Cyntec Power Module Solutions for FPGA
MSN12AD12-MP

Cyntec Co., Ltd.
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
Specifications

VMGTA VCC

- 0.9V, current 2~9A
- <10mV_{pk-pk} from 10kHz to 80MHz (UG578)
MSN12AD12-MP for Xilinx XCVU13P

Efficiency

Test Condition
VIN=12V VOUT=0.9V IOUT=10A
Module: Cyntec MSN12AD12-MP
Input Capacitor: 22uF x 2pcs
Output Capacitor: MLCC 47uF * 5pcs

VOUT=0.9V Pk-Pk Efficiency= 89.5% for IOUT=5A
MSN12AD12-MP for Xilinx XCVU13P

Ripple

Test Condition
VIN=12V VOUT=0.9V IOUT=10A
Module: Cyntec MSN12AD12-MP
Input Capacitor: 22uF x 2pcs
Output Capacitor: MLCC 47uF * 5pcs

VOUT=0.9V Pk-Pk 6mV for IOUT=10A
MSN12AD12-MP for Xilinx XCVU13P
Transient

Test Condition
VIN=12V VOUT=0.9V IOUT=10A
Module: Cyntec MSN12AD12-MP
Input Capacitor: 22uF x 2pcs
Output Capacitor: MLCC 47uF * 5pcs
Transient < ±3%, Io=0A~2.5A, 10A/us

VOUT=0.9V Pk-Pk Transient =48mV for IOUT=0~2.5A
**Test Condition**

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

**Module:** Cyntec MSN12AD12-MP

**Input Capacitor:** 22uF x 2pcs

**Output Capacitor:** MLCC 47uF * 5pcs

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**MSN12AD12-MP De-rating**

**Output Load Current (A)**

- 0 5 10 15

**Ambient of Temperature (°C)**

- 25 35 45 55 65 75 85

- **12Vin to 0.9Vout-10Iout_0 LFMD**

**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