ECE60 series

XP Power

60W ENCAPSULATED PCB MOUNT

AC-DC power supplies

The ECE60 series as standard is an encapsulated PCB mount device, it can also be supplied in an encapsulated chassis mount package with screw terminals (-S option), also available with a DIN rail mounting (-SD option).

With approvals to world-wide safety standards, compliance with class B for conducted & radiated emissions and a 20%, 30s peak load capability.

Not requiring any external components, these class II isolation parts benefit system designers with easy integration into a wide range of applications.



Features

- 60W convection cooled
- Regulated single outputs 3.3 to 48VDC
- Input range 85 to 264VAC
- Encapsulated PCB or chassis/DIN rail mount package
- Peak load capability
- 4.0kVAC input to output isolation
- No external components required
- -25°C to +70°C operating temperature
- Full load to +50°C
- 3 year warranty

Applications

Instrumentation

Robotics

IoT

Process control

Dimensions

ECE60/UT-P

91.4 x 38.1 x 28.0mm (3.60" x 1.50" x 1.10")

ECE60-S

113.0 x 40.0 x 28.5mm (4.45" x 1.57" x 1.12")

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number[2,3]	Output voltage	Output current		Efficiency[4]	Output power
		Nominal	Peak[1]		
ECE60US03	3.3VDC	10.00A	13.00A	79%	33W
ECE60US05	5.0VDC	10.00A	13.00A	83%	50W
ECE60US09	9.0VDC	6.67A	8.67A	87%	60W
ECE60US12	12.0VDC	5.00A	6.50A	87%	60W
ECE60US15	15.0VDC	4.00A	5.20A	88%	60W
ECE60US24	24.0VDC	2.50A	3.25A	89%	60W
ECE60US36	36.0VDC	1.67A	2.17A	88%	60W
ECE60US48	48.0VDC	1.25A	1.63A	86%	60W

Notes:

1. Peak load lasting <30s with a maximum duty cycle of 10%, average output power not to exceed nominal power.
2. Add suffix -S to model number to denote chassis mount with screw terminal type, e.g. ECE60US12-S.
3. A screw terminal version (-S) is available with DIN Clip attached. Add suffix 'D', e.g. ECE60US24-SD. DIN Rail mounting clip is available as a separate item, order code ECE60 DIN CLIP.
4. Average of efficiencies measured at 25%, 50%, 75% & 100% load with 230VAC input.

ECE60 series

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	85		264	VAC	Derate load from 100% at 90 VAC to 90% at 85 VAC
	120		370	VDC	
Input frequency	47		63	Hz	
Power factor					EN61000-3-2 class A compliant
Input current		0.6		A rms	At 230 VAC
No load input power			0.3	W	12-36VAC versions
			0.5		3.3-9VAC & 48VAC versions
Inrush current		25/50		A	115/230 VAC cold start at 25°C
Earth leakage current					Class II construction no earth
Input protection	Internal T2A/250 VAC fuse				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		48	VDC	See models and ratings table
Initial set accuracy			±1	%	
Minimum load	No minimum load required				
Start Up Delay			2	s	
Start Up Rise Time			30	ms	
Hold up time	16			ms	At full load and 115VAC
Line regulation			±0.5	%	
Load regulation			±2	%	ECE60US03/05-S
			±1		All other models
Transient response			4	%	Recovery within 1% in less than 500 µs for a 25% load change
Ripple & noise			60	mV pk-pk	3.3-5VAC versions, 20 MHz bandwidth
			75		3.3-5VAC '-S' versions, 20MHz bandwidth, 0.1µF capacitor at output terminals
			1	% pk-pk	20MHz bandwidth all other models
Overvoltage protection	195		216	% Vnom	ECE60US03 models
	115		140		
Overload protection	110		180	%	All other models
Short circuit protection	Trip & restart (hiccup mode)				
Temperature coefficient			0.05	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	79	87	89	%	See models and ratings table
Isolation: input to output	3000			VAC	Input to output
Switching frequency		100		(kHz	
Power density			0.61 (10.1)	W/cm^3 (W/in^3)	
Mean time between failure		>300		khrs	MIL-HDBK-217F, +25°C GB
Weight		191 (0.42)		g (lbs)	ECE60
		200 (0.44)			ECE60-S

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+70	°C	Some specification parameters may not met below -25 °C. Derate linearly from 100% load at +50 °C to 50% load at 70 °C.
Storage temperature	-40		+85	°C	
Cooling	Convection-cooled				
Humidity			95	%RH	Non-condensing
Operating altitude			5000	m	
Vibration	2g, 10 Hz to 500 Hz, 10 mins/cycle, 60 mins each cycle				

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class B	
Radiated	EN55032	Class B	
Harmonic current	EN61000-3-2	Class A	
Voltage flicker	EN61000-3-3		

Emissions - Immunity

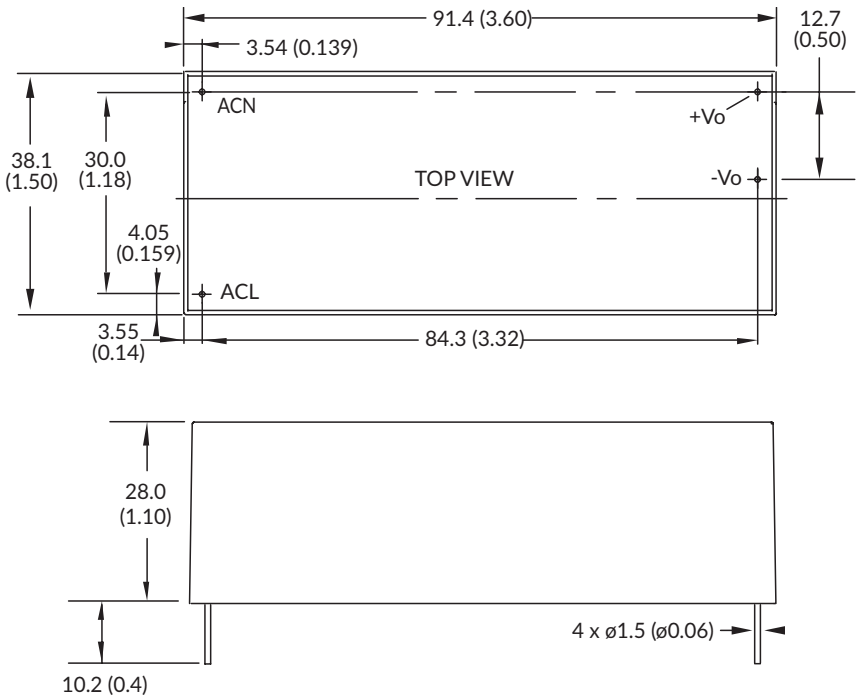
Phenomenon	Standard	Test Level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	3	A	
Radiated immunity	EN61000-4-3	10 V/m, 80% mod	A	
EFT/burst	EN61000-4-4	3	A	
Surge	EN61000-4-5	Installation class 3	A	
Conducted	EN61000-4-6	3	A	
Dips and interruptions	EN61000-4-11	100% for 10ms	A	DIP
		30% for 500ms	A	DIP
		100% for 5000ms	B	INT

Safety approvals

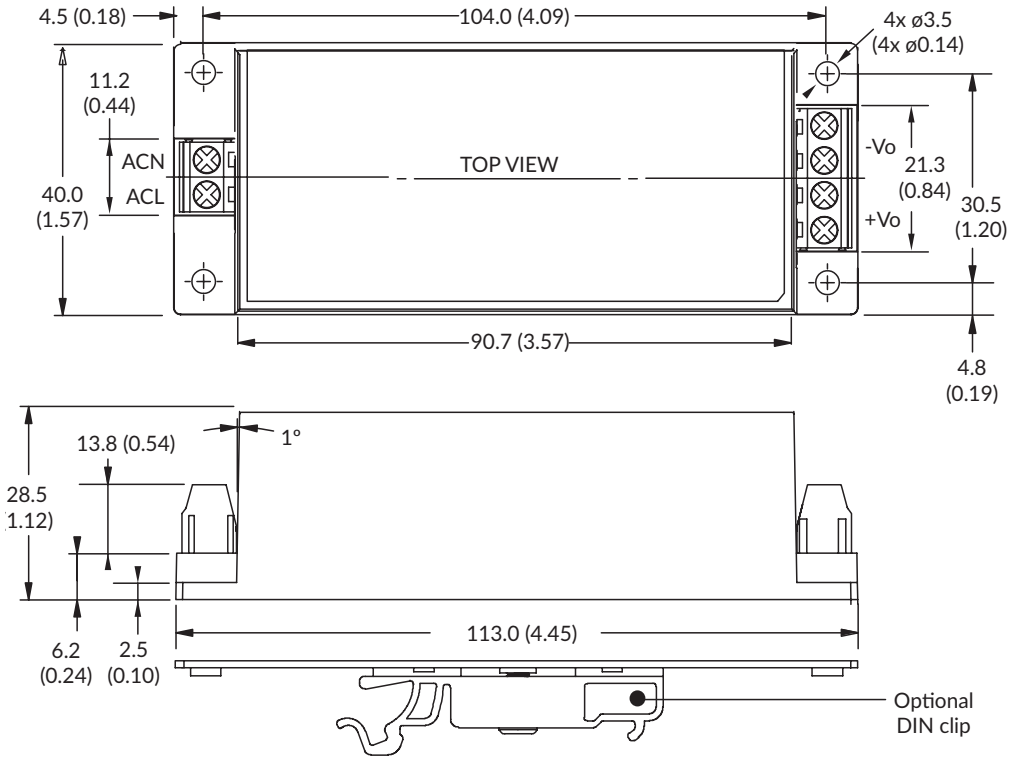
Certification	Standard	Notes & Ccnditions
CB	IEC60950-1:2005 Ed 2 / IEC62368-1:2014	
UL	UL62368-1 & CAN/CSA C22.2 No. 62368- 1-14	
EN	EN62368-1:2014/A11:2017	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Mechanical details

Encapsulated (-E)



Screw terminal (-S)



Notes:

1. All dimensions in mm (inches).
2. Weight: ECE60: 191g (0.42lbs) ECE60-S: 200g (0.44lbs)
3. Tolerances: x.xx (x.x) = ±0.5 (±0.02). x.xxx (x.xx) = ±0.25 (±0.01)