

## 40-100 Watts

## ECM Series

[查询"ECM100US18"供应商](#)

- Compact Size - High Power Density
- Industrial & Medical Approvals
- Low Leakage Current
- Level B Conducted Emissions
- EN61000-3-2, -3 Compliant
- Convection-cooled
- Class II Approved 40-60 W Models

## Specification

## Input

|                       |                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------|
| Input Voltage         | • 90-264 VAC (120-370 VDC)                                                                |
| Input Frequency       | • 47-63 Hz; 440 Hz                                                                        |
| Input Current         | • 40 W: 0.4 A max at 230 VAC<br>60 W: 0.6 A max at 230 VAC<br>100 W: 0.9 A max at 230 VAC |
| Inrush Current        | • 40 A max at 230 VAC                                                                     |
| Earth Leakage Current | • <125 $\mu$ A at 115 VAC/60 Hz<br><210 $\mu$ A at 230 VAC/50 Hz                          |
| Input Protection      | • Internal 3.15 A fuse in line and neutral                                                |

## Output

|                          |                                                                                                                                                   |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Voltage           | • See tables                                                                                                                                      |
| Output Voltage Trim      | • $\pm 5\%$ on 3.3 V & 5 V versions, $\pm 10\%$ on other single output models and V1 of multi-output models. See note 1 for ECM40/60 models       |
| Initial Set Accuracy     | • $\pm 1.0\%$ V1, $\pm 5\%$ V2, V3 & V4                                                                                                           |
| Minimum Load             | • See tables                                                                                                                                      |
| Start Up Delay           | • 2 s max                                                                                                                                         |
| Start Up Rise Time       | • 50 ms                                                                                                                                           |
| Hold Up Time             | • 16/75 ms min at 115/230 VAC                                                                                                                     |
| Line Regulation          | • $\pm 0.5\%$                                                                                                                                     |
| Load Regulation          | • $\pm 1\%$ single output models;<br>$\pm 3\%$ V1, $\pm 5\%$ V2 & V3 ECM40/60 multi-output models.<br>$\pm 1\%$ V1 & V2, $\pm 5\%$ V3 & V4 ECM100 |
| Cross Regulation         | • 2% on ECM40/60 only                                                                                                                             |
| Over/Undershoot          | • None at turn on/off                                                                                                                             |
| Transient Response       | • 4% max. deviation, recovery to within 1% in 500 $\mu$ s for a 25% load change                                                                   |
| Ripple & Noise           | • 1% pk-pk, 20 MHz bandwidth                                                                                                                      |
| Overvoltage Protection   | • 115-135% Vnom, recycle input to reset                                                                                                           |
| Overload Protection      | • 110-150% on primary power limit, auto recovery                                                                                                  |
| Short Circuit Protection | • Trip and restart (Hiccup mode)                                                                                                                  |
| Temperature Coefficient  | • 0.05%/°C                                                                                                                                        |

## General

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Efficiency          | • 80-85% depending on model                                                        |
| Isolation           | • 4000 VAC Input to Output<br>1500 VAC Input to Ground<br>500 VAC Output to Ground |
| Switching Frequency | • 70 kHz typical                                                                   |
| Power Density       | • 60 W: 6.25 W/In <sup>3</sup><br>100 W: 7.40 W/In <sup>3</sup>                    |
| MTBF                | • 250 kHrs per MIL-HDBK-217F                                                       |

## Environmental

|                       |                                                                                |
|-----------------------|--------------------------------------------------------------------------------|
| Operating Temperature | • 0 °C to +70 °C. Refer to derating curves for specific operating limitations. |
| Cooling               | • Convection & fan-cooled ratings (see derating curves)                        |
| Operating Humidity    | • 95% RH, non-condensing                                                       |
| Storage Temperature   | • -20 °C to +85 °C                                                             |
| Operating Altitude    | • 3000 m                                                                       |
| Shock                 | • 30 g pk, half sine, 6 axes                                                   |
| Vibration             | • 2 g rms, 5 Hz to 500 kHz, 3 axes                                             |

## EMC &amp; Safety

|                      |                                                                                      |
|----------------------|--------------------------------------------------------------------------------------|
| Emissions            | • EN60601-1-2, EN61204-3, FCC 20780, EN55022 & EN55011, level B conducted            |
| Harmonic Currents    | • EN61000-3-2                                                                        |
| Voltage Flicker      | • EN61000-3-3                                                                        |
| ESD Immunity         | • EN61000-4-2, level 2 Perf Criteria A                                               |
| Radiated Immunity    | • EN61000-4-3, 10 V/m Perf Criteria A                                                |
| EFT/Burst            | • EN61000-4-4, level 3 Perf Criteria A                                               |
| Surge                | • EN61000-4-5, level 3 Perf Criteria A                                               |
| Conducted Immunity   | • EN61000-4-6, 10 V 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, UL60950, CSA 22.2 601.1, EN60601-1, UL60601-1, CCC pending, contact sales |

## Models and Ratings

ECM40 **XP**

| Power | Voltage | Current Min/Max <sup>(1)</sup> | Output 2 |                 | Output 3 |                 | Model Number <sup>(2)</sup> |
|-------|---------|--------------------------------|----------|-----------------|----------|-----------------|-----------------------------|
|       |         |                                | Voltage  | Current Min/Max | Voltage  | Current Min/Max |                             |
| 40 W  | +5.0 V  | 0.0 A/8.0 A                    |          |                 |          |                 | ECM40US05†^                 |
|       | +7.0 V  | 0.0 A/5.7 A                    |          |                 |          |                 | ECM40US07                   |
|       | +9.0 V  | 0.0 A/4.4 A                    |          |                 |          |                 | ECM40US09^                  |
|       | +12.0 V | 0.0 A/3.5 A                    |          |                 |          |                 | ECM40US12†^                 |
|       | +15.0 V | 0.0 A/2.7 A                    |          |                 |          |                 | ECM40US15†^                 |
|       | +18.0 V | 0.0 A/2.2 A                    |          |                 |          |                 | ECM40US18                   |
|       | +24.0 V | 0.0 A/1.7 A                    |          |                 |          |                 | ECM40US24†^                 |
|       | +33.0 V | 0.0 A/1.2 A                    |          |                 |          |                 | ECM40US33                   |
|       | +48.0 V | 0.0 A/0.9 A                    |          |                 |          |                 | ECM40US48†^                 |
|       | +5.0 V  | 0.5 A/6.0 A                    | +12.0 V  | 0.1 A/2.0 A     |          |                 | ECM40UD21                   |
|       | +5.0 V  | 0.5 A/6.0 A                    | +15.0 V  | 0.1 A/1.5 A     |          |                 | ECM40UD22                   |
|       | +5.0 V  | 0.5 A/6.0 A                    | +12.0 V  | 0.1 A/2.0 A     | -12.0 V  | 0.0 A/0.5 A     | ECM40UT31†^                 |
|       | +5.0 V  | 0.5 A/6.0 A                    | +24.0 V  | 0.1 A/1.0 A     | -12.0 V  | 0.0 A/0.5 A     | ECM40UT32†^                 |
|       | +5.0 V  | 0.5 A/6.0 A                    | +15.0 V  | 0.1 A/1.5 A     | -15.0 V  | 0.0 A/0.5 A     | ECM40UT33†^                 |
|       | +3.3 V  | 0.5 A/6.0 A                    | +5.0 V   | 0.1 A/1.5 A     | +12.0 V  | 0.0 A/0.5 A     | ECM40UT34†^                 |
|       | +5.0 V  | 0.5 A/6.0 A                    | +3.3 V   | 0.1 A/1.5 A     | +12.0 V  | 0.0 A/0.5 A     | ECM40UT35†^                 |

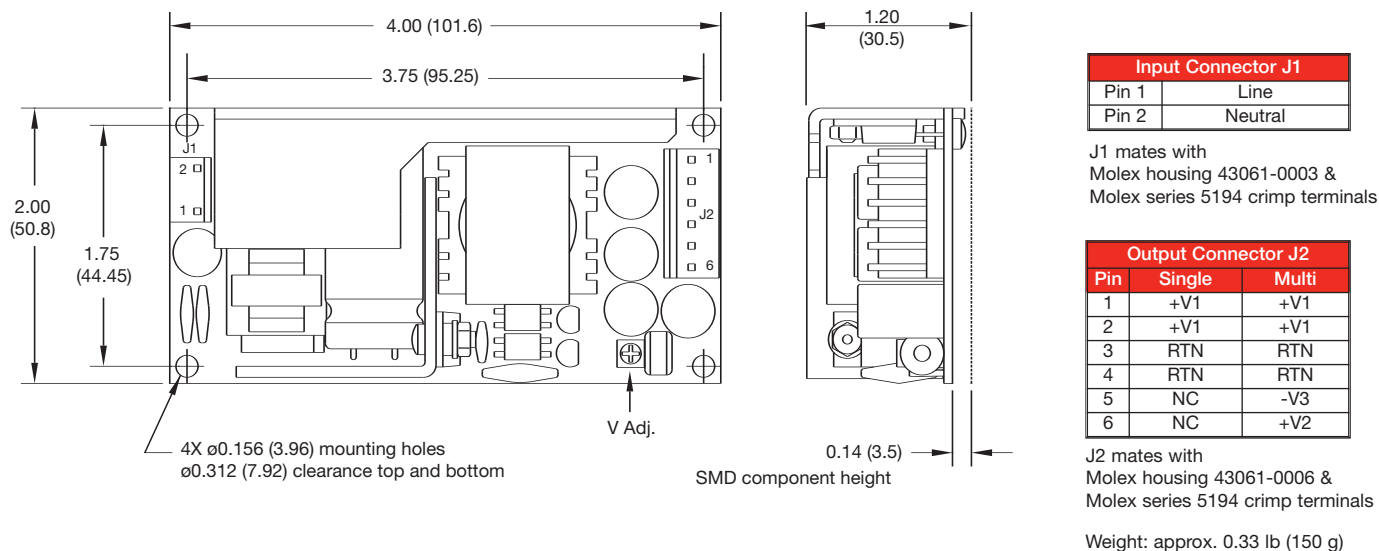
## Notes

- V2 will track a change in V1 by the same percentage change in voltage as V1 is trimmed.
- To receive unit with cover fitted, add suffix '-C' to model number. For Class I operation only.
- A 120% peak load can be taken for up to 100 ms with a 25% duty cycle. Average load not to exceed 40 W.

† Available from Farnell. See pages 204-206.

^ Available from Newark. See pages 207-208.

## Mechanical Details

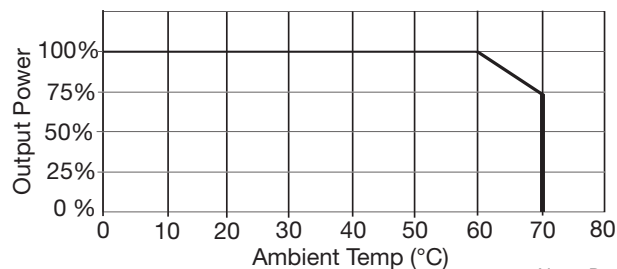


## Notes

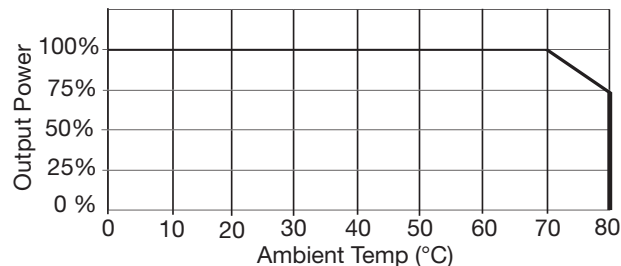
- All dimensions in inches (mm). Tolerance .xx =  $\pm 0.02$  (0.50); .xxx =  $\pm 0.01$  (0.25)
- Cable harnesses with 300 mm wire available.  
For single output models, order part number ECM40/60S LOOM†.  
For multi-output models, order part number ECM40/60DT LOOM†.
- Mating connector kit available. Order part number ECM40/60 CONKIT†.
- Covers available. Order part number ECM40/60 COVER^†. Cover dimensions are 4.49 x 2.52 x 1.52 (114 x 64 x 38.5)

## Derating Curves

All ECM40 models convection-cooled



All ECM40 models with 5 CFM



Consult longform datasheet for installation information regarding optimum thermal ratings in convection-cooled applications.

## Models and Ratings

| Power | Voltage | Current<br>Min/Max <sup>(a)</sup> | Output 2 |                    | Output 3 |                    | Model<br>Number <sup>(a)</sup> |
|-------|---------|-----------------------------------|----------|--------------------|----------|--------------------|--------------------------------|
|       |         |                                   | Voltage  | Current<br>Min/Max | Voltage  | Current<br>Min/Max |                                |
| 60 W  | +5.0 V  | 0.0 A/12.00 A                     |          |                    |          |                    | ECM60US05†^                    |
|       | +7.0 V  | 0.0 A/8.60 A                      |          |                    |          |                    | ECM60US07                      |
|       | +9.0 V  | 0.0 A/6.70 A                      |          |                    |          |                    | ECM60US09^                     |
|       | +12.0 V | 0.0 A/5.00 A                      |          |                    |          |                    | ECM60US12†^                    |
|       | +15.0 V | 0.0 A/4.00 A                      |          |                    |          |                    | ECM60US15†^                    |
|       | +18.0 V | 0.0 A/3.30 A                      |          |                    |          |                    | ECM60US18                      |
|       | +20.0 V | 0.0 A/3.00 A                      |          |                    |          |                    | ECM60US20                      |
|       | +24.0 V | 0.0 A/2.50 A                      |          |                    |          |                    | ECM60US24†^                    |
|       | +33.0 V | 0.0 A/1.80 A                      |          |                    |          |                    | ECM60US33                      |
|       | +48.0 V | 0.0 A/1.25 A                      |          |                    |          |                    | ECM60US48†^                    |
|       | +5.0 V  | 0.5 A/8.00 A                      | +12.0 V  | 0.1 A/3.0 A        |          |                    | ECM60UD21                      |
|       | +5.0 V  | 0.5 A/8.00 A                      | +15.0 V  | 0.1 A/2.5 A        |          |                    | ECM60UD22                      |
|       | +5.0 V  | 0.5 A/8.00 A                      | +12.0 V  | 0.1 A/3.0 A        | -12.0 V  | 0.0 A/0.5 A        | ECM60UT31†^                    |
|       | +5.0 V  | 0.5 A/8.00 A                      | +24.0 V  | 0.1 A/1.5 A        | -12.0 V  | 0.0 A/0.5 A        | ECM60UT32†                     |
|       | +5.0 V  | 0.5 A/8.00 A                      | +15.0 V  | 0.1 A/2.5 A        | -15.0 V  | 0.0 A/0.5 A        | ECM60UT33†^                    |
|       | +3.3 V  | 0.5 A/8.00 A                      | +5.0 V   | 0.1 A/1.5 A        | +12.0 V  | 0.0 A/0.5 A        | ECM60UT34†^                    |
|       | +5.0 V  | 0.5 A/8.00 A                      | +3.3 V   | 0.1 A/1.5 A        | +12.0 V  | 0.0 A/0.5 A        | ECM60UT35†                     |

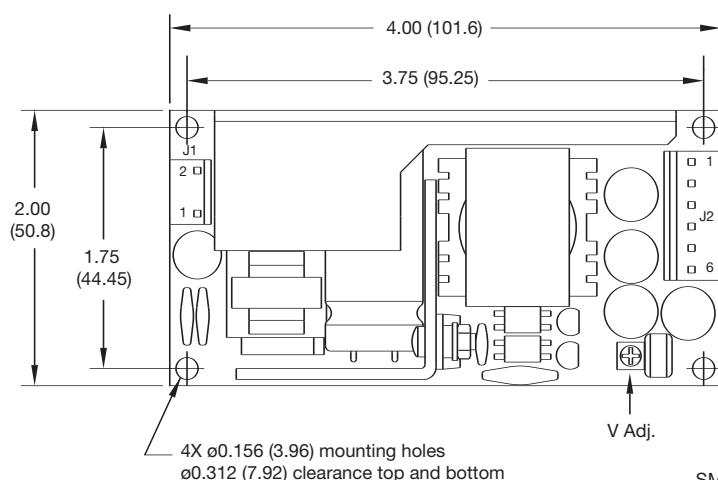
## Notes

- V2 will track a change in V1 by the same percentage change in voltage as V1 is trimmed.
- To receive unit with cover fitted, add suffix '-C' to model number. For Class I operation only.
- A 120% peak load can be taken for up to 100 ms with a 25% duty cycle. Average load not to exceed 60 W.
- 48 V DC input version of 12 V single output model available in OEM quantities (DCM6048S12). Contact sales for details.

† Available from Farnell. See pages 204-206.

^ Available from Newark. See pages 207-208.

## Mechanical Details



## Input Connector J1

| Pin   | Line    |
|-------|---------|
| Pin 1 | Line    |
| Pin 2 | Neutral |

J1 mates with Molex housing 43061-0003 & Molex series 5194 crimp terminals. Optional ground (0.25 faston) tab available, contact sales.

## Output Connector J2

| Pin | Single | Multi |
|-----|--------|-------|
| 1   | +V1    | +V1   |
| 2   | +V1    | +V1   |
| 3   | RTN    | RTN   |
| 4   | RTN    | RTN   |
| 5   | NC     | -V3   |
| 6   | NC     | +V2   |

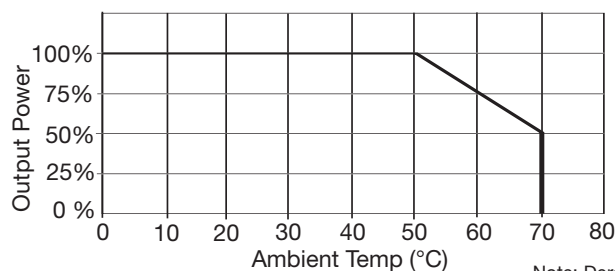
J2 mates with Molex housing 43061-0006 & Molex series 5194 crimp terminals. Weight: approx. 0.33 lb (150 g)

## Notes

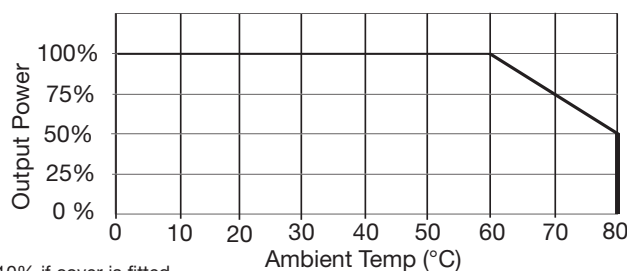
- All dimensions in inches (mm). Tolerance .xx = ±0.02 (0.50); .xxx = ±0.01 (0.25)
- Cable harnesses with 300 mm wire available.  
For single output models, order part number ECM40/60S LOOM†.  
For multi-output models, order part number ECM40/60DT LOOM†.
- Mating connector kit available. Order part number ECM40/60 CONKIT†.
- Covers available. Order part number ECM40/60 COVER†. Cover dimensions are 4.49 x 2.52 x 1.52 (114 x 64 x 38.5).
- Selected single output models available in a 3" x 5" footprint for OEM quantities. Contact sales for details.

## Derating Curves

All ECM60 models convection-cooled



All ECM60 models with 5 CFM



Note: Derate by 10% if cover is fitted

Consult longform datasheet for installation information regarding optimum thermal ratings in convection-cooled applications.

## Models and Ratings

ECM100 **XP**

Single Output ECM100US18"供应商

| Output Voltage | Output Current |         |                    | Model Number <sup>1,3</sup> |
|----------------|----------------|---------|--------------------|-----------------------------|
|                | Minimum        | Maximum | with 5 CFM Cooling |                             |
| +3.3 V         | 0.0 A          | 15.0 A  | 20.0 A             | ECM100US03*†^               |
| +5.0 V         | 0.0 A          | 15.0 A  | 20.0 A             | ECM100US05*†^               |
| +7.0 V         | 0.0 A          | 11.4 A  | 14.3 A             | ECM100US07*                 |
| +9.0 V         | 0.0 A          | 8.8 A   | 11.1 A             | ECM100US09*†                |
| +12.0 V        | 0.0 A          | 7.5 A   | 8.3 A              | ECM100US12*†^               |
| +15.0 V        | 0.0 A          | 6.0 A   | 6.6 A              | ECM100US15*†^               |
| +18.0 V        | 0.0 A          | 5.0 A   | 5.5 A              | ECM100US18*                 |
| +24.0 V        | 0.0 A          | 4.1 A   | 4.1 A              | ECM100US24*†^               |
| +33.0 V        | 0.0 A          | 3.0 A   | 3.0 A              | ECM100US33*                 |
| +48.0 V        | 0.0 A          | 2.1 A   | 2.1 A              | ECM100US48*†^               |

## Multi Output Models

| Output Power      |                  | Output 1 |                 | Output 2 |                 | Output 3 |                 | Output 4 |                 | Model Number <sup>1,3</sup> |
|-------------------|------------------|----------|-----------------|----------|-----------------|----------|-----------------|----------|-----------------|-----------------------------|
| Convection Cooled | Forced Air 5 CFM | Voltage  | Current Min/Max | Voltage  | Current Min/Max | Voltage  | Current Min/Max | Voltage  | Current Min/Max |                             |
| 80 W              | 100 W            | +5.0 V   | 0.0 A/12.0 A    | +12.0 V  | 0.0 A/3.0 A     |          |                 |          |                 | ECM100UD21*                 |
| 80 W              | 100 W            | +5.0 V   | 0.0 A/12.0 A    | +15.0 V  | 0.0 A/3.0 A     |          |                 |          |                 | ECM100UD22*                 |
| 75 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +12.0 V  | 0.0 A/3.0 A     | -12.0 V  | 0.0 A/0.8 A     |          |                 | ECM100UT31*†^               |
| 80 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +24.0 V  | 0.0 A/2.0 A     | -12.0 V  | 0.0 A/0.8 A     |          |                 | ECM100UT32*                 |
| 80 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +15.0 V  | 0.0 A/3.0 A     | -15.0 V  | 0.0 A/0.8 A     |          |                 | ECM100UT33*†^               |
| 65 W              | 100 W            | +3.3 V   | 0.5 A/10.0 A    | +5.0 V   | 0.0 A/5.0 A     | +12.0 V  | 0.0 A/0.8 A     |          |                 | ECM100UT34*^                |
| 70 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +3.3 V   | 0.0 A/5.0 A     | +12.0 V  | 0.0 A/0.8 A     |          |                 | ECM100UT35*                 |
| 80 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +12.0 V  | 0.0 A/3.0 A     | -5.0 V   | 0.0 A/0.8 A     |          |                 | ECM100UT36*                 |
| 70 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +15.0 V  | 0.0 A/3.0 A     | -5.0 V   | 0.0 A/0.8 A     |          |                 | ECM100UT37*                 |
| 65 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +3.3 V   | 0.1 A/5.0 A     | +12.0 V  | 0.0 A/0.8 A     | -12.0 V  | 0.0 A/0.5 A     | ECM100UQ41*†                |
| 60 W              | 100 W            | +3.3 V   | 0.5 A/10.0 A    | +5.0 V   | 0.1 A/5.0 A     | +12.0 V  | 0.0 A/0.8 A     | -12.0 V  | 0.0 A/0.5 A     | ECM100UQ42*†^               |
| 80 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +24.0 V  | 0.1 A/2.0 A     | +12.0 V  | 0.0 A/0.8 A     | -12.0 V  | 0.0 A/0.5 A     | ECM100UQ43*†^               |
| 80 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +24.0 V  | 0.1 A/2.0 A     | +15.0 V  | 0.0 A/0.8 A     | -15.0 V  | 0.0 A/0.5 A     | ECM100UQ44*†                |
| 80 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +12.0 V  | 0.1 A/3.0 A     | -12.0 V  | 0.0 A/0.8 A     | -5.0 V   | 0.0 A/0.5 A     | ECM100UQ45*^                |
| 80 W              | 100 W            | +5.0 V   | 0.5 A/10.0 A    | +15.0 V  | 0.1 A/3.0 A     | -15.0 V  | 0.0 A/0.8 A     | -5.0 V   | 0.0 A/0.5 A     | ECM100UQ46*                 |

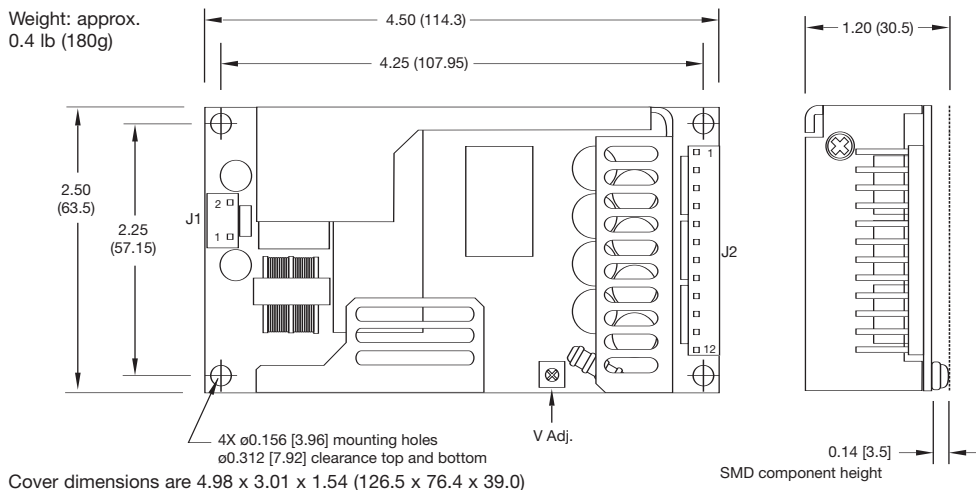
## Notes

1. To receive unit with cover fitted, add suffix '-C' to model number.
2. Output 3 available with opposite polarity for OEM quantities.
3. "\*" denotes ECM100 models are class I only, contact sales for class II.

4. 48 VDC input version of 12 V single output model available in OEM quantities (DCM10048S12).

† Available from Farnell. ^ Available from Newark. See pages 204-208.

## Mechanical Details

Weight: approx.  
0.4 lb (180g)

## Input Connector J1

| Pin   | Line    |
|-------|---------|
| Pin 1 | Line    |
| Pin 2 | Neutral |

J1 mates with Molex housing 43061-0003 and Molex series 5194 crimp terminals. Optional ground (0.25 faston) tab available.

## Output Connector J2

| Pin | Single   | Multi |
|-----|----------|-------|
| 1   | +V1      | +V1   |
| 2   | +V1      | +V1   |
| 3   | +V1      | +V1   |
| 4   | +V1      | +V1   |
| 5   | V1 RTN   | RTN   |
| 6   | V1 RTN   | RTN   |
| 7   | V1 RTN   | RTN   |
| 8   | V1 RTN   | RTN   |
| 9   | NOT USED | +V2   |
| 10  | NOT USED | +V2   |
| 11  | NOT USED | ±V3   |
| 12  | NOT USED | -V4   |

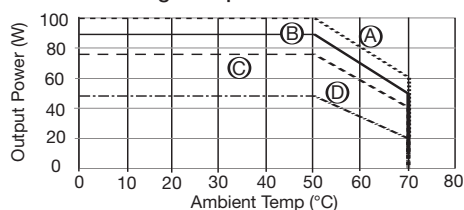
J2 mates with Molex housing 43061-0012 and Molex series 5194 crimp terminals.

## Notes

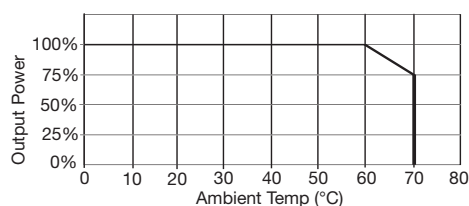
1. All dimensions in inches (mm). Tolerance .xx = ±0.02 (0.50); .xxx = ±0.01 (0.25)
2. Cable harness with 300 mm wire available. For single output models, order part number ECM100S LOOM†. For multi-outputs, p/n ECM100DT LOOM†.
3. Mating connector kit available for single output models. Order part number ECM100S CONKIT†.
4. Covers available. Order part number ECM100 COVER†^.
5. Available in a 3" x 5" footprint for OEM quantities. Contact sales for details.

## Derating Curves

All ECM100 single output models convection-cooled



All ECM100 models with 5 CFM



Consult longform datasheet for installation information regarding optimum thermal ratings in convection-cooled applications.