Output Voltage Adjustment

Output voltage is adjustable for 10% trim up or -20% trim down of nominal output voltage by connecting an external resistor between the Trim pin and either the +Sense or -Sense pins. With an external resistor between the Trim and -Sense pin, the output voltage set point decreases. With an external resistor between the Trim and +Sense pin, the output voltage set point increases. Maximum output deviation is +10% inclusive of remote sense. The value of external resistor can be obtained by equation or trim table shown in next page. The external TRIM resistor needs to be at least 1/8W of rated power.

Output voltage adjustment configurations

Trim Equation

$$R_U = \left( \frac{V_{OUT}(100 + \Delta\%)}{1.225\Delta\%} - \frac{100 + 2\Delta\%}{\Delta\%} \right) \text{k}\Omega$$

$$R_D = \left( \frac{100}{\Delta\%} - 2 \right) \text{k}\Omega$$
<p>| | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S3P3W</td>
<td>Trim-Up (%)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>RU (kΩ)</td>
<td>170.082</td>
<td>85.388</td>
<td>57.156</td>
<td>43.041</td>
<td>34.571</td>
<td>28.925</td>
<td>24.892</td>
<td>21.867</td>
<td>19.515</td>
<td>17.633</td>
</tr>
<tr>
<td>S05W</td>
<td>Trim-Up (%)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Vout (V)</td>
<td>5.05</td>
<td>5.10</td>
<td>5.15</td>
<td>5.20</td>
<td>5.25</td>
<td>5.30</td>
<td>5.35</td>
<td>5.40</td>
<td>5.45</td>
<td>5.50</td>
</tr>
<tr>
<td>RU (kΩ)</td>
<td>310.245</td>
<td>156.163</td>
<td>104.803</td>
<td>79.122</td>
<td>63.714</td>
<td>53.442</td>
<td>46.105</td>
<td>40.602</td>
<td>36.322</td>
<td>32.898</td>
</tr>
<tr>
<td>S12W</td>
<td>Trim-Up (%)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Vout (V)</td>
<td>12.12</td>
<td>12.24</td>
<td>12.36</td>
<td>12.48</td>
<td>12.60</td>
<td>12.72</td>
<td>12.84</td>
<td>12.96</td>
<td>13.08</td>
<td>13.20</td>
</tr>
<tr>
<td>RU (kΩ)</td>
<td>887.388</td>
<td>447.592</td>
<td>300.993</td>
<td>227.694</td>
<td>183.714</td>
<td>154.395</td>
<td>133.452</td>
<td>117.745</td>
<td>105.528</td>
<td>95.755</td>
</tr>
<tr>
<td>S15W</td>
<td>Trim-Up (%)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Vout (V)</td>
<td>15.15</td>
<td>15.30</td>
<td>15.45</td>
<td>15.60</td>
<td>15.75</td>
<td>15.90</td>
<td>16.05</td>
<td>16.20</td>
<td>16.35</td>
<td>16.50</td>
</tr>
<tr>
<td>RU (kΩ)</td>
<td>1134.735</td>
<td>572.490</td>
<td>385.075</td>
<td>291.367</td>
<td>235.143</td>
<td>197.660</td>
<td>170.886</td>
<td>150.806</td>
<td>135.188</td>
<td>122.694</td>
</tr>
<tr>
<td>S24W</td>
<td>Trim-Up (%)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>RU (kΩ)</td>
<td>1876.776</td>
<td>947.184</td>
<td>637.320</td>
<td>482.388</td>
<td>389.429</td>
<td>327.456</td>
<td>283.190</td>
<td>249.990</td>
<td>224.168</td>
<td>203.510</td>
</tr>
<tr>
<td>S28W</td>
<td>Trim-Up (%)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Vout (V)</td>
<td>28.28</td>
<td>28.56</td>
<td>28.84</td>
<td>29.12</td>
<td>29.40</td>
<td>29.68</td>
<td>29.96</td>
<td>30.24</td>
<td>30.52</td>
<td>30.80</td>
</tr>
<tr>
<td>RU (kΩ)</td>
<td>2206.571</td>
<td>1113.714</td>
<td>749.429</td>
<td>567.286</td>
<td>458.000</td>
<td>385.143</td>
<td>333.102</td>
<td>294.071</td>
<td>263.714</td>
<td>239.429</td>
</tr>
<tr>
<td>S48W</td>
<td>Trim-Up (%)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Vout (V)</td>
<td>48.48</td>
<td>48.96</td>
<td>49.44</td>
<td>49.92</td>
<td>50.40</td>
<td>50.88</td>
<td>51.36</td>
<td>51.84</td>
<td>52.32</td>
<td>52.80</td>
</tr>
<tr>
<td>RU (kΩ)</td>
<td>3855.551</td>
<td>1946.367</td>
<td>1309.973</td>
<td>991.776</td>
<td>800.857</td>
<td>673.578</td>
<td>582.665</td>
<td>514.480</td>
<td>461.447</td>
<td>419.020</td>
</tr>
<tr>
<td>S□□W</td>
<td>Trim-Down (%)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>RD (kΩ)</td>
<td>98.000</td>
<td>48.000</td>
<td>31.333</td>
<td>23.000</td>
<td>18.000</td>
<td>14.667</td>
<td>12.286</td>
<td>10.500</td>
<td>9.111</td>
<td>8.000</td>
</tr>
<tr>
<td>Trim-Down (%)</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>RD (kΩ)</td>
<td>7.091</td>
<td>6.333</td>
<td>5.692</td>
<td>5.143</td>
<td>4.667</td>
<td>4.250</td>
<td>3.882</td>
<td>3.556</td>
<td>3.263</td>
<td>3.000</td>
</tr>
</tbody>
</table>
Remote Sense
To minimize the effects of distribution losses by regulating the voltage at the Remote Sense pin. The voltage between the Sense pin and OUTPUT pin must not exceed 10% of Vout, i.e.

\[ (+Vout \text{ to } -Vout) - (+\text{Sense to } -\text{Sense}) \leq 10\% \text{ Vout} \]

The voltage between +Vout and –Vout terminals must not exceed the minimum output overvoltage protection threshold. This limit includes any increase in voltage due to remote sense compensation and trim function. If not using the remote sense feature to regulate the output at the point of load, then connect +Sense to + Vout and –Sense to –Vout.
Line Protection & EMC Considerations

1. Typical Application
   - Below shows some blocks connected between power source and DC/DC module. Install the circuit of the block which is required.
   - Each block has individual function and should be placed on the corresponding location.
   - If CEMI is an Aluminum electrolytic capacitor and connected in parallel with CEMS, The capacitance we recommended for meeting EMS requirements could be CEMS pluses CEMI.

   ![Diagram showing typical application](image)

   - Fuse should always be installed in front of other circuits.
   - EMS FILTER suppresses SURGE and EFT. Also it protects the rear circuit from damaging or incorrect output.
   - This diode offers a reverse current path to blow the fuse while power source is connected with reverse polarity.
   - Installing EMI FILTER helps the DC/DC module to meet EMI requirements.
   - Since input source impedance may cause large ripple voltage and make the DC/DC module be unstable. It had better install a capacitor as close as possible.

Input source impedance: The power modules will operate as specifications without external components, assuming that the source voltage has a very low impedance and reasonable input voltage regulation. Highly inductive source impedances can affect the stability of the power module. Since real-world voltage source has finite impedance, performance can be improved by adding external filter capacitor.

The PAE75-24SDDW recommended 4.7µF/50V X7R MLCC or Nippon Chemi-con KY series, 68µF /100V or a better one.
2. Line Protections

Fuse

- The DC/DC converter is not internally fused. An input line fuse must always be used.
- Fuses should be installed in front of each module when multiple DC/DC converters connect to the same power source.

<table>
<thead>
<tr>
<th>Model</th>
<th>Fuse Rating (A)</th>
<th>Fuse Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAE75-24S□□W</td>
<td>15</td>
<td>Fast-Acting</td>
</tr>
<tr>
<td>PAE75-48S□□W</td>
<td>8</td>
<td>Fast-Acting</td>
</tr>
<tr>
<td>PAE75-110S□□W</td>
<td>3.15</td>
<td>Slow-Blow</td>
</tr>
</tbody>
</table>

Table 2-1 FUSE selection

- According to actual current value, calculating fuse ratings base on the following equations:
  \[ I_{FUSE} \geq \frac{I_{in}}{(rerating \times safety\ margin)} \]
  \[ Melting\ I^2t = \frac{I_{PULSE, act} \times t}{0.22} \]

Where
- \(I_{FUSE}\) is current rating of fuse.
- \(I_{in}\) is actual value of input current.
- Rerating is percentage of fuse rating base on ambient temperature. Fuse rating is variety under different ambient temperature.
- Safety margin is percentage of fuse rating set by user.
- Melting \(I^2t\) is pulse energy rating of fuse.
- \(I_{PULSE, act}\) is actual input pulse current.
- \(t\) is the width of the input pulse current.

Reverse Input Voltage Protection

- Avoid the reverse polarity input voltage; otherwise, it will damage the DC/DC converter.
- It is likely to protect the module from the reverse input voltage by installing an external diode.
- The diode can block reverse voltage or blow the line fuse to protect DC/DC converter.
- Recommend using Schottky diode for reverse input voltage protection

Fig. 2-1 Reverse input voltage protection

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage Rating of the Diode</th>
<th>Current Rating of the Diode</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAE75-24S□□W</td>
<td>60V</td>
<td></td>
</tr>
<tr>
<td>PAE75-48S□□W</td>
<td>100V</td>
<td>1–1.5 x Fuse Rating</td>
</tr>
<tr>
<td>PAE75-110S□□W</td>
<td>200V</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 2-2 Reverse protection diode selection
3. EMS Considerations

- The module can meet EMS requirements as below.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD</td>
<td>EN61000-4-2 Air ±8kV and Contact ±6kV</td>
<td>Perf. Criteria A</td>
</tr>
<tr>
<td>Radiated immunity</td>
<td>EN61000-4-3 20V/m</td>
<td>Perf. Criteria A</td>
</tr>
<tr>
<td>Fast transient</td>
<td>EN61000-4-4 ±2kV</td>
<td>Perf. Criteria A</td>
</tr>
<tr>
<td>Surge</td>
<td>EN61000-4-5 EN55024 ±2kV and EN50155 ±2kV</td>
<td>Perf. Criteria A</td>
</tr>
<tr>
<td>Conducted immunity</td>
<td>EN61000-4-6 10Vr.m.s</td>
<td>Perf. Criteria A</td>
</tr>
</tbody>
</table>

Table 3-1 EMS requirements

It should be noticed that the current path of the PCB trace. Wrong PCB layout reduces ability of suppressing SURGE or EFT.

Model Component Specification Reference
PAE75-24S□□W C1, C2 220µF/100V Nippon Chemi-con KY series
PAE75-48S□□W C1, C2 150µF/200V Nippon Chemi-con KXJ series

Table 3-2 Surge & EFT filter
4. EMI Considerations

Recommended External EMI Filter for EN55022 Class A

<table>
<thead>
<tr>
<th>Model</th>
<th>C1, C3</th>
<th>C2, C4, C5</th>
<th>C6, C7, C8, C9, C10, C11</th>
<th>L1</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAE75-24S□□W</td>
<td>100µF/50V</td>
<td>4.7µF/50V</td>
<td>1000pF/3kV</td>
<td>156µH</td>
</tr>
<tr>
<td></td>
<td>Al Cap. (lie down)</td>
<td>1812 MLCC</td>
<td>1808 MLCC</td>
<td>Common Choke</td>
</tr>
<tr>
<td></td>
<td>Chemi-con KY</td>
<td></td>
<td></td>
<td>PMT-072</td>
</tr>
<tr>
<td>PAE75-48S□□W</td>
<td>100µF/100V</td>
<td>2.2µF/100V</td>
<td>1000pF/3kV</td>
<td>620µH</td>
</tr>
<tr>
<td></td>
<td>Al Cap. (lie down)</td>
<td>1812 MLCC</td>
<td>1808 MLCC</td>
<td>Common Choke</td>
</tr>
<tr>
<td></td>
<td>Chemi-con KY</td>
<td></td>
<td></td>
<td>PMT-067</td>
</tr>
</tbody>
</table>

Table 4-1 B.O.M. of external EMI filter

Fig. 4-1 Recommended EMI filter for EN55022 Class A

Fig. 4-2 Recommended layout pattern

Top view

Bottom view
Recommended External EMI Filter for EN55022 Class A

![Diagram of EMI filter layout](image)

### Table 4-2 B.O.M. of external EMI filter

<table>
<thead>
<tr>
<th>Model</th>
<th>C1, C8</th>
<th>C10</th>
<th>C13, C14</th>
<th>C5, C15, C16</th>
<th>L1</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAE75-110S□□W</td>
<td>150µF/200V</td>
<td>1000pF</td>
<td>1µF/250V</td>
<td>400VAC</td>
<td>521µH</td>
</tr>
<tr>
<td>(lie down)</td>
<td></td>
<td>1812 MLCC</td>
<td>TDK</td>
<td>1808 MLCC</td>
<td>Common Choke</td>
</tr>
<tr>
<td>Chemi-con KXJ</td>
<td></td>
<td></td>
<td>CD series</td>
<td></td>
<td>PMT-088</td>
</tr>
</tbody>
</table>

* C2, C3, C4, C6, C7, C9, C11, C12: N/A

Table 4-2 B.O.M. of external EMI filter

![Top view of layout](image)

![Bottom view of layout](image)

Fig. 4-3 Recommended EMI filter for EN55022 Class A

Fig. 4-4 Recommended layout pattern
Recommended External EMI Filter for EN55022 Class B

Fig. 4-5 Recommended EMI filter for EN55022 Class B

<table>
<thead>
<tr>
<th>Model</th>
<th>C1, C5</th>
<th>C2, C3, C4, C6, C7</th>
<th>C8, C14, C15</th>
<th>C9</th>
<th>C10, C11, C12, C13</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAE75-24S□□W</td>
<td>100µF/50V</td>
<td>4.7µF/50V</td>
<td>1000pF/3kV</td>
<td>1000pF/3kV</td>
<td>10nF/2kV</td>
<td>305µH</td>
<td>305µH</td>
</tr>
<tr>
<td></td>
<td>Al Cap. (lie down)</td>
<td>1812 MLCC</td>
<td>1808 MLCC</td>
<td>1808 MLCC</td>
<td>1812 MLCC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemi-con KY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAE75-48S□□W</td>
<td>100µF/100V</td>
<td>2.2µF/100V</td>
<td>1000pF/3kV</td>
<td>1000pF/3kV</td>
<td>10nF/2kV</td>
<td>1186µH</td>
<td>156µH</td>
</tr>
<tr>
<td></td>
<td>Al Cap. (lie down)</td>
<td>1812 MLCC</td>
<td>1808 MLCC</td>
<td>1812 MLCC</td>
<td>1812 MLCC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemi-con KY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4-3 B.O.M. of external EMI filter

Fig. 4-6 Recommended layout pattern

Top view

Bottom view
Recommended External EMI Filter for EN55022 Class B

**Fig. 4-7 Recommended EMI filter for EN55022 Class B**

### Table 4-4 B.O.M. of external EMI filter

<table>
<thead>
<tr>
<th>Model</th>
<th>C1, C3, C10</th>
<th>C11, C12</th>
<th>C13</th>
<th>C15, C16</th>
<th>C6, C7, C8, C9, C17, C18</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAE75-110S□□W</td>
<td>150µF/200V</td>
<td>1µF/250V</td>
<td>330pF/5kV</td>
<td>1000pF</td>
<td>1000pF/5kV</td>
<td>305µH</td>
<td>806µH</td>
</tr>
<tr>
<td></td>
<td>Al Cap. (lie down)</td>
<td>1812 MLCC</td>
<td>1808 MLCC</td>
<td>400VAC</td>
<td>1808 MLCC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemi-con KXJ</td>
<td></td>
<td>TDK</td>
<td>PMT-101</td>
<td>PMT-113</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CD series</td>
<td></td>
<td>CD series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|            | C2, C4, C5, C14: N/A

*Table 4-4 B.O.M. of external EMI filter*

**Fig. 4-8 Recommended layout pattern**

**Top view**

**Bottom view**
## Specifications of Common Mode Choke and Differential Inductor

<table>
<thead>
<tr>
<th>Part number</th>
<th>PMT-064</th>
<th>PMT-067</th>
<th>PMT-072</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inductance</td>
<td>1186µH ±35% (100kHz/ 100mV)</td>
<td>620µH ±35% (100kHz/ 100mV)</td>
<td>156µH ±35% (100kHz/ 100mV)</td>
</tr>
<tr>
<td>DCR</td>
<td>21.56 mΩ</td>
<td>25 mΩ</td>
<td>15 mΩ</td>
</tr>
<tr>
<td>Rated current</td>
<td>5.8A, max.</td>
<td>7.5A, max.</td>
<td>11.3 A, max</td>
</tr>
<tr>
<td></td>
<td>B 16.0, max.</td>
<td>D 4.0 ±0.3</td>
<td>D 4.0 ±0.3</td>
</tr>
<tr>
<td></td>
<td>C 15.0, max.</td>
<td>E 10.0 ±0.3</td>
<td>E 10.0 ±0.3</td>
</tr>
<tr>
<td></td>
<td>D 4.0 ±0.3</td>
<td>F 7.4 ±0.3</td>
<td>F 7.4 ±0.3</td>
</tr>
<tr>
<td></td>
<td>G φ0.8 ±0.1</td>
<td>G φ0.8 ±0.1</td>
<td>G φ0.8 ±0.1</td>
</tr>
</tbody>
</table>

* Recommended through hole: φ1.0 mm
### PMT-073
- **Inductance:** 305µH ±35% (100kHz/ 100mV)
- **DCR:** 20 mΩ
- **Rated current:** 11.3A, max.
- **Dimensions (mm):**
  - A: 16.0, max.
  - B: 16.0, max.
  - C: 15.0, max.
  - D: 4.0 ±0.3
  - E: 10.0 ±0.3
  - F: 7.4 ±0.3
  - G: φ0.8 ±0.1

*Recommended through hole: φ1.0 mm*

### PMT-088
- **Inductance:** 521µH ±35% (100kHz/ 100mV)
- **DCR:** 14.25 mΩ
- **Rated current:** 7.7A, max.
- **Dimensions (mm):**
  - A: 16.6 ±0.4
  - B: 16.4 ±0.4
  - C: 12.5, max.
  - D: 5.0 ±1.0
  - E: 13.9 ±0.5
  - F: 6.1 ±0.5
  - G: φ0.8 ±0.1

*Recommended through hole: φ1.0 mm*

### PMT-101
- **Inductance:** 305µH ±35% (100kHz/ 100mV)
- **DCR:** 10 mΩ
- **Rated Current:** 11.3 A, max
- **Dimensions (mm):**
  - A: 16.6 ±0.4
  - B: 16.4 ±0.4
  - C: 12.5, max.
  - D: 5.0 ±1.0
  - E: 13.9 ±0.5
  - F: 6.1 ±0.5
  - G: φ1.4 ±0.1

*Recommended through hole: φ1.6 mm*
**Part number:** PMT-113

- **Inductance:** 806µH ±35% (100kHz/ 100mV)
- **DCR:** 25 mΩ
- **Rated current:** 5.7A, max.
- **Dimensions (mm):**
  - A 16.6 ±0.4
  - B 16.4 ±0.4
  - C 12.5, max.
  - D 5.0 ±1.0
  - E 13.9 ±0.5
  - F 6.1 ±0.5
  - G φ0.7 ±0.1

* Recommended through hole: φ0.9 mm
All test conditions are at 25°C. The figures are identical for PAE75-24S3P3W.
All test conditions are at 25°C. The figures are identical for PAE75-24S3P3W.
All test conditions are at 25°C. The figures are identical for PAE75-24S05W.
All test conditions are at 25°C. The figures are identical for PAE75-24S05W.
All test conditions are at 25°C. The figures are identical for PAE75-24S12W.
All test conditions are at 25°C. The figures are identical for PAE75-24S12W.
All test conditions are at 25°C. The figures are identical for PAE75-24S15W.
All test conditions are at 25°C. The figures are identical for PAE75-24S15W.
All test conditions are at 25°C. The figures are identical for PAE75-24S24W.
All test conditions are at 25°C. The figures are identical for PAE75-24S24W.
Efficiency versus Output Current

Power dissipation versus Output Current

Efficiency versus Input Voltage

Derating Output Current versus Ambient Temperature and Airflow

Derating Output Current versus Ambient Temperature and Airflow

All test conditions are at 25°C. The figures are identical for PAE75-24S28W
All test conditions are at 25°C. The figures are identical for PAE75-24S28W.
All test conditions are at 25°C. The figures are identical for PAE75-24S48W.
All test conditions are at 25°C. The figures are identical for PAE75-24S48W.

Typical Output Ripple and Noise. Vin(nom); Full Load

Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load; Vin(nom)

Typical Input Start-Up and Output Rise Characteristic Vin(nom); Full Load

Using ON/OFF Voltage Start-Up and Output Rise Characteristic Vin(nom); Full Load

Conduction Emission of EN55022 Class A Vin(nom); Full Load

Conduction Emission of EN55022 Class B Vin(nom); Full Load
All test conditions are at 25°C. The figures are identical for PAE75-48S3P3W.
All test conditions are at 25°C. The figures are identical for PAE75-48S3P3W.
All test conditions are at 25°C. The figures are identical for PAE75-48S05W.
All test conditions are at 25°C. The figures are identical for PAE75-48S05W.
All test conditions are at 25°C. The figures are identical for PAE75-48S12W.
All test conditions are at 25°C. The figures are identical for PAE75-48S12W.
POWERBOX Industrial Line
PAE75W Series
75W Single Output
DC/DC Converter
Manual

All test conditions are at 25°C. The figures are identical for PAE75-48S15W

Efficiency versus Output Current
Power dissipation versus Output Current

Efficiency versus Input Voltage
Derating Output Current versus Ambient Temperature and Airflow

Derating Output Current versus Ambient Temperature and Airflow
With 0.24" Heat-Sink, Vin(nom)

Derating Output Current versus Ambient Temperature and Airflow
With 0.45" Heat-Sink, Vin(nom)
All test conditions are at 25°C. The figures are identical for PAE75-48S15W.
All test conditions are at 25°C. The figures are identical for PAE75-48S24W.
All test conditions are at 25°C. The figures are identical for PAE75-48S24W.
All test conditions are at 25°C. The figures are identical for PAE75-48S28W.
All test conditions are at 25°C. The figures are identical for PAE75-48S28W.
All test conditions are at 25°C. The figures are identical for PAE75-48S48.
All test conditions are at 25°C. The figures are identical for PAE75-48S48W.
All test conditions are at 25°C. The figures are identical for PAE75-110S3P3W.
All test conditions are at 25°C. The figures are identical for PAE75-110S3P3W.
All test conditions are at 25°C. The figures are identical for PAE75-110S05W.
All test conditions are at 25°C. The figures are identical for PAE75-110S05W.
Efficiency versus Output Current

Power dissipation versus Output Current

Efficiency versus Input Voltage Full Load

Derating Output Current versus Ambient Temperature and Airflow Vin(nom)

Derating Output Current versus Ambient Temperature and Airflow With 0.24" Heat-Sink , Vin(nom)

Derating Output Current versus Ambient Temperature and Airflow With 0.45" Heat-Sink , Vin(nom)
All test conditions are at 25°C. The figures are identical for PAE75-110S12W.
All test conditions are at 25°C. The figures are identical for PAE75-110S15W.
All test conditions are at 25°C. The figures are identical for PAE75-110S15W.
All test conditions are at 25°C. The figures are identical for PAE75-110S24W.
All test conditions are at 25°C. The figures are identical for PAE75-110S24W.
All test conditions are at 25°C. The figures are identical for PAE75-110S28W.
All test conditions are at 25°C. The figures are identical for PAE75-110S28W.
All test conditions are at 25°C. The figures are identical for PAE75-110S48W.
All test conditions are at 25°C. The figures are identical for PAE75-110S48.
Remote On/Off Control

The Ctrl Pin is controlled DC/DC power module to turn on and off, the user must use a switch to control the logic voltage high or low level of the pin referenced to -Vin. The switch can be open collector transistor, FET and Photo-Coupler. The switch must be capable of sinking up to 1 mA at low-level logic voltage. High-level logic of the Ctrl pin signal maximum voltage is allowable leakage current of the switch at 12V is 0.5 mA.

Remote ON/OFF Implementation

There are two remote control options available, positive logic and negative logic.

a. The positive logic structure turned on of the DC/DC module when the Ctrl pin is at high-level logic and low-level logic is turned off it.

b. The negative logic structure turned on of the DC/DC module when the Ctrl pin is at low-level logic and turned off when at high-level logic.

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