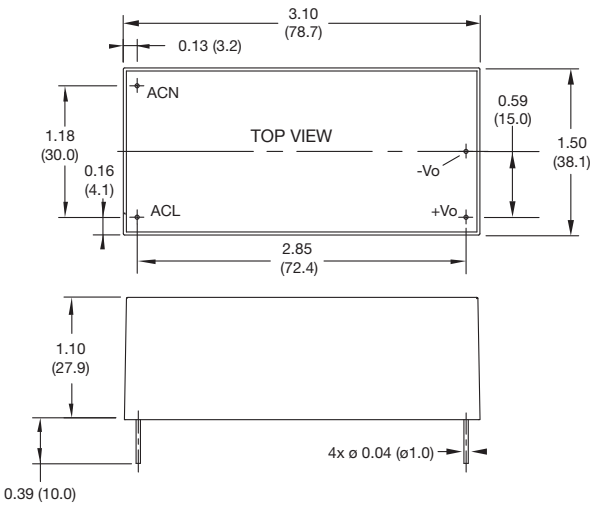
1. *Peak load lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal.*
2. *Add suffix to model number to define type: add '-P' for PCB mount, add '-T' for chassis mount, add '-E' for encapsulated, add '-S' for screw terminals.*
3. *A screw terminal version (-S) is available with DIN clip attached, add suffix 'D', e.g. ECL25US24-SD, DIN rail mounting kit is available as a separate item, order code ECL25/30 DIN CLIP.*

Mechanical Details

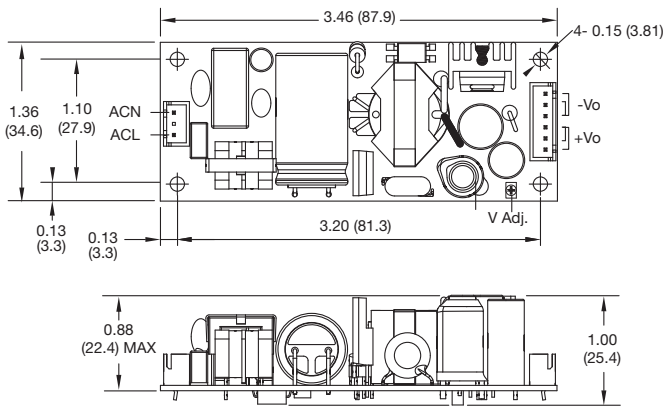
Open Frame – PCB Mount (–P)



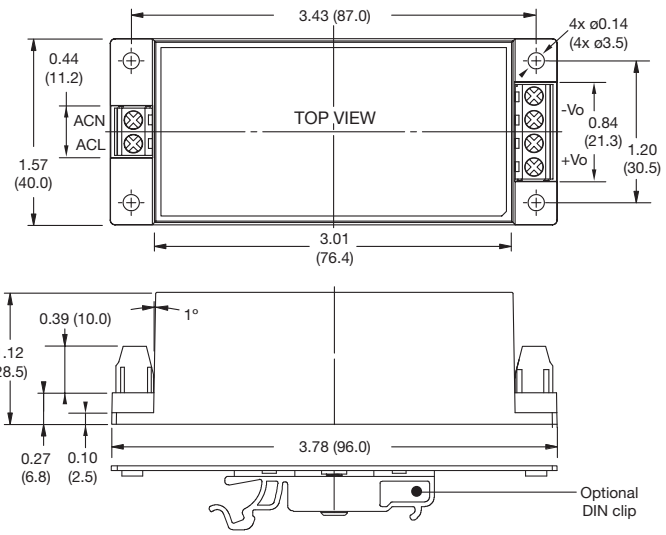
Encapsulated (–E)



Open Frame – Chassis Mount (–T)



Screw Terminal (–S)



Notes

1. All dimensions in inches (mm).
2. Weight: ECL25: P Version: 0.14 lbs (66 g)
   T Version: 0.14 lbs (66 g)
   E Version: 0.33 lbs (150 g)
   S Version: 0.37 lbs (170 g)
3. Tolerances: x.xx = ± 0.02 (x.x = ± 0.5)
   x.xxx = ± 0.01 (x.xx = ± 0.25)

Mating Connectors (-T version only)
Input Connector: JST XHP-3
Output Connector: JST XHP-6
Crimps: SXH-002T-P0.6
Cable harness with 300 mm wire available, order part no. ECL25 LOOM KIT

ECL30UD/UT XP

Models and Ratings

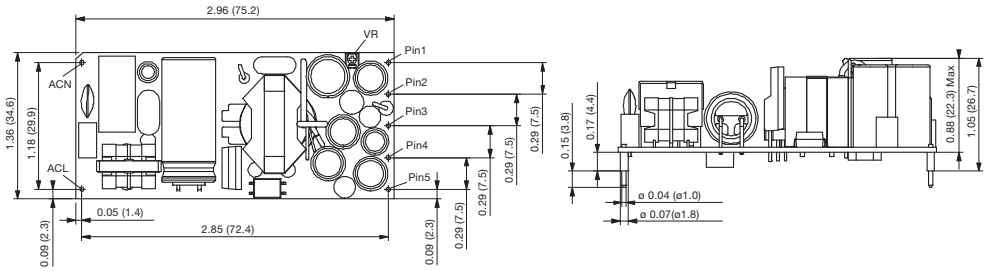
Output Power	Output 1		Output 2		Output 3		Efficiency	Model Number[3,4]
	Voltage	Current[2]	Voltage	Current[2]	Voltage	Current[2]		
30 W	+12.0 V	1.3 A	-12.0 V	1.30 A			84%	ECL30UD01
30 W	+15.0 V	1.0 A	-15.0 V	1.00 A			83%	ECL30UD02
30 W	5.0 V[1]	3.0 A	12.0 V[1]	1.30 A			81%	ECL30UD03
30 W	5.0 V[1]	3.0 A	+12.0 V	0.63 A	-12.0 V	0.63 A	83%	ECL30UT02
30 W	5.0 V[1]	3.0 A	+15.0 V	0.50 A	-15.0 V	0.50 A	81%	ECL30UT03

Notes

1. *Isolated output*
2. *Peak load of 130% lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal.*
3. *Add suffix to model number to define type: add '-P' for PCB mount, add '-T' for chassis mount, add '-E' for encapsulated, add '-S' for screw terminals.*
4. *A screw terminal version (-S) is available with DIN clip attached, add suffix 'D' e.g. ECL30UT02-SD, DIN rail mounting kit is available as a separate item, order code ECL25/30 DIN CLIP.*
5. *UD01/UD02: Load regulation <3%, 10-100% load. Cross regulation <3%, one output fixed, the other varied from 10-100% load*
   UD03: Load regulation <1% V1, <10% V2 Cross regulation <10% V2, V1 varied from 10-100% load
   UT02/UT03: Load regulation <1% V1, <10% V2 & V3 Cross regulation <10% V2 & V3, V2 & V3 at 50% load & V1 varied from 20-100% load

Mechanical Details

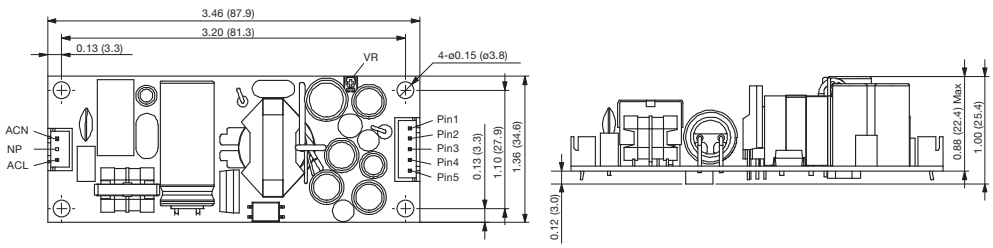
Open Frame – PCB Mount (–P)



Pin	UD01/02	UD03	UT02/03
1	NP	V1 RTN	-V1
2	NP	V1	+V1
3	V2	NP	V3
4	COM	V2 RTN	COM
5	V1	V2	V2

NP = No pin.

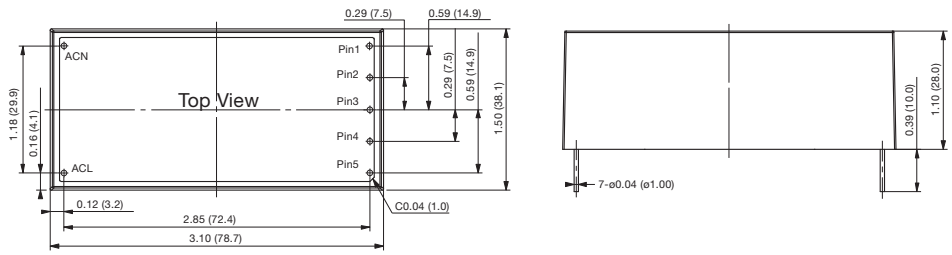
Open Frame – Chassis Mount (–T)



Pin	UD01/02	UD03	UT02/03
1	V2	V1 RTN	-V1
2	COM	V1	+V1
3	COM	NC	V3
4	COM	V2 RTN	COM
5	V1	V2	V2

NC = No connection.

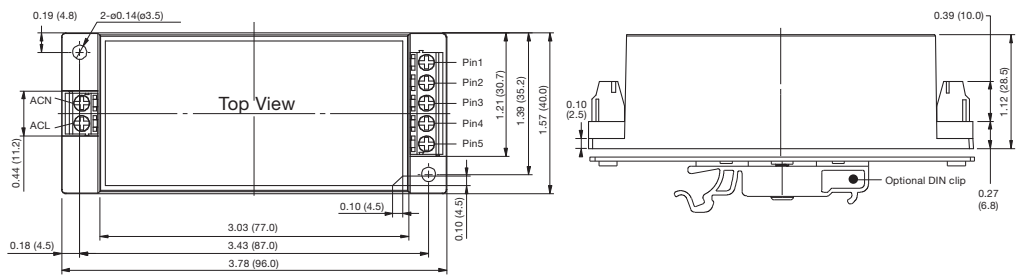
Encapsulated (–E)



Pin	UD01/02	UD03	UT02/03
1	NP	V1 RTN	-V1
2	NP	V1	+V1
3	V2	NP	V3
4	COM	V2 RTN	COM
5	V1	V2	V2

NP = No pin.

Screw Terminal (–S)



Pin	UD01/02	UD03	UT02/03
1	V2	V1 RTN	-V1
2	COM	V1	+V1
3	COM	NC	V3
4	COM	V2 RTN	COM
5	V1	V2	V2

NC = No connection.

Notes

1. All dimensions in inches (mm).
2. Tolerances: x.xx = ± 0.02 (x.x = ± 0.5)
   x.xxx = ± 0.01 (x.xx = ± 0.25)
3. Weight: ECL30 UD/UT: P Version: 0.13 lbs (60 g)
   T Version: 0.13 lbs (60 g)
   E Version: 0.34 lbs (155 g)
   S Version: 0.39 lbs (175 g)

Mating Connectors (-T version only)
Input Connector: JST XHP-3
Output Connector: JST XHP-5