

# 979\$)!%\$ SERIES

AC/DC Dck Yf`Gi dd`Yg.)`r%\$ Watts



GREEN•POWER

## Specification

### Input

Input Voltage	• 85-264 VAC (120-370 VDC) derate load from 100% at 90 VAC to 90% at 85 VAC
Input Frequency	• 47-63 Hz
Input Current	• ECE05: 0.1 A rms at 230 VAC ECE10: 0.2 A rms at 230 VAC
Inrush Current	• 20 A at 115 VAC, 40 A at 230 VAC, cold start at 25 °C
Power Factor	• EN61000-3-2 Class A
Earth Leakage Current	• Class II construction no earth
No Load Input Power	• <0.3 W
Input Protection	• Internal T1 A/250 VAC fuse

### Output

Output Voltage	• See tables
Initial Set Accuracy	• ±1%
Minimum Load	• No minimum load required
Start Up Delay	• 2 s max
Start Up Rise Time	• 16 ms max
Hold Up Time	• 8 ms/40 ms typical at full load and 115/230 VAC
Line Regulation	• ±0.5% max
Load Regulation	• ±1% max
Transient Response	• 4% max deviation, recovery to within 1% in 500 μs for a 25% load change
Ripple & Noise	• 3.3-5 V versions: 60 mV pk-pk, all other models 1% pk-pk max 20 MHz bandwidth
Overvoltage Protection	• 115-140% Vnom, auto recovery
Overload Protection	• 135-180%
Short Circuit Protection	• Trip and restart (hiccup mode)
Temperature Coefficient	• 0.05%/°C

## Features

- Ultra Compact Size
- Single Outputs from 3.3 to 48 V
- Encapsulated PCB Mount
- <0.3 W No Load Input Power
- Peak Load Capability
- No External Components Required
- 3 Year Warranty

## General

Efficiency	• See tables
Isolation	• 4000 VAC Input to Output
Switching Frequency	• 130 kHz typical
Power Density	• ECE05: 8.3 W/In <sup>3</sup> ECE10: 11.1 W/In <sup>3</sup>
MTBF	• >450 kHrs to MIL-HDBK-217F at 25 °C, GB

## Environmental

Operating Temperature	• -25 °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	• 3048 m, 10,000 ft
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, 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	• EN60950-1, UL60950-1, CSA22.2 No. 234 per cUL

Output Power	Output Voltage	Output Current		Efficiency <sup>(3)</sup>	Model Number <sup>(2)</sup>
		Nominal	Peak <sup>(1)</sup>		
5.0 W	3.3 VDC	1.51 A	1.96 A	73%	ECE05US03†^
5.0 W	5.0 VDC	1.00 A	1.30 A	77%	ECE05US05†^
5.0 W	9.0 VDC	0.55 A	0.71 A	83%	ECE05US09†^
5.0 W	12.0 VDC	0.41 A	0.53 A	82%	ECE05US12†^
5.0 W	15.0 VDC	0.33 A	0.43 A	83%	ECE05US15†^
5.0 W	24.0 VDC	0.21 A	0.27 A	82%	ECE05US24†^
5.0 W	48.0 VDC	0.10 A	0.13 A	86%	ECE05US48†^
10.0 W	3.3 VDC	2.60 A	3.38 A	73%	ECE10US03†^
10.0 W	5.0 VDC	2.00 A	2.60 A	77%	ECE10US05†^
10.0 W	9.0 VDC	1.11 A	1.44 A	80%	ECE10US09†^
10.0 W	12.0 VDC	0.83 A	1.08 A	84%	ECE10US12†^
10.0 W	15.0 VDC	0.66 A	0.86 A	84%	ECE10US15†^
10.0 W	24.0 VDC	0.41 A	0.53 A	85%	ECE10US24†^
10.0 W	48.0 VDC	0.21 A	0.27 A	86%	ECE10US48†^

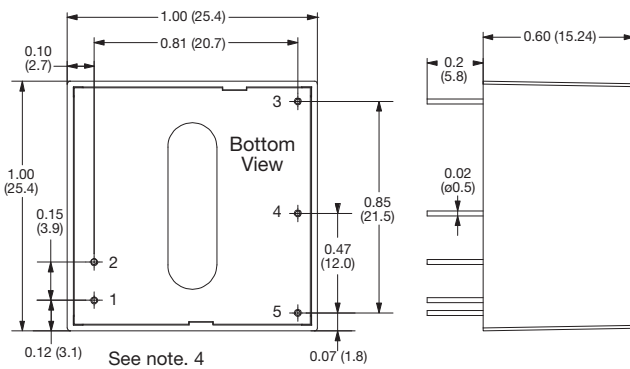
### Notes

1. Peak load lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal power.
2. Add suffix-P to model number to denote open frame version. Available for OEM quantities.

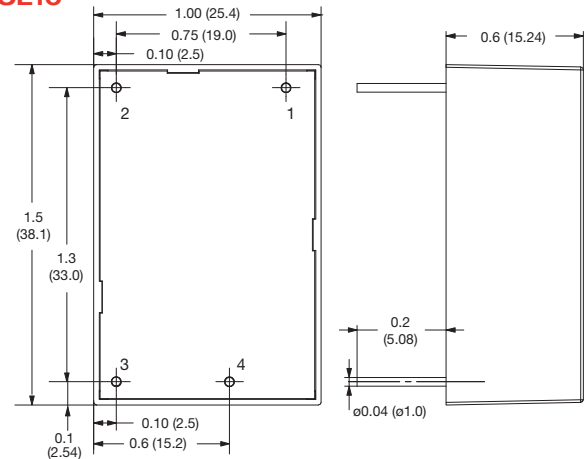
3. Average of efficiencies measured at 25%, 50%, 75% & 100% load with 230 VAC input.

## Mechanical Details

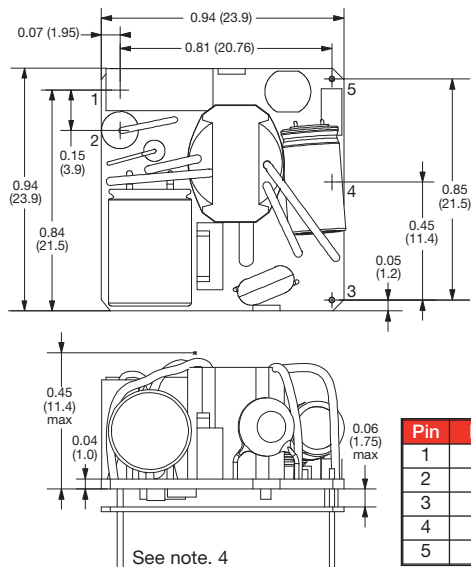
### ECE05



### ECE10

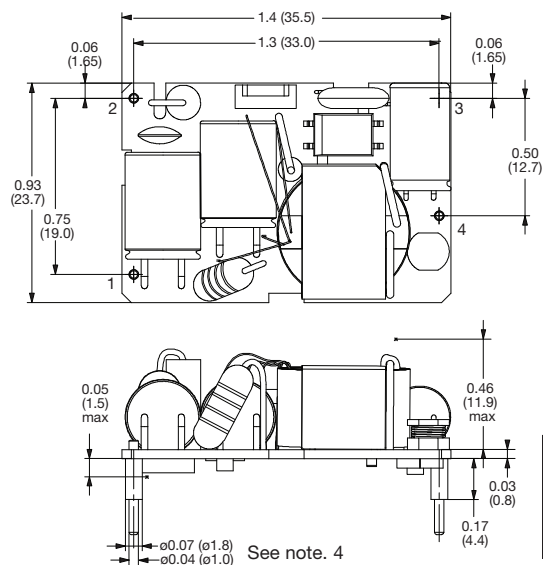


### ECE05-P



Pin	Function
1	ACN
2	ACL
3	NC
4	-Vout
5	+Vout

### ECE10-P



Pin	Function
1	ACN
2	ACL
3	-Vout
4	+Vout

### Notes

1. All dimensions in inches (mm).
2. Weight: ECE05: 0.035 lbs (16 g) ECE10: 0.053 lbs (24 g)  
ECE05-P: 0.022 lbs (10 g) ECE10-P: 0.031 lbs (14 g)

3. Tolerances: x.xx = ± 0.02 (x.x = ± 0.5), x.xxx = ± 0.01 (x.xx = ± 0.25)
4. ECE05: The solder pads for pins 1 & 2 should have a maximum diameter of 1.3mm to ensure that the creepage requirements of IEC60950 are met.