

FEATURES:

- Wide input range 4:1
  - Continuous short-circuit protection,self recover
  - I/O isolation voltage 1.5KV
  - Working temperature: -40℃~+85℃
  - Switching frequency 280KHz
  - Stable performance and high reliability (MTBF≥2X10<sup>5</sup>Hrs)
  - Low standby power consumption
  - Metal case
  - Efficiency up to 90%
- Input under-voltage,output over-voltage,short-circuit and over current protection



Selection Guide

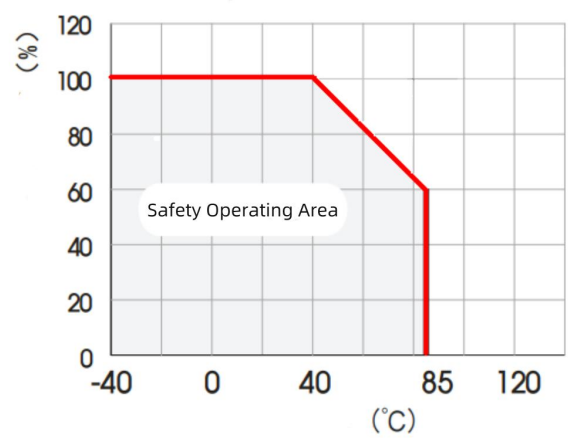
| Part No.        | INPUT             |                | OUTPUT            |                 |                   |                 | CapacitiveLoad(μF) |
|-----------------|-------------------|----------------|-------------------|-----------------|-------------------|-----------------|--------------------|
|                 | Norminal<br>(Vdc) | Range<br>(Vdc) | Voltage<br>(V1dc) | current<br>(mA) | Voltage<br>(V2dc) | current<br>(mA) |                    |
| URB2405LD-40WR3 | 24                | 9-36           | 5                 | 400             |                   | 91              | 2000               |
| URB2412LD-40WR3 |                   |                | 12                | 166             |                   | 92              | 680                |
| URB2415LD-40WR3 |                   |                | 15                | 133             |                   | 93              | 470                |
| URB2424LD-40WR3 |                   |                | 24                | 83              |                   | 92              | 330                |
| URA2412LD-40WR3 |                   |                | +12               | +1660           | -12               | -1660           | 330                |
| URA2415LD-40WR3 |                   |                | +15               | +1330           | -15               | -1330           | 220                |
| URA2424LD-40WR3 |                   |                | +24               | +830            | -24               | -830            | 150                |
| URB4805LD-40WR3 | 48                | 18-75          | 5                 | 400             |                   | 91              | 2000               |
| URB4812LD-40WR3 |                   |                | 12                | 166             |                   | 92              | 680                |
| URB4815LD-40WR3 |                   |                | 15                | 133             |                   | 93              | 470                |
| URB4824LD-40WR3 |                   |                | 24                | 83              |                   | 92              | 330                |
| URA4812LD-40WR3 |                   |                | +12               | +1660           | -12               | -1660           | 330                |
| URA4815LD-40WR3 |                   |                | +15               | +1330           | -15               | -1330           | 220                |
| URA4824LD-40WR3 |                   |                | +24               | +830            | -24               | -830            | 150                |
| URB1D05LD-40WR3 | 110               | 40-160         | 5                 | 400             |                   | 91              | 2000               |
| URB1D12LD-40WR3 |                   |                | 12                | 166             |                   | 92              | 680                |
| URB1D15LD-40WR3 |                   |                | 15                | 133             |                   | 93              | 470                |
| URB1D24LD-40WR3 |                   |                | 24                | 83              |                   | 92              | 330                |
| URA1D12LD-40WR3 |                   |                | +12               | +1660           | -12               | -1660           | 330                |
| URA1D15LD-40WR3 |                   |                | +15               | +1330           | -15               | -1330           | 220                |
| URA1D24LD-40WR3 |                   |                | +24               | +830            | -24               | -830            | 150                |

\*\*customized accepted,pls contact sales for details\*\*

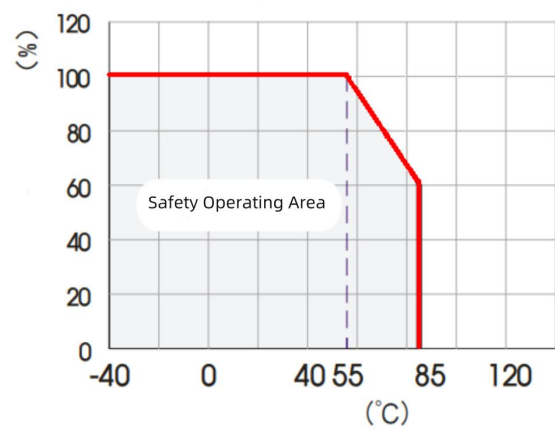
Input Specifications

| Input Voltage | Input Voltage Range<br>(Vdc) | Nom(Vdc) | Max (Vdc) |
|---------------|------------------------------|----------|-----------|
|               | 9-36                         | 24       | 36        |
|               | 18-75                        | 48       | 75        |

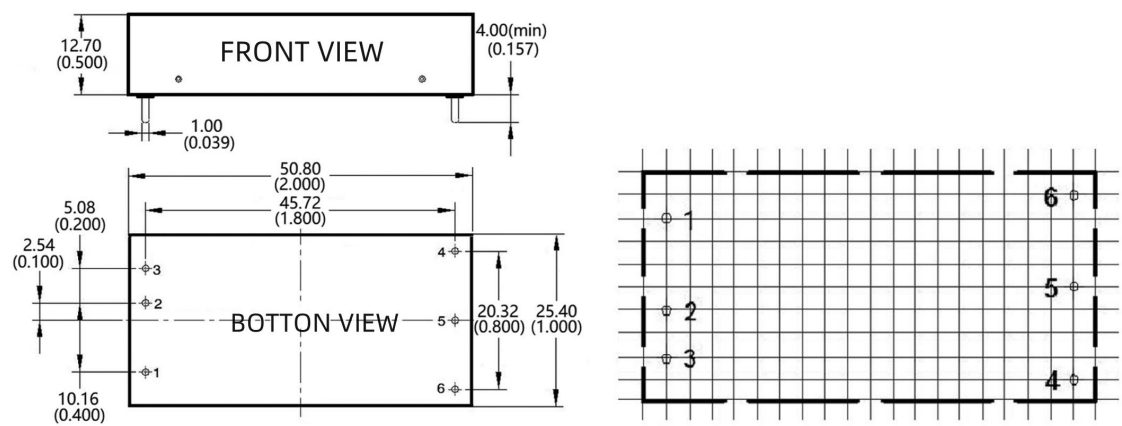
|                                                                                                                                                                             |     |                           |                                 |     |                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------|---------------------------------|-----|-------------------------------------------------------|
|                                                                                                                                                                             |     | 40-160                    |                                 | 110 | 160                                                   |
| Hot Plug                                                                                                                                                                    |     | Unavailable               |                                 |     |                                                       |
| Output Specifications                                                                                                                                                       |     |                           |                                 |     |                                                       |
| Item                                                                                                                                                                        |     | Typ                       | Max                             |     | Test Conditions                                       |
| Voltage Accuracy                                                                                                                                                            | +Vo | ±1%                       | ±2%                             |     | 0-100% load                                           |
|                                                                                                                                                                             | -Vo | ±2%                       | ±3%                             |     |                                                       |
| Line Regulation                                                                                                                                                             | +Vo | ±0.2%                     | ±0.5%                           |     | Input voltage variation from low to high at full load |
|                                                                                                                                                                             | -Vo | ±0.5%                     | ±1%                             |     |                                                       |
| Load Regulation                                                                                                                                                             | +Vo | ±0.5%                     | ±1%                             |     | 5%-100% load                                          |
|                                                                                                                                                                             | -Vo | ±0.5%                     | ±1.5%                           |     |                                                       |
| Ripple&Noise                                                                                                                                                                |     | 60mVp-p                   | 80mVp-p                         |     | 20MHz bandwidth, 5%-100% load                         |
| Transient Recovery Time                                                                                                                                                     |     | 300μs                     | 500μs                           |     | 25% load step change, Nominal input voltage           |
| Over-voltage Protection                                                                                                                                                     |     | -                         | 160%Vo                          |     | 110%Vo(Min)                                           |
| Over-load Protection                                                                                                                                                        |     | -                         | 200%Io                          |     | 110%Io(Min)                                           |
| Short-circuit Protection                                                                                                                                                    |     | Continuous, self-recovery |                                 |     |                                                       |
| Transient Response Deviation                                                                                                                                                |     | 5Vout                     | ≤5%TYP; ≤8%MAX,Instant recovery |     | 25% load step change, nominal input                   |
|                                                                                                                                                                             |     | Other output              | ≤3%TYP; ≤5%MAX,Instant recovery |     |                                                       |
| Start-up Time                                                                                                                                                               |     |                           | 50ms                            |     |                                                       |
| Output voltage adjustment range                                                                                                                                             |     | ≥±10% Vo                  |                                 |     |                                                       |
| Output the start-up overshoot voltage                                                                                                                                       |     |                           | ≤2%Vo                           |     |                                                       |
| Gernerall Specifications                                                                                                                                                    |     |                           |                                 |     |                                                       |
| Switching Frequency                                                                                                                                                         |     | 280KHz(Typ)               |                                 |     |                                                       |
| MTBF                                                                                                                                                                        |     | 2X10 <sup>5</sup> Hrs     |                                 |     | MIL-HDBK-217F@25℃                                     |
| Isolation (Input-Output)                                                                                                                                                    |     | 1.5KVDC                   |                                 |     |                                                       |
| Operating Temperature                                                                                                                                                       |     | -40～+85℃                  |                                 |     |                                                       |
| Storage Temperature                                                                                                                                                         |     | -55～+125℃                 |                                 |     |                                                       |
| Storage Humidity                                                                                                                                                            |     | 5-95%RH                   |                                 |     | Non-condensing                                        |
| Cooling Method                                                                                                                                                              |     | Free air convection       |                                 |     |                                                       |
| Case Material                                                                                                                                                               |     | Aluminum alloy            |                                 |     |                                                       |
| Weight                                                                                                                                                                      |     | 60g (Typ)                 |                                 |     |                                                       |
| **Unless specified, otherwise all other parameters are tested under the following conditions: nominal input voltage, pure resistive load, 25℃ room temperature environment. |     |                           |                                 |     |                                                       |
| Temperature derating curve                                                                                                                                                  |     |                           |                                 |     |                                                       |
| 5V Dual output                                                                                                                                                              |     |                           |                                 |     |                                                       |



Other output



Dimensions and Recommended Layout



Unit:mm(inch)

Pins

| Pin | Single | Dual |  |
|-----|--------|------|--|
|-----|--------|------|--|

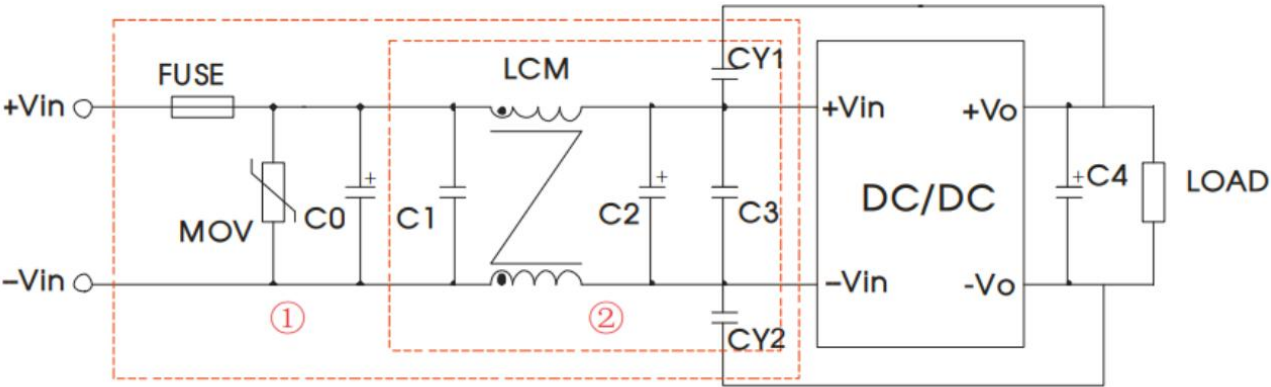
|   |      |      |  |
|---|------|------|--|
| 1 | CTRL | CTRL |  |
| 2 | -Vin | -Vin |  |
| 3 | +Vin | +Vin |  |
| 4 | +Vo  | +Vo  |  |
| 5 | -Vo  | COM  |  |
| 6 | TRIM | -Vo  |  |

Recommended Circuit



| Vout (VDC) | Cin (μF)  | Cout (μF) |
|------------|-----------|-----------|
| 5          | 100μF/50V | 220uF/16V |
| 12/15      |           | 100μF/50V |
| 24         |           | 47μF/50V  |

EMC Recommend Circuit



|                             |                                          |             |             |
|-----------------------------|------------------------------------------|-------------|-------------|
|                             | Vin:18-72V                               | Vin:18-72V  | Vin:40-160V |
| MOV                         | 14D560K                                  | 14D101K     | 14D221K     |
| C0、C2Electrolytic capacitor | 470uF/50V                                | 470uF/100V  | 68uF/200V   |
| C1、C3,Ceramic capacitor     | 1uF/50V                                  | 1uF/100V    | 1uF/250V    |
| LCM                         | 4.7mH                                    | 6.8mH       | 10mH        |
| CY1、CY2,safety capacitor    | 2.2nF/2000V                              | 2.2nF/2000V | 2.2nF/2000V |
| C4 Electrolytic capacitor   | 100uF/50V                                | 100uF/50V   | 100uF/50V   |
| Fuse                        | according to the customer's requirements |             |             |

Note

1. The product should be used within the specified range; otherwise, it may cause permanent damage to the product.
2. If the product operates beyond its load range, it cannot be guaranteed that all performance indicators of the product comply with those in this manual.
3. Unless otherwise specified, all the above data were measured at  $T_a=25^{\circ}C$ , humidity  $<75\%$ , input nominal voltage and

output rated load (pure resistance load).

4. The above are all performance indicators of the product models listed in this manual. Some indicators of non-standard models may exceed the above requirements. For specific situations, you can directly contact our technical personnel.

5. Product specification changes will not be notified separately. Please pay attention to the latest manual published on our company's official website.

\*The final interpretation right of the product belongs to ECCO ELECTRONICS.