Features

- 1:1 Input Range
- Efficiency up to 80%
- 3kVDC and 4kVDC Isolation Option
- Approved for Medical Applications
- -40°C to +100°C Operating Temperature Range
- Continuous Short Circuit Protection

Unregulated Converters

Selection Guide

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Isolation Voltage (kV)</th>
<th>Input Voltage (VDC)</th>
<th>Output Voltage (VDC)</th>
<th>Output Current (mA)</th>
<th>Efficiency typical</th>
<th>Capacitive Load (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMD</td>
<td>RAM-0505S*</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>200</td>
<td>78%</td>
</tr>
<tr>
<td></td>
<td>RAM-1205S*</td>
<td>3</td>
<td>12</td>
<td>5</td>
<td>200</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>RAM-2405S*</td>
<td>3</td>
<td>24</td>
<td>5</td>
<td>200</td>
<td>80%</td>
</tr>
</tbody>
</table>

* add Suffix “/H” for Isolation 4kVDC/1min. e.g. RAM-0505S/H
* add Suffix “-R” for tape&reel packing e.g. RAM-1205S-R or RAM-2405S/H-R

Specifications (measured at TA = 25°C, nominal input voltage and rated output current unless otherwise specified)

- Input Voltage Range ±10%
- Output Voltage Accuracy -1% typ., ±5% max.
- Line Voltage Regulation (low line to high line at max. load) 1.2% typ., 1.5% max.
- Load Voltage Regulation (10% to 100% full load) 10% typ., 15% max.
- Output Ripple and Noise (20MHz BW limited) 50mVp-p typ., 100mVp-p max.
- Operating Frequency (Vin=nominal input) 20kHz min. / 50kHz typ. / 90kHz max.
- Efficiency see Selection Guide
- Minimum Load = 0% Specifications valid for 10% minimum load only
- Isolation Voltage RAM-xx05S (tested for 1 minute) 3000 VDC
- Isolation Voltage RAM-xx05S/H (tested for 1 minute) 4000 VDC
- Isolation Capacitance 4pF typ., 10pF max.
- Isolation Resistance (Viso=500V) 15GΩ min.
- Short-Circuit Protection continuous
- Operating Temperature Range -40°C to +100°C
- Storage Temperature -55°C to +125°C
- Reflow Temperature RoHS compliant 245°C (30 sec.), Peak 255°C (5sec.) max.
- Vapour Phase Process (for more details see Application Notes) 230°C (90 sec.) max.
- Relative Humidity 95% RH
- Package Weight 1.3g
- Packing Quantity All Types 27 pcs per Tube
- MTBF (+25°C) Detailed Information see Application Notes chapter “MTBF” using MIL-HDBK 217F 4780 x 10³ hours
- MTBF (+85°C) using MIL-HDBK 217F 1310 x 10³ hours
- Certifications
  - EN General Safety EN60950-1, 2nd Edition
- Notes
  - Note 1: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

ECONOLINE
DC/DC-Converter

1 Watt SMD
Single Output

RAM

Derating-Graph
(Ambient Temperature)

Safe Operating Area

Refer to Application Notes
ECONOLINE
DC/DC-Converter

Typical Characteristics

Tolerance Envelope

Efficiency / Load

Deviation / Load

Output Voltage

V Nom.

+10%  +5%                  +5%  +1%  -5%

Efficiency %

Total Output Current (%)

Output Load Current (%)

Package Style and Pinning

Pin Connections

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+Vin</td>
</tr>
<tr>
<td>2</td>
<td>-Vin</td>
</tr>
<tr>
<td>12</td>
<td>-Vout</td>
</tr>
<tr>
<td>13</td>
<td>+Vout</td>
</tr>
<tr>
<td>14-17</td>
<td>NC</td>
</tr>
<tr>
<td>27-28</td>
<td>NC</td>
</tr>
<tr>
<td>NC</td>
<td>No Connection</td>
</tr>
</tbody>
</table>

Unit: mm
Tolerance: ± 0.25 mm

EMC Filtering - Suggestion for EN55022 Class B

Input Voltage Inductance/Capacitance (C1)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Inductance</th>
<th>Capacitance (C1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5V</td>
<td></td>
<td>10µF</td>
</tr>
<tr>
<td>12V</td>
<td></td>
<td>4.7µF</td>
</tr>
<tr>
<td>24V</td>
<td></td>
<td>22µF</td>
</tr>
</tbody>
</table>

EMC Filtering - Suggestion for EN55022 Class B

Input: +

C1: 470pF/60VDC

Output: -

GND

DC

GND

DC