

# ECP20 SERIES

AC/DC Single & Dual Output: 20 Watts



## Features

- Low Profile, 0.73"
- Class II Construction
- PCB Mounting
- Single Outputs from 3.3 to 48 V
- Dual Outputs from 12 to 24 V
- <0.3 W No Load Input Power
- No minimum load required

## Specification

### Input

Input Voltage	• 85-264 VAC (120-370 VDC)
Input Frequency	• 47-63 Hz
Input Current	• 0.5 A max at 115 VAC
Inrush Current	• 40 A max at 230 VAC
Power Factor	• Conforms to EN61000-3-2, Class A
No Load Input Power	• <0.3 W
Input Protection	• T1A / 250 VAC fuse in line

### Output

Output Voltage	• See table
Initial Set Accuracy	• $\pm 1\%$ at 60% load
Minimum Load	• No minimum load required
Start Up Delay	• 1.3 s max
Start Up Rise Time	• 15 ms typical
Hold Up Time	• 10 ms min at full load & 115 VAC
Line Regulation	• $\pm 0.5\%$ max
Load Regulation	• $\pm 1.0\%$ max
Cross Regulation	• Dual output models: 3% on one output when the other is varied from 15%-100% load
Transient Response	• 4% max deviation, recovering to less than 1% within 500 $\mu$ s for 50% step load change at 1 A/ $\mu$ s
Ripple & Noise	• 3.3 & 5 V versions: 50 mV, 1% for others measured with 20 MHz bandwidth
Overvoltage Protection	• 110-140% of nominal output voltage
Overload Protection	• 150-180% of full load current
Short Circuit Protection	• Trip and restart (Hiccup mode)
Peak Load	• See table
Temperature Coefficient	• $\pm 0.02\%/^{\circ}\text{C}$ max

### General

Efficiency	• See tables
Isolation	• 3000 VAC Input to Output
Switching Frequency	• 100 kHz typical
Power Density	• 6.80 W/in <sup>3</sup>
MTBF	• >400 kHrs to MIL-HDBK-217F at 25 $^{\circ}\text{C}$ , GB

### Environmental

Operating Temperature	• -10 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$ , derate from 100% load at 50 $^{\circ}\text{C}$ to 50% load at 70 $^{\circ}\text{C}$
Cooling	• Natural convection
Operating Humidity	• 5% to 90% RH, non condensing
Storage Temperature	• -40 $^{\circ}\text{C}$ to +90 $^{\circ}\text{C}$
Shock	• 30g, half sine, 6 axes
Vibration	• 5 to 50 Hz, accelerated 7.35 m/s <sup>2</sup> each x, y, z axes
Altitude	• 3000 m

### EMC & Safety

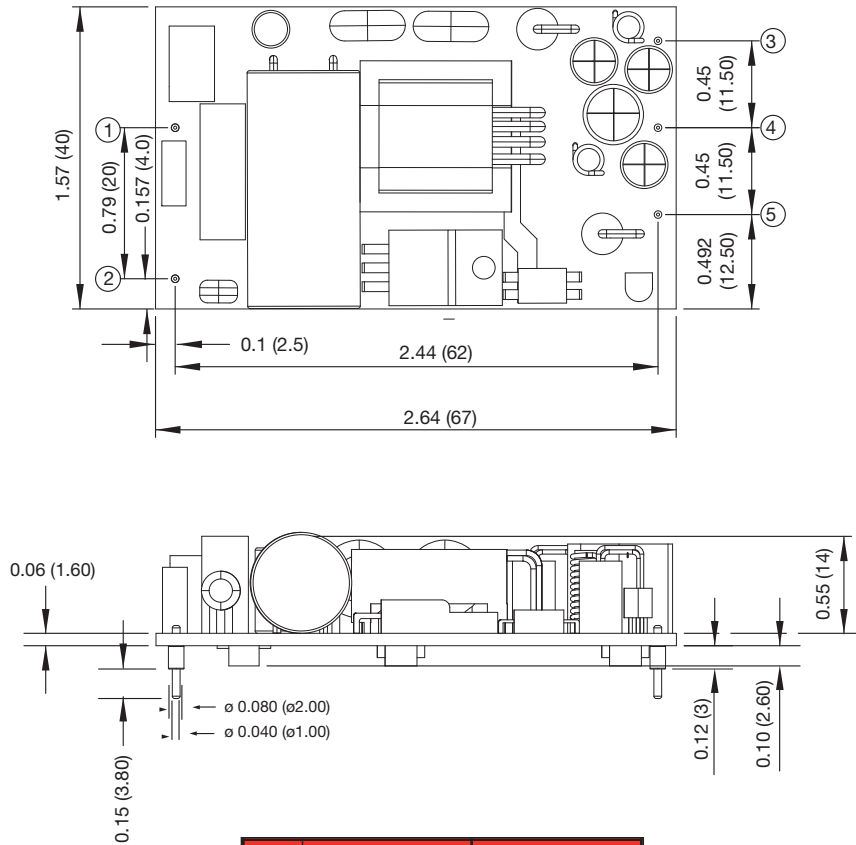
Emissions	• EN55022, level B conducted & radiated
Harmonic Currents	• EN61000-3-2, class A
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, $\pm 4$ kV coupling plate discharge, Perf Criteria A
Radiated Immunity	• EN61000-4-3, 3 V/m, Perf Criteria A
EFT / Burst	• EN61000-4-4, level 2 Perf Criteria A
Surge	• EN61000-4-5, level 2 Perf Criteria A
Conducted Immunity	• EN61000-4-6, 3 V Perf Criteria A
Magnetic Field	• EN61000-4-8, 1A/m, Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B
Safety Approvals	• EN60950-1, cUL60950, IEC60950-1

Output Power	Output 1			Output 2			Efficiency <sup>(2)</sup>	Model Number
	Voltage	Current	Peak <sup>(1)</sup>	Voltage	Current	Peak <sup>(1)</sup>		
13.2 W	3.3 VDC	4.0 A	5.20 A				75%	ECP20US03
20 W	5.0 VDC	4.0 A	5.20 A				80%	ECP20US05
20 W	9.0 VDC	2.23 A	2.90 A				82%	ECP20US09
20 W	12.0 VDC	1.67 A	2.17 A				84%	ECP20US12
20 W	15.0 VDC	1.34 A	1.74 A				84%	ECP20US15
20 W	24.0 VDC	0.84 A	1.09 A				85%	ECP20US24
20 W	30.0 VDC	0.67 A	0.87 A				86%	ECP20US30
20 W	48.0 VDC	0.42 A	0.55 A				87%	ECP20US48
20 W	+12.0 VDC	0.84 A	1.09 A	-12.0 VDC	0.84 A	1.09 A	83%	ECP20UD12
20 W	+15.0 VDC	0.67 A	0.87 A	-15.0 VDC	0.67 A	0.97 A	84%	ECP20UD15
20 W	+24.0 VDC	0.42 A	0.55 A	-24.0 VDC	0.42 A	0.55 A	84%	ECP20UD24

Notes

1. Peak load lasting <30 s with a maximum duty cycle of 10%, average output power not to exceed nominal.
2. Efficiency is measured at 230 VAC Input, 25 °C and full load.

Mechanical Details



Pin	ECP20US	ECP20UD
1	Line	Line
2	Neutral	Neutral
3	Output -VE	Output -VE
4	Not Connected	Output Common
5	Output +VE	Output +VE

Notes

1. All measurements are in inches (mm).
2. Weight: 0.105 lbs (45 g)
3. Tolerance: ±0.02 (±0.05)