

Refers to: IA, IB, ID, IE and IF series etc.

Phenomenon	Possible Causes	Solutions
The output voltage is lower than rating.	<ol style="list-style-type: none"> <li>1. Start-up failure resulted from insufficient input power.</li> <li>2. Low input voltage</li> <li>3. Large resistance of input filter inductor</li> <li>4. Too large a wire loss caused by the fine input lead.</li> <li>5. No capacitors are connected at the two ends of linear regulators (78105 etc) or connected at wrong position.</li> <li>6. A large voltage drop of diode (input end) to block reverse current.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use a higher-power input power supply.</li> <li>2. Adjust the input voltage into the recommend input voltage range.</li> <li>3. Reduce the filter inductance or resistance of inductor.</li> <li>4. Enlarge the sectional area of lead or shorten lead length to reduce resistance.</li> <li>5. Connect sufficient capacitors closely to the two ends of linear regulators.</li> <li>6. Use a diode with low voltage drop instead.</li> </ol>
Output voltage is much lower than rating.	<ol style="list-style-type: none"> <li>1. Over current in output circuit.</li> <li>2. Too large an output external filter capacitor.</li> <li>3. This problem occurs when IB series is used as the negative output to power A/D, D/A converter or Op Amp.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the external output circuit. If it consumes power over rating or is short-circuited, use a higher output power MORNSUN DC-DC converter module instead.</li> <li>2. The external output capacitor should be lower than maximum value showing on the datasheet. Capacitance is determined by the output current, according to the principle 1uF/100ma. (it's not suggested to connect external capacitors when the output power is lower than 0.5w and output voltage is higher than 20v.). If the output ripple is still requested to be lower, connect an LC filtering circuit at the output end. (inductance: 4.7-10uh)</li> <li>3. Use MORNSUN IB_KS series.</li> </ol>
When powering, the module is destroyed or the damage rate is high.	<ol style="list-style-type: none"> <li>1. Reverse polarity connection.</li> <li>2. Output voltage is much higher than rating.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect a diode with low voltage drop to block reverse current at the input end.</li> <li>2. Adjust the input voltage into the recommend input voltage range</li> </ol>
	External output capacitor is too large or the breakdown voltage of the capacitor is insufficient	The external output capacitor should be lower than maximum value showing on the datasheet. Capacitance is determined by the output current, according to the principle 1uF/100mA. (It's not suggested to connect external capacitors when the output power is lower than 0.5w and output voltage is higher than 20V.). If the output ripple is still requested to be lower, connect an LC filtering circuit at the output end. (inductance: 4.7-10uH)
	For SMD products: <ol style="list-style-type: none"> <li>1. The temperature of the reflow is too high.</li> <li>2. Use gas phase reflow.</li> <li>3. Process reflow soldering many times.</li> <li>4. Use heat gun when maintain.</li> </ol>	For SMD products: <ol style="list-style-type: none"> <li>1. The temperature of the reflow can not be higher than the recommendation by datasheet.</li> <li>2. The gas phase reflow temperature is lower 10°C than heat convection reflow.</li> <li>3. Process reflow soldering more than 2 times is not allowed.</li> </ol>

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		3. Do not use hot gun when maintain and the control the temperature(<300℃) the time (<10S) .
Fails after a certain period of operation	<ol style="list-style-type: none"> <li>Over-voltage at the input end</li> <li>No capacitors are connected at the two ends of linear regulators (78105 etc) or connected at wrong position.</li> <li>Low input voltage</li> <li>Defectively soldered at the input end</li> </ol>	<ol style="list-style-type: none"> <li>Connect a TVS in parallel at the input end of power supply.</li> <li>Connect sufficient capacitors closely to the two ends of linear regulators.</li> <li>Adjust the input voltage into the recommend input voltage range</li> <li>Make sure the soldering is well.</li> </ol>
	<ol style="list-style-type: none"> <li>The power supply operates under no load or the load is lower than 10% of rated load</li> <li>Too large an output external filter capacitor</li> <li>Overload at the output end</li> <li>Ambient temperature is too high or bad cooling</li> <li>Defectively soldered at the input end</li> </ol>	<ol style="list-style-type: none"> <li>Make sure 10% of rated load is connected to the output end when operating. If there is no load or the load is too light in the application, connect 5% of rated load in parallel at the output end to ensure the load of module is no less than 10% minimum.</li> <li>The external output capacitor should be lower than maximum value showing on the datasheet. Capacitance is determined by the output current, according to the principle 1uF/100mA. (It's not suggested to connect external capacitors when the output power is lower than 0.5W and output voltage is higher than 20V.). If the output ripple is still requested to be lower, connect an LC filtering circuit at the output end. (inductance: 4.7-10uH)</li> <li>The actual load should be lower than 100% of rated load power.</li> <li>Make sure the ambient temperature is not higher than 85℃ (For an application of constant ambient temperature above 70℃ please contact us for a custom high temperature products)</li> <li>Make sure the soldering is well.</li> </ol>
<ol style="list-style-type: none"> <li>The module becomes too hot</li> <li>Fails after burn-in.</li> <li>Some fluidity overflows from the module after burn-in.</li> </ol>	<ol style="list-style-type: none"> <li>The input voltage is too high</li> <li>No capacitors are connected at the two ends of linear regulators (78105 etc) or connected at wrong position.</li> <li>Low input voltage</li> <li>Defectively soldered at the input end</li> </ol>	<ol style="list-style-type: none"> <li>Adjust the input voltage into the recommend input voltage range</li> <li>Connect sufficient capacitors closely to the two ends of linear regulators.</li> <li>Adjust the input voltage into the recommend input voltage range</li> <li>Make sure the soldering is well.</li> </ol>
<ol style="list-style-type: none"> <li>The module becomes too hot</li> <li>Fails after burn-in.</li> <li>Some fluidity overflows from the module after burn-in.</li> </ol>	<ol style="list-style-type: none"> <li>The module operates under no load or the load is lower than 10% of rated load</li> <li>Too large an output external filter capacitor</li> <li>Overload at the output end</li> <li>Ambient temperature is too high or bad cooling</li> </ol>	<ol style="list-style-type: none"> <li>Make sure 10% of rated load is connected to the output end when operating. If there is no load or the load is too light in the application, connect in parallel 5% of rated load at the output end to ensure the load of module is no less than 10% minimum.</li> <li>The external output capacitor should be lower than maximum value showing on the datasheet. Capacitance is determined by the output current,</li> </ol>

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	<ol style="list-style-type: none"> <li>Defectively soldered at the input end</li> </ol>	<ol style="list-style-type: none"> <li>according to the principle 1uF/100mA. (It's not suggested to connect external capacitors when the output power is lower than 0.5w and output voltage is higher than 20v.). If the output ripple is still requested to be lower, connect an LC filtering circuit at the output end. (inductance: 4.7-10uh)</li> <li>The actual load should be lower than 100% of rated load power.</li> <li>Make sure the ambient temperature is not higher than 85°C (For an application of constant ambient temperature above 70°C please contact us for a custom high temperature products)</li> <li>Make sure the soldering is well.</li> </ol>
The output noise is quite large or the whole system is noise susceptible	<ol style="list-style-type: none"> <li>The distance between the module and noise susceptible components (A/D, D/A or MCU) in the main circuit is too critical.</li> <li>No decoupling capacitors are connected to the input end of noise susceptible components in the main circuit.</li> <li>Beat interference generated by separate single output modules in the multi-channel system.</li> <li>Earth wire is mishandled.</li> </ol>	<ol style="list-style-type: none"> <li>Separate the module from the module and noise susceptible components in the main circuit as much as possible or isolate the module and noise susceptible components in the main circuit.</li> <li>Connect a 0.1μf decoupling capacitor at the input end of noise susceptible components (A/D, D/A or MCU) in the main circuit.</li> <li>Replace a few single output modules with one MORNSUN multi-channel output module so as to eliminate interference.</li> <li>Adopt remote one point earth.</li> </ol>
<ol style="list-style-type: none"> <li>Poor anti-interference performance</li> <li>Poor EMI characteristics.</li> </ol>	<ol style="list-style-type: none"> <li>Poor anti-common-mode-interference performance</li> <li>No shielding</li> <li>No safety capacitors are connected to the unit.</li> </ol>	<ol style="list-style-type: none"> <li>Connect a common mode choke and TVS at the input end.</li> <li>Use MORNSUN six-sided metal shielding module instead.</li> <li>Connect a 47-100pf safety capacitor between GND and 0V (the breakdown voltage is determined by the actual demand, generally 1000-3000VDC).</li> </ol>

NOTE: Any other question, please feel free to contact our FAE department.

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