

# Cyntec Power Module Solutions for FPGA

MSN12AD12-MP

Cyntec Co., Ltd.



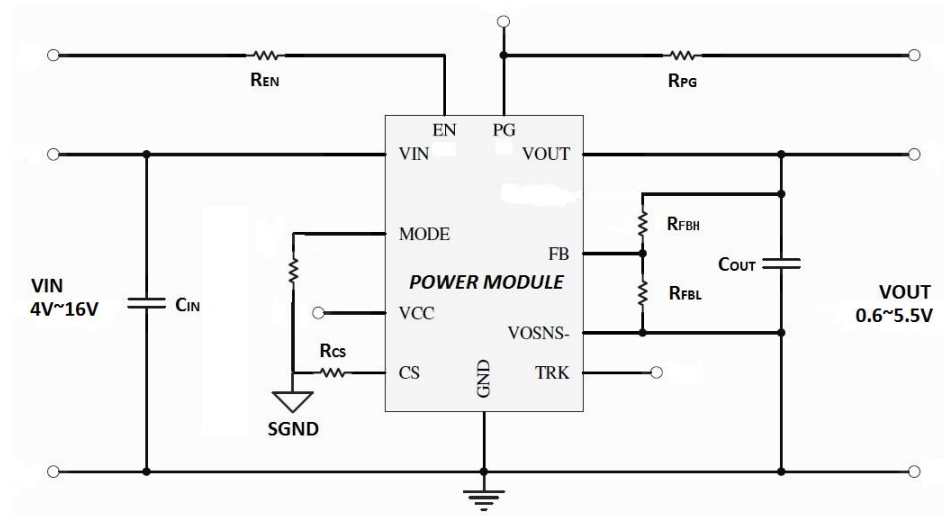
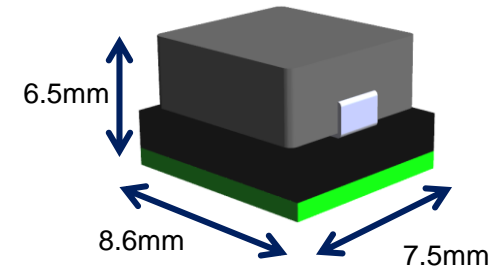
# MSN12AD12-MP FEATURE & APPLICATION

## FEATURES:

- High Power Density Power Module
- Typical Load:10A for 0.6V ~ 2.5V
- Typical Load:8A for 3.3V ~ 5.5V
- Input Voltage Range from 4.5V to 16V
- Output Voltage Range from 0.6V to 5.5V
- 94.5% Peak Efficiency at 12Vin to 3.3Vout
- Protections (Non-Latch OCP, UVP, UVLO, OTP and Latch-Off for OVP)
- Differential Output Voltage Remote Sense
- Programmable Soft-Start
- Pre-Biased Output
- Forced CCM Operation
- Power Good Indication
- Output Voltage Tracking
- Size 8.6mm x 7.5mm x 6.5mm
- Pb-free (RoHS compliant)
- MSL 3, 245°C Reflow

## APPLICATIONS:

- General Buck DC/DC Conversion
- DC Distributed Power System
- Telecom and Networking Equipments
- Servers System

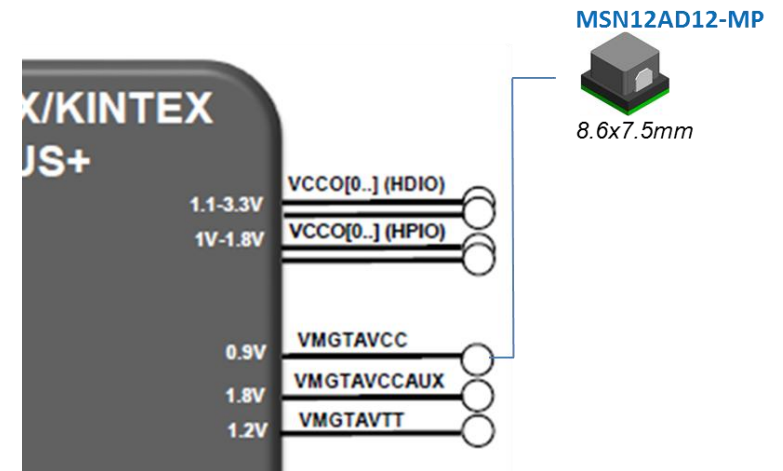
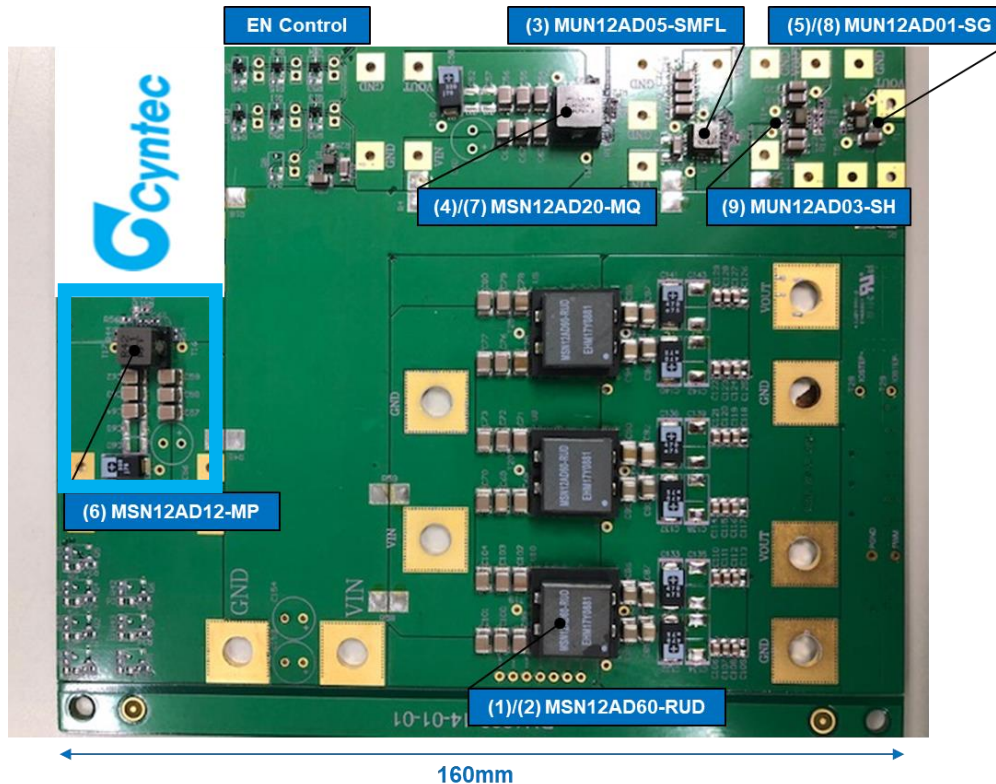


# MSN12AD12-MP for Xilinx XCVU13P

## Specifications

### VMGTAVCC

- 0.9V, current 2~9A
- $<10\text{mV}_{\text{pk-pk}}$  from 10kHz to 80MHz (UG578)



# MSN12AD12-MP for Xilinx XCVU13P

## Efficiency

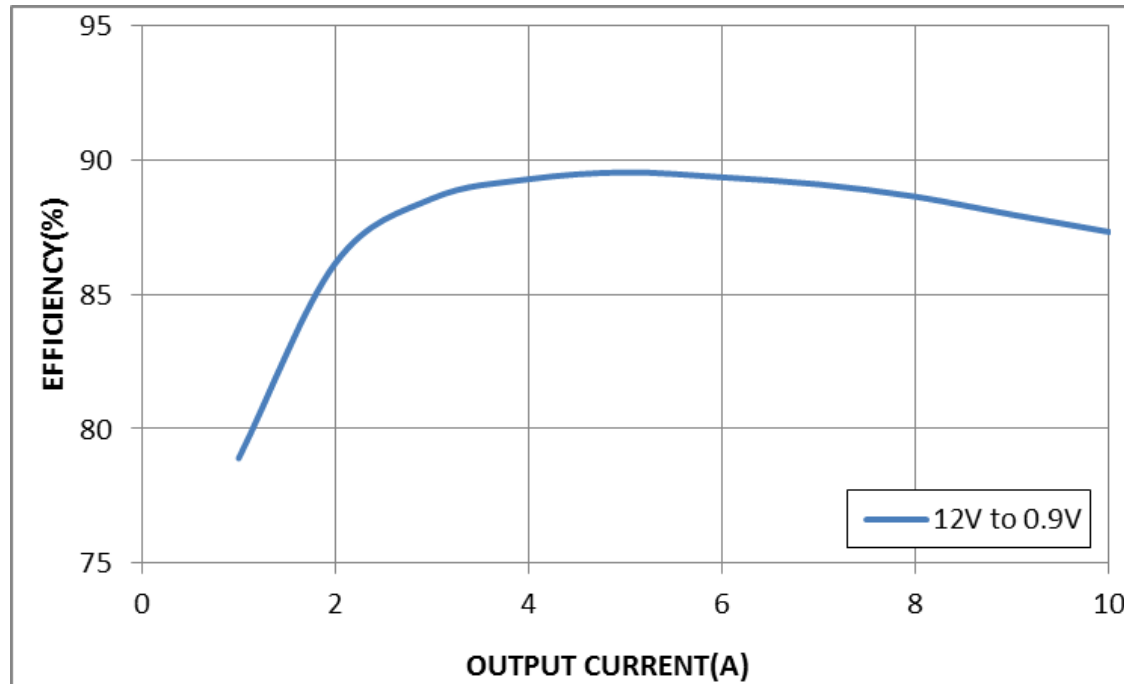
### Test Condition

VIN=12V VOUT=0.9V IOU=10A

Module: Cyntec MSN12AD12-MP

Input Capacitor: 22uF x 2pcs

Output Capacitor: MLCC 47uF \* 5pcs



VOUT=0.9V Pk-Pk Efficiency= 89.5% for IOU=5A

# MSN12AD12-MP for Xilinx XCVU13P Ripple

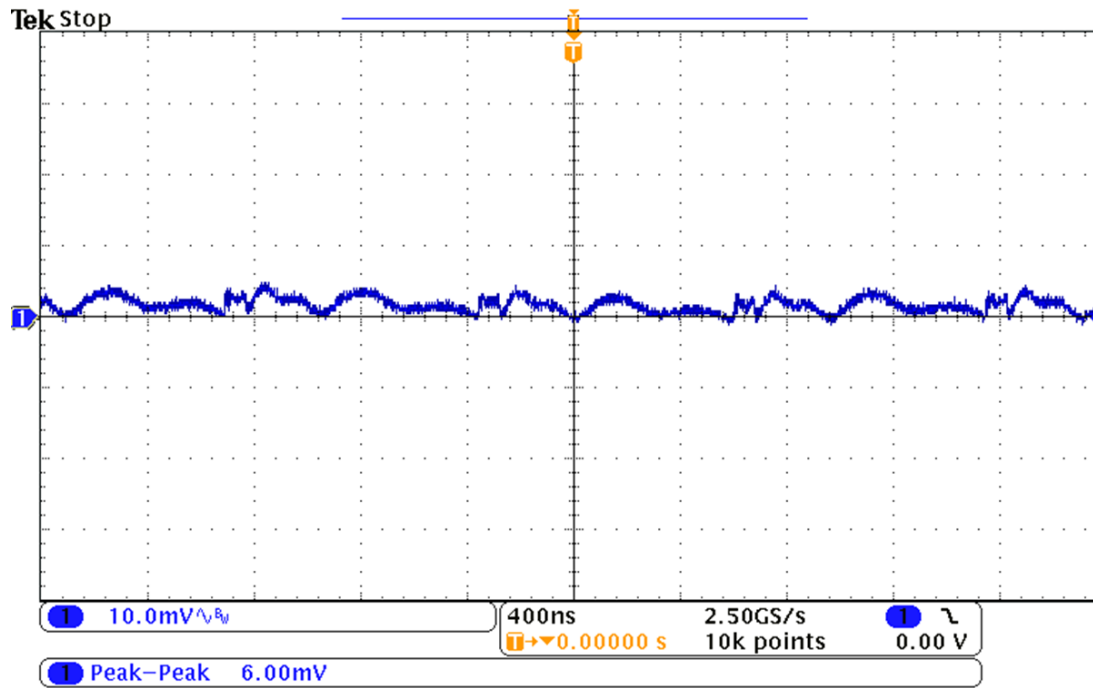
## Test Condition

VIN=12V VOUT=0.9V IOU=10A

Module: Cyntec MSN12AD12-MP

Input Capacitor: 22uF x 2pcs

Output Capacitor: MLCC 47uF \* 5pcs



VOUT=0.9V Pk-Pk 6mV for IOU=10A

# MSN12AD12-MP for Xilinx XCVU13P Transient

## Test Condition

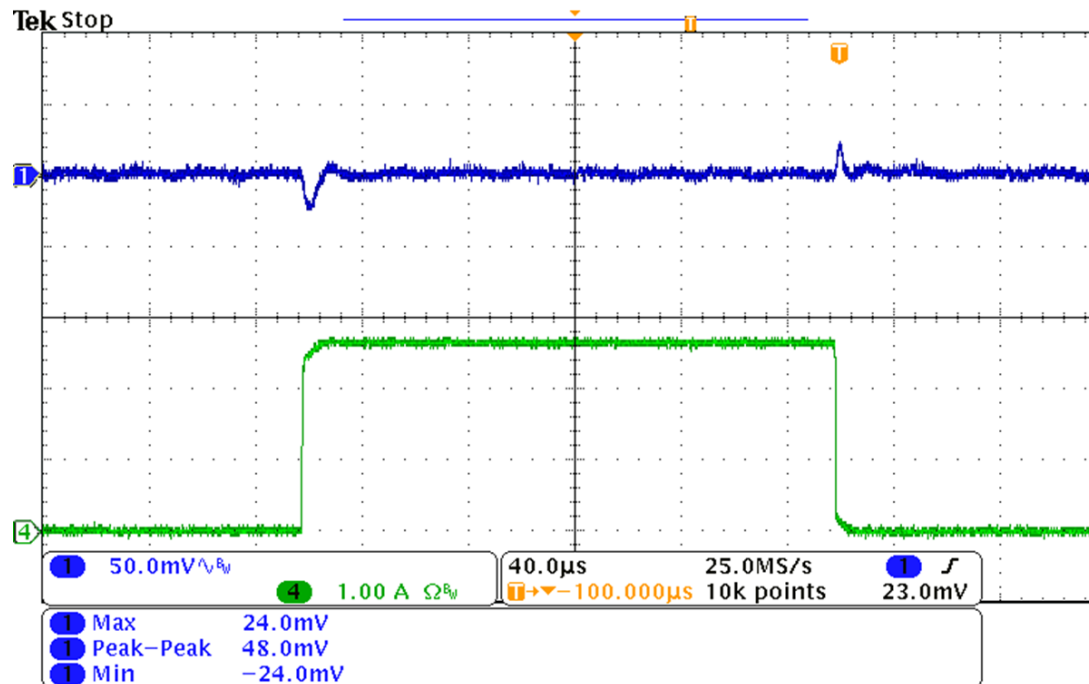
VIN=12V VOUT=0.9V IOU=10A

Module: Cyntec MSN12AD12-MP

Input Capacitor: 22uF x 2pcs

Output Capacitor: MLCC 47uF \* 5pcs

Transient <  $\pm 3\%$ , Io=0A~2.5A, 10A/us



VOUT=0.9V Pk-Pk Transient =48mV for IOU=0~2.5A

# MSN12AD12-MP for Xilinx XCVU13P

## Thermal

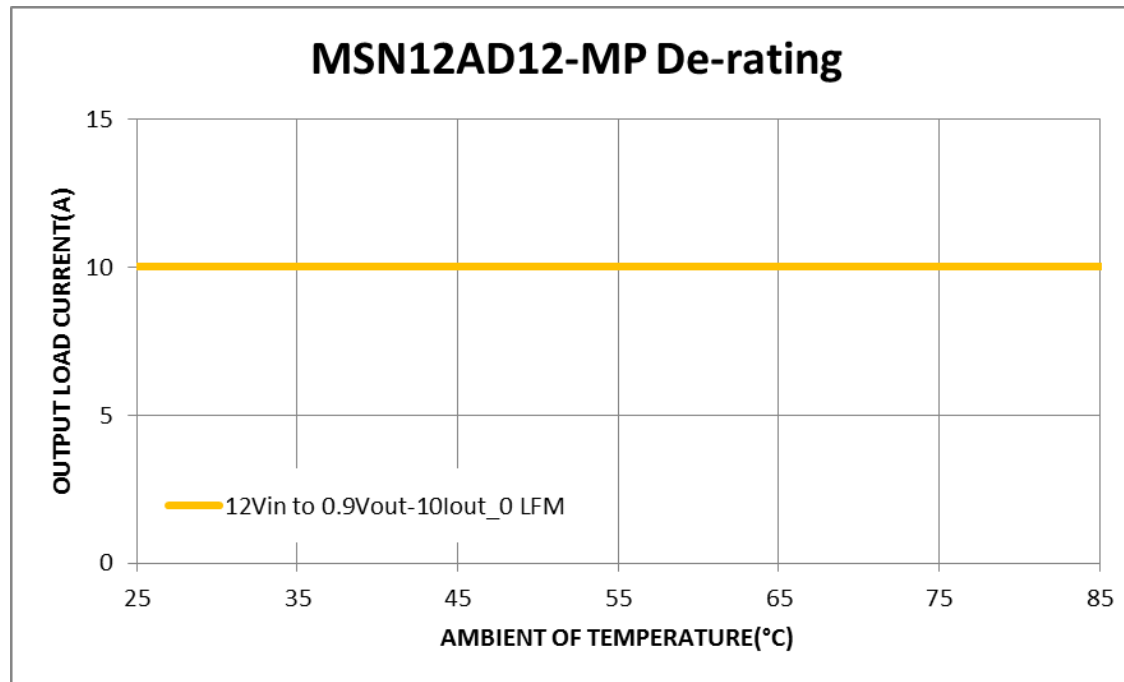
### Test Condition

VIN=12V VOUT=0.9V IOUT=10A

Module: Cyntec MSN12AD12-MP

Input Capacitor: 22uF x 2pcs

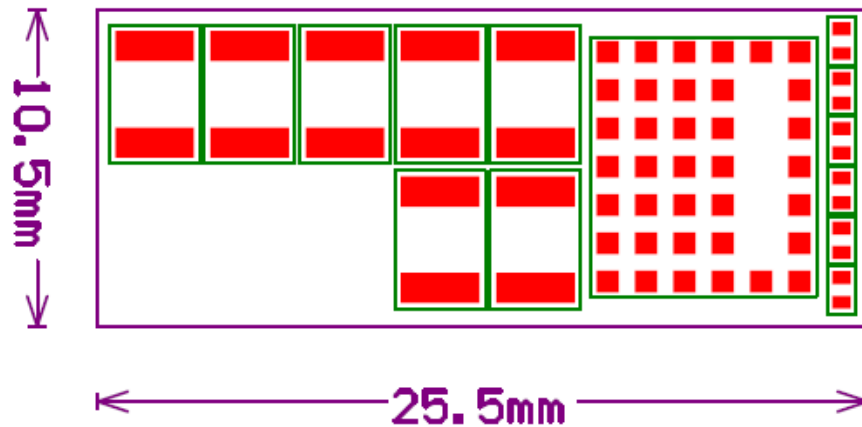
Output Capacitor: MLCC 47uF \* 5pcs



0 LFM No De-rating

# Layout Example of the 12A module

(Layout is for reference only --- single-sided SMT. Further optimization is possible in terms of output characteristics and actual application environment)



## Remarks

- Input capacitance: 22uF x 2pcs
- Output capacitance: MLCC 47uF \* 5pcs
- Arrangement could be optimized based on output transient requirements