6 Reasons Why You'll Love Mornsun R3 Products

3~200W 4:1/2:1 Wide Input DC-DC Converters

Energy Saving

No-load power consumption as low as 0.12W

One-piece Heat-sink Case

Better heat conductivity

No Minimum Load Requirement

Stable @ 0-100% load

Multiple Protections

UVP/OVP/OCP/SCP

Faster Start-up

Short to 20ms

Excellent EMI Performance

Class A: filter build-in
Class B: with peripheral circuit

1. Variable Frequency Technology to Save Energy

- **Light-load efficiency exceeds 78% which helps to save energy and minimize the temperature rise.**
- **Ultra-low no-load power consumption helps to improve overall system performance in applications which have requirement for battery life.**

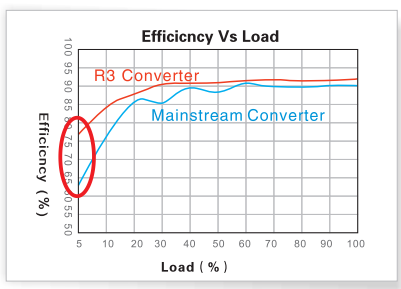

Figure 1：Efficiency vs Load

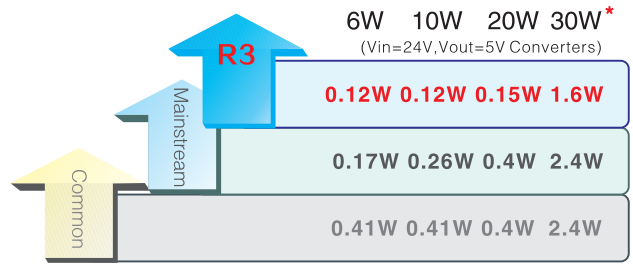

Figure 2: No-load power consumption of converters from different manufacturers

* URB2405LD-30WR3 is designed with synchronizing rectifier circuit, which no-load power consumption is as high as 1.6W.

2. No Minimum Load Requirement

- **With high stability loop design, R3 DC/DC converters will not oscillate in light-load condition and they can be operated stably without dummy load.**

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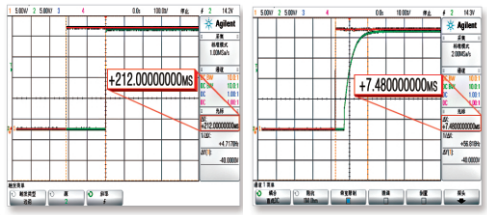
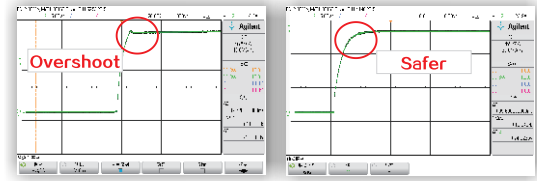
3. Faster Start-up without Overshoot

- **R3 series start-up time decreasing from 200mS to 20mS helps to avoid any system failure caused by long start-up time.**
- **Faster start-up without overshoot ensures the stability of customers' system and protects the load from being damaged.**



Mainstream Converter R3 Converter

Figure 3:Start-up time of mainstream converter and R3 converter



Mainstream Converter R3 Converter

Figure 4:Start-up voltage of mainstream converter and R3 converter

4.Excellent EMI Performance

- **R3 DC-DC converters meet EN55032 Class A conducted emission and conducted radiation with filter build-in and Class B standard with suggested peripheral circuit.**

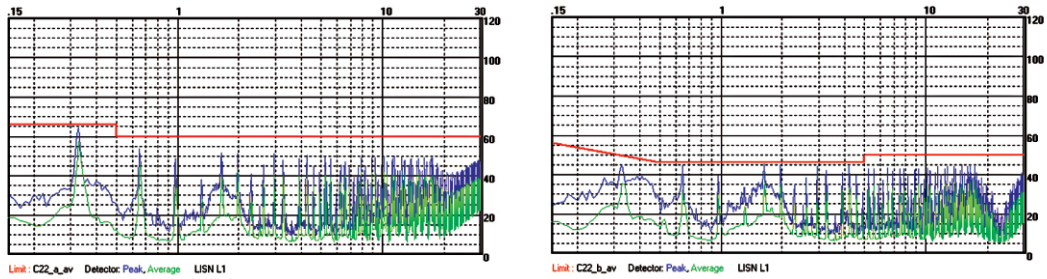
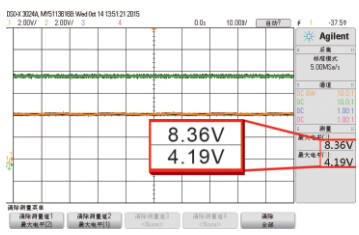


Figure 5:URB2405YMD-10WR3 meets CLASS A with filter build-in and Class B with suggested peripheral circuit

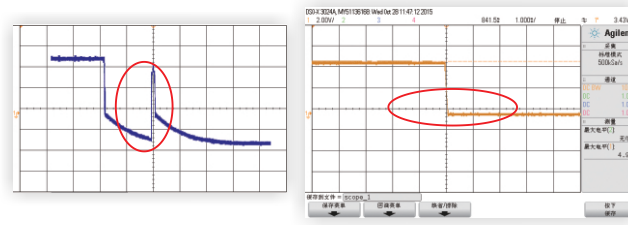
5. Multiple Protections

- **R3 DC-DC converters have protections for input under-voltage , output over-voltage, over-current and short circuit which help to ensure safety and system reliability.**
- **Application case of input under-voltage protection:**
  Abnormal restarting mentioned as below may cause unnecessary damage, while R3 with input under-voltage protection can avoid such problems.



Normally under-voltage protection should be activated at certain voltage(eg. 8.6V) and switch off, but another manufacturer's converter still has 4.19V output when its input voltage drops below 8.36V.

Problem 1. Products may restart in the field when input voltage is below the low voltage protection point.



Converter from another manufacturer R3 converter

Problem 2. Products will restart for a short while after switching off (especially for 48 V input).

6. One-piece Heat-sink Case

- **Better heat conductivity of one-piece heat sink case significantly improves products' life span.**

More information, please visit www.mornsun-power.com

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