



## URB\_MP-12W Series

### 12W, WIDE INPUT, ISOLATED & REGULATED SINGLE OUTPUT DC-DC CONVERTER

multi-country patent protection **RoHS**

#### FEATURES

- Efficiency up to 88%
- Wide (4:1) Input Range
- 12W Rated Power Output
- 1.5KVDC Input/Output Isolation
- Operating Temperature: -40°C to+85°C
- DIP24 Package
- Industry Standard Pinout
- Five-sided Metal Shielding Package
- Over Voltage Protection
- Output Short Circuit Protection
- Remote ON/OFF

#### PRODUCT PROGRAM

Part Number	Input			No-load (typ, mA)	Output			Efficiency (% Typ)	
	Voltage (VDC)				Voltage (VDC)	Current (mA)			Capacitance (Max, uF)
	Nominal	Range	Max**			Max	Min		
URB2403MP-12W	24	9-36	40	55	3.3	3500	0	3000	85
URB2405MP-12W *				55	5	2400	0	2000	86
URB2412MP-12W *				25	12	1000	0	500	86
URB2415MP-12W *				25	15	800	0	400	86
URB4803MP-12W *	48	18-75	80	20	3.3	3500	0	3000	85
URB4805MP-12W *				20	5	2400	0	2000	87
URB4812MP-12W *				10	12	1000	0	500	87
URB4815MP-12W *				10	15	800	0	400	88

\*Designing.  
\*\*Input voltage can't exceed this value, or will cause the permanent damage.

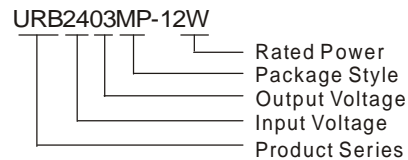
#### APPLICATIONS

The URB\_MP-12W Series are particularly suited to data transfer equipments, battery operated equipments, tele-communication equipments, distributed power system, mix analog/digital system, remote control system, industrial robot system and other wide input voltage application fields.

#### INPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Start-up time	Input voltage range refer to output load		500		mS
Under Voltage protection	Nominal input(24V)	DC-DC Module ON		8.8	9
		DC-DC Module OFF		8.3	8.5
	Nominal input(48V)	DC-DC Module ON		17	17.5
		DC-DC Module OFF		16.5	17
CTRL	DC-DC Module ON	3		40	VDC
	DC-DC Module OFF	0	Or open circuit		1.2

#### MODEL SELECTION



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#### OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output Power	25°C environment temperature			12	W
Ripple& Noise	20MHz Bandwidth			85	mV
Switching Frequency	From 10% to 100% load	350	400	450	KHz
Output Voltage Accuracy	Input voltage range refer to output load		±1	±3	%
Voltage regulation	Input voltage from low to high		±0.2	±0.5	
Load Regulation	Nominal input, 10% to 100% load		±0.5	±1.5	
Temperature Drift(Vout)	25°C environment temperature		0.02		%/°C
Over voltage protection	Output voltage (VDC)	3.3	4.3		VDC
		5	6		
		12	13		
		15	16		
Short circuit protection		Continuous, automatic recovery			

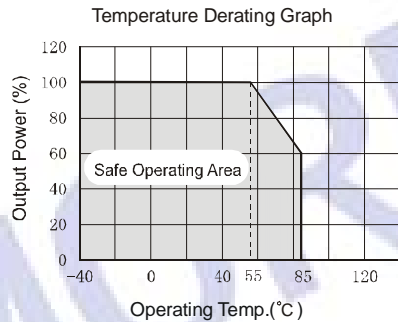
## COMMON SPECIFICATION

Item	Test Conditions	Min	Typ	Max	Units	
Isolation voltage	Input/Output	Tested for 1 minute and 1 mA max	1500			VDC
	Input, Output and case		1500			
Isolation resistance	Input/Output	Tested at 500VDC	1000			MΩ
	Input, Output and case		1000			
Isolation Capacitance				1100	pF	
Storage humidity				95	%	
Operating temperature	With derating at 55°C, refer to Temperature Derating Graph	-40		85	°C	
Storage temperature		-55		125		
Temp. rise at full load			95	105		
Lead temperature	1.5mm from case for 10 seconds			300		
MTBF	MIL-HDBK-217F(25°C)	1000			K hours	
Weight			18.5		g	
Case material	Copper plating nickel(Five-sided shield)					

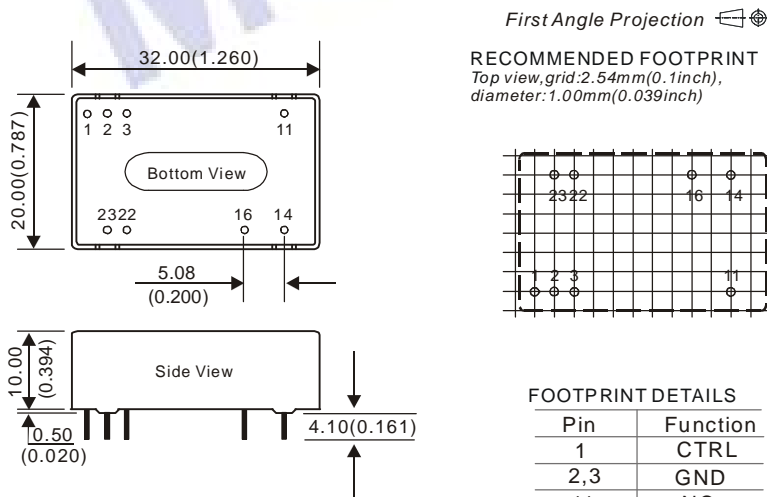
Note:

- All specifications measured at  $T_A=25^{\circ}\text{C}$ , humidity<75%, nominal input voltage and rated output load unless otherwise specified.
- When product begins to work, temperature may rise slowly until stabilize. It's normal that output voltage derating and efficiency reduce about 2 percent during this process.
- Only typical model listed. If you need other model of this series (same power and package), please confirm input and output voltage, then phone us.
- No parallel connection or plug and play.
- The CTRL pin voltage is referenced to GND.
- If product has no use for CTRL pin, it's name will change, add "X" in front of "MP" to distinguish.

## TYPICAL CHARACTERISTICS



## OUTLINE DIMENSIONS & PIN CONNECTIONS



### FOOTPRINT DETAILS

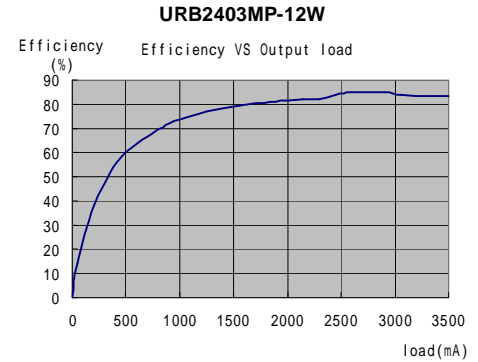
Pin	Function
1	CTRL
2,3	GND
11	NC
14	+Vo
16	0V
22,23	Vin

NC: No Connection

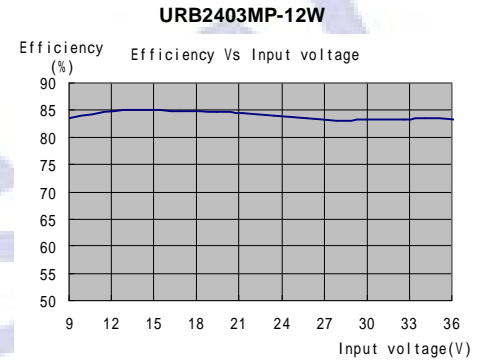
Note:  
Unit:mm(inch)  
Pin section:0.50mm(0.020inch)  
Pin section tolerances:±0.05mm(±0.002inch)  
General tolerances:±0.25mm(±0.010inch)

## EFFICIENCY CURVE

### ① Efficiency Vs Load



### ② Efficiency Vs Input voltage



## APPLICATION NOTE

### Recommended Circuit

All the URB\_MP-12W Series have been tested according to the following recommended testing circuit before leaving factory. If you want to further decrease the input ripple, Cin is recommended to use 100uF. If ripple and noise are required, you can increase capacitance of Cout properly. However, the capacitance should not be higher than Max capacitance.



(Figure 1)