

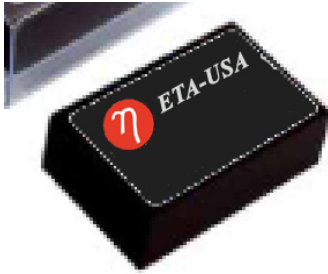


# ETA-USA

HIGH QUALITY SWITCHING POWER SUPPLIES

DC/DC SWITCHING POWER SUPPLY  
DUAL CHANNEL OUTPUT  
1.5 WATTS

## OCH1.5D SERIES



### General Description

### Features

1. Power module for PCB mountable
2. Fully Encapsulated Plastic Case
3. Regulated Output
4. Low ripple and Noise

### Options

### Application

Broad needs

### Input

|                             |                           |
|-----------------------------|---------------------------|
| <b>Input Voltage Range:</b> | DC4.5~5.5V OCH1.5D5-XX    |
|                             | DC10.8~13.2V OCH1.5D12-XX |
|                             | DC21.6~26.4V OCH1.5D24-XX |
|                             | DC43.2~52.8V OCH1.5D48-XX |

**Switching frequency:** 20kHz (typ.)



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| Output Characteristic      | Unit             | Models                         |      |             |     |             |     |
|----------------------------|------------------|--------------------------------|------|-------------|-----|-------------|-----|
|                            |                  | OCH1.5D5-5                     |      | OCH1.5D5-12 |     | OCH1.5D5-15 |     |
| Output Voltage             | V <sub>dc</sub>  | +5                             | -5   | +12         | -12 | +15         | -15 |
| Output Current             | mA               | +150                           | -150 | +60         | -60 | +50         | -50 |
| Ripple                     | mV <sub>pp</sub> | < 0.2% V <sub>out</sub> + 10mV |      |             |     |             |     |
| Noise(max)                 | mV <sub>pp</sub> | < 0.5% V <sub>out</sub> + 30mV |      |             |     |             |     |
| Voltage Accuracy           | V                | ±3%                            |      |             |     |             |     |
| Regulation                 |                  |                                |      |             |     |             |     |
| a. Line Regulation [max]   | mV               | ± 0.3%                         |      |             |     |             |     |
| b. Load Regulation         | mV               | ± 0.5%                         |      |             |     |             |     |
| c. Temperature Coefficient | /°C              | ± 0.02%                        |      |             |     |             |     |

|                   |           |          |           |           |           |
|-------------------|-----------|----------|-----------|-----------|-----------|
| <b>Efficiency</b> | <b>*1</b> | <b>%</b> | <b>57</b> | <b>59</b> | <b>61</b> |
|-------------------|-----------|----------|-----------|-----------|-----------|

| Output Characteristic      | Unit             | Models                         |      |              |     |              |     |
|----------------------------|------------------|--------------------------------|------|--------------|-----|--------------|-----|
|                            |                  | OCH1.5S12-5                    |      | OCH1.5S12-12 |     | OCH1.5S12-15 |     |
| Output Voltage             | V <sub>dc</sub>  | +5                             | -5   | +12          | -12 | +15          | -15 |
| Output Current             | mA               | +150                           | -150 | +60          | -60 | +50          | -50 |
| Ripple                     | mV <sub>pp</sub> | < 0.2% V <sub>out</sub> + 10mV |      |              |     |              |     |
| Noise(max)                 | mV <sub>pp</sub> | < 0.5% V <sub>out</sub> + 30mV |      |              |     |              |     |
| Voltage Accuracy           | V                | ±3%                            |      |              |     |              |     |
| Regulation                 |                  |                                |      |              |     |              |     |
| a. Line Regulation [max]   | mV               | ± 0.3%                         |      |              |     |              |     |
| b. Load Regulation         | mV               | ± 0.5%                         |      |              |     |              |     |
| c. Temperature Coefficient | /°C              | ± 0.02%                        |      |              |     |              |     |

|                   |           |          |           |           |           |
|-------------------|-----------|----------|-----------|-----------|-----------|
| <b>Efficiency</b> | <b>*1</b> | <b>%</b> | <b>60</b> | <b>61</b> | <b>65</b> |
|-------------------|-----------|----------|-----------|-----------|-----------|





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| Output Characteristic      | Unit | Models             |      |              |     |              |     |
|----------------------------|------|--------------------|------|--------------|-----|--------------|-----|
|                            |      | OCH1.5D24-5        |      | OCH1.5D24-12 |     | OCH1.5D24-15 |     |
| Output Voltage             | Vdc  | +5                 | -5   | +12          | -12 | +15          | -15 |
| Output Current             | mA   | +150               | -150 | +60          | -60 | +50          | -50 |
| Ripple                     | mVpp | < 0.2% Vout + 10mV |      |              |     |              |     |
| Noise(max)                 | mVpp | < 0.5% Vout + 30mV |      |              |     |              |     |
| Voltage Accuracy           | V    | ±3%                |      |              |     |              |     |
| <b>Regulation</b>          |      |                    |      |              |     |              |     |
| a. Line Regulation [max]   | mV   | ± 0.3%             |      |              |     |              |     |
| b. Load Regulation         | mV   | ± 0.5%             |      |              |     |              |     |
| c. Temperature Coefficient | /°C  | ± 0.02%            |      |              |     |              |     |

|                   |           |          |           |           |           |
|-------------------|-----------|----------|-----------|-----------|-----------|
| <b>Efficiency</b> | <b>*1</b> | <b>%</b> | <b>54</b> | <b>54</b> | <b>56</b> |
|-------------------|-----------|----------|-----------|-----------|-----------|

| Output Characteristic      | Unit | Models             |      |              |     |              |     |
|----------------------------|------|--------------------|------|--------------|-----|--------------|-----|
|                            |      | OCH1.5D48-5        |      | OCH1.5D48-12 |     | OCH1.5D48-15 |     |
| Output Voltage             | Vdc  | +5                 | -5   | +12          | -12 | +15          | -15 |
| Output Current             | mA   | +150               | -150 | +60          | -60 | +50          | -50 |
| Ripple                     | mVpp | < 0.2% Vout + 10mV |      |              |     |              |     |
| Noise(max)                 | mVpp | < 0.5% Vout + 30mV |      |              |     |              |     |
| Voltage Accuracy           | V    | ±3%                |      |              |     |              |     |
| <b>Regulation</b>          |      |                    |      |              |     |              |     |
| a. Line Regulation [max]   |      | ± 0.3%             |      |              |     |              |     |
| b. Load Regulation         |      | ± 0.5%             |      |              |     |              |     |
| c. Temperature Coefficient | /°C  | ± 0.02%            |      |              |     |              |     |

|                   |           |          |           |           |           |
|-------------------|-----------|----------|-----------|-----------|-----------|
| <b>Efficiency</b> | <b>*1</b> | <b>%</b> | <b>52</b> | <b>54</b> | <b>54</b> |
|-------------------|-----------|----------|-----------|-----------|-----------|

Conditions:

\*1 Rated input and Rated output

\*2 at Output current quick change 25% to 75%

\*3 At 100% load (convection cooling)



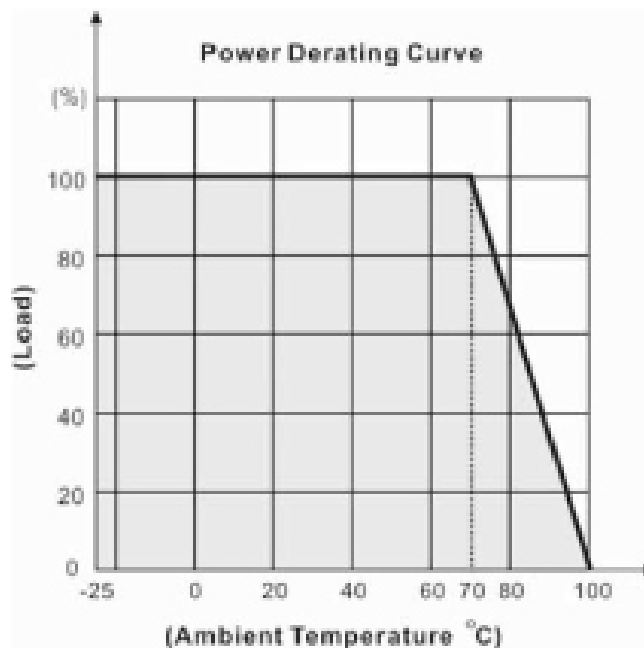


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## HIGH QUALITY SWITCHING POWER SUPPLIES

| Environmental Specification |   |
|-----------------------------|---|
| Operating Temperature*3     | -25 to +70 °C (at full load)  |
| Storage Temperature         | -55 to +105 °C  |
| Storage Humidity            | 95% RH [non-condensing] max   |
| Isolation Resistance        | Primary-Secondary-Frame Ground 100MΩ(minimum) by DC500V insulation tester |
| Cooling                     | Convection  |
| MTBF                        | >1,000,000 hours at 25°C  |
| Function/Protection         |   |
| Short circuit Protection    | Current limit, auto-recovery  |
| Over Power Protection       | Works at over 120% and auto-recovery                                      |
| Mechanical                  |   |
| Dimension [mm]              | 31.8W × 20.3L × 10.2H ±0.5  |
| Weight [g] (typical)        | 13  |

## Derating Curves

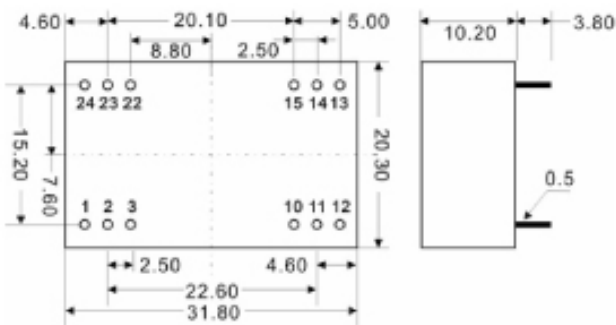




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## HIGH QUALITY SWITCHING POWER SUPPLIES

### Mechanical drawings



| PIN# | Single | Dual   |
|------|--------|--------|
| 1    | +VIN   | +VIN   |
| 2    | NC     | -VOUT  |
| 3    | NO PIN | COMMON |
| 10   | -VOUT  | COMMON |
| 11   | +VOUT  | +VOUT  |
| 12   | -VIN   | -VIN   |
| 13   | -VIN   | -VIN   |
| 14   | +VOUT  | +VOUT  |
| 15   | -VOUT  | COMMON |
| 22   | NO PIN | COMMON |
| 23   | NC     | -VOUT  |
| 24   | +VIN   | +VIN   |

### Block Diagram

