3W, AC-DC converter

Regulated
Unavailable
Output
3000
Hz
Unit
AC
15±3.3
Hz
Unit
AC
15±3.3
Unit
1%/
60
1000
85
High
High
20
Min.
330
Operating
Typ.
W
VAC
150±500
±N
370
VDC
±
±
±3000
-0.
1000
Max.
264
240
264
Typ.
78
2.3
85
47
Operating
Hiccup, 20MHz
10mV
Guangzhou
±
12
0.
24
±
±
±
±
-0.
10
Min.
Over
Short
Temperature
Ripple
Load
Line
Output
Item
Output
Hot
Recommended
Leakage
Inrush
Input
Input
Input
Input
Input
Input
Input
Input
Input
Input
Input
Item
Input
Voltage Range
AC input
115VAC
100
85
--
264
VAC
DC input
230VAC
115VAC
230VAC
0.25mA RMS Max.
Recommended External Input Fuse
1A/250V slow-blow required
Hot Plug
Unavailable
Output Voltage Accuracy
3.3V output
--
±6
--
%
others
--
±5
--
%
Line Regulation
3.3V output
--
±2.5
--
%
others
--
±1.5
--
%
Load Regulation
10%-100% load
--
±3
--
%
Ripple & Noise*
20MHz bandwidth (peak-to-peak value)
--
80
150
mV
Stand-by Power Consumption
--
--
0.5
W
Temperature Coefficient
--
±0.02
--
%/°C
Short Circuit Protection
Hiccup, continuous, self-recovery
Over-current Protection
≥130%Io self-recovery
Min. Load
10
--
--
%
**General Specifications**

<table>
<thead>
<tr>
<th>Item</th>
<th>Operating Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolation Test</td>
<td>Input-output Electric Strength Test for 1min., (leakage current &lt; 5mA)</td>
<td>3000</td>
<td>--</td>
<td>--</td>
<td>VAC</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td></td>
<td>-25</td>
<td>--</td>
<td>+70</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td></td>
<td>-25</td>
<td>--</td>
<td>+85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Humidity</td>
<td></td>
<td>--</td>
<td>--</td>
<td>90</td>
<td>%RH</td>
</tr>
<tr>
<td>Altitude</td>
<td></td>
<td>--</td>
<td>--</td>
<td>2000</td>
<td>m</td>
</tr>
<tr>
<td>Hold-up Time</td>
<td>115VAC input</td>
<td>--</td>
<td>5</td>
<td>--</td>
<td>ms</td>
</tr>
<tr>
<td></td>
<td>230VAC input</td>
<td>--</td>
<td>20</td>
<td>--</td>
<td>ms</td>
</tr>
</tbody>
</table>

Note: *The"Tip and barrel method" is used for ripple and noise test, please refer to AC-DC Converter Application Notes for specific information.*

**Mechanical Specifications**

- **Dimension**: 42.00 x 16.00 x 17.00 mm
- **Weight**: 9g (Typ.)
- **Cooling Method**: Free air convection

**Electromagnetic Compatibility (EMC)**

| Emissions | CE     | CISPR32/EN55032 CLASS A |
|           | RE     | CISPR32/EN55032 CLASS A |
|           |        |                       |
| ESD       | IEC/EN61000-4-2 | ±6KV (See Fig. 2 for recommended circuit) | Perf. Criteria B |
| RS        | IEC/EN61000-4-3 | 10V/m (See Fig. 2 for recommended circuit) | perf. Criteria A |
| EFT       | IEC/EN61000-4-4 | ±2KV (See Fig. 2 for recommended circuit) | perf. Criteria B |
| Surge     | IEC/EN61000-4-5 | line to line ±1KV (See Fig. 2 for recommended circuit) | perf. Criteria B |
| CS        | IEC/EN61000-4-6 | 10 Vr.m.s (See Fig. 2 for recommended circuit) | perf. Criteria A |
| Voltage dips, short interruptions and voltage variations immunity | IEC/EN61000-4-11 | 0%, 70% | perf. Criteria B |

**Product Characteristic Curve**

- **Temperature Derating Curve**
- **Input Voltage Derating Curve**

Note: ① With an AC input voltage between 85-100VAC and a DC input between 100-120VDC the output power must be derated as per temperature derating curves;
  ② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.
Design Reference

1. Typical application circuit

![Typical circuit diagram](image1)

![Typical circuit diagram](image2)

<table>
<thead>
<tr>
<th>Model</th>
<th>C1(µF)</th>
<th>C2(µF)</th>
<th>FUSE</th>
<th>MOV</th>
<th>TVS tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO03-10B03</td>
<td></td>
<td>150</td>
<td></td>
<td></td>
<td>SMBJ7.0A</td>
</tr>
<tr>
<td>LO03-10B06</td>
<td></td>
<td>150</td>
<td></td>
<td></td>
<td>SMBJ7.0A</td>
</tr>
<tr>
<td>LO03-10B09</td>
<td></td>
<td>120</td>
<td>1A/250V slow-blow required</td>
<td>S14K300</td>
<td>SMBJ12A</td>
</tr>
<tr>
<td>LO03-10B12</td>
<td></td>
<td>120</td>
<td></td>
<td></td>
<td>SMBJ20A</td>
</tr>
<tr>
<td>LO03-10B15</td>
<td></td>
<td>120</td>
<td></td>
<td></td>
<td>SMBJ20A</td>
</tr>
<tr>
<td>LO03-10B24</td>
<td></td>
<td>68</td>
<td></td>
<td></td>
<td>SMBJ30A</td>
</tr>
</tbody>
</table>

Note:
We recommend using electrolytic capacitors with high frequency and low ESR rating for C2 (refer to manufacturer’s datasheet). Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C1 is ceramic capacitors used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

2. EMC solution-recommended circuit

![EMC application circuit with higher requirements](image3)

<table>
<thead>
<tr>
<th>Element model</th>
<th>Recommended value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOV</td>
<td>S14K300</td>
</tr>
<tr>
<td>CX</td>
<td>0.1µF/275VAC</td>
</tr>
<tr>
<td>LCM</td>
<td>10mH - 30mH, recommended to use MORNSUN’s FL2D-Z5-103</td>
</tr>
<tr>
<td>FUSE</td>
<td>2A/250V slow-blow required</td>
</tr>
<tr>
<td>R0</td>
<td>33Ω /3W</td>
</tr>
</tbody>
</table>

3. For additional information please refer to application notes on [www.mornsun-power.com](http://www.mornsun-power.com).
AC/DC Converter
LO03-10Bxx Series

Dimensions and Recommended Layout

Notes:
1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220058.
2. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of \( T_a=25 \, ^\circ\text{C}, \) humidity<75% with nominal input voltage and rated output load;
4. All index testing methods in this datasheet are based on our company corporate standards;
5. The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above. Please contact our technicians directly for specific information;
6. We can provide product customization service;
7. Products are related to laws and regulations; see "Features" and "EMC";
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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MORNSUN Guangzhou Science & Technology Co., Ltd.
Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Huangpu District, Guangzhou, P. R. China
Tel: 86-20-38601850 Fax: 86-20-38601272 E-mail: info@mornsun.cn www.mornsun-power.com