



## 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.

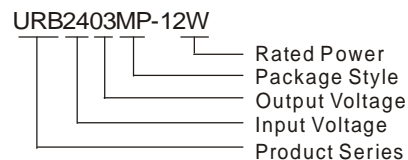
#### APPLICATIONS

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



#### 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			

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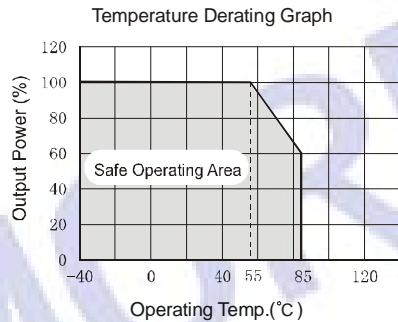
## COMMON SPECIFICATION

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)				

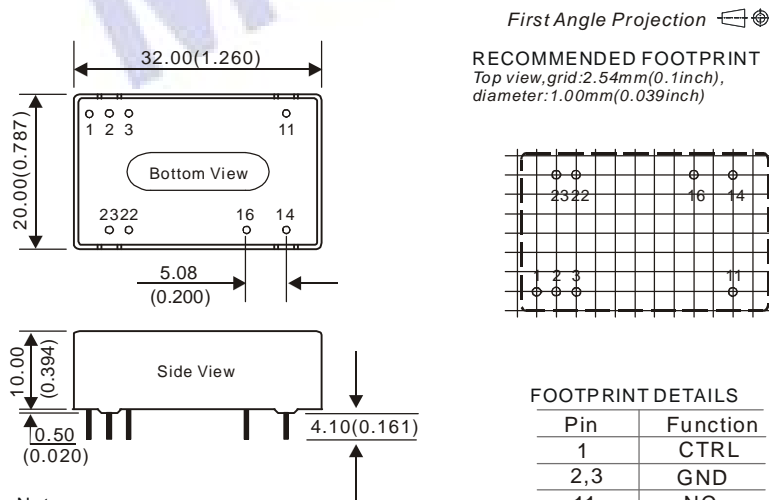
Note:

- 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

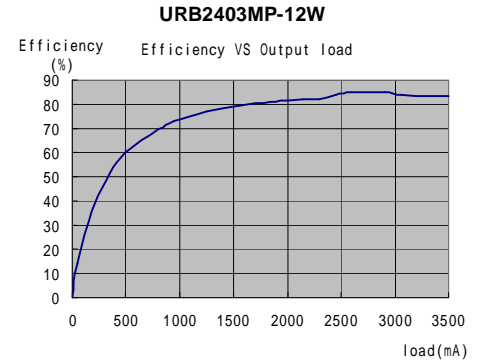
Pin	Function
1	CTRL
2,3	GND
11	NC
14	+Vo
16	0V
22,23	Vin

NC: No Connection

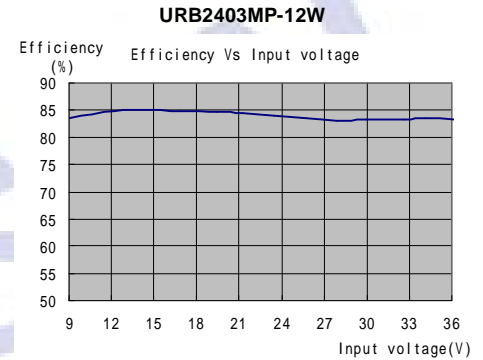
Note:  
Unit:mm(inch)  
Pin section:0.50mm(0.020inch)  
Pin section tolerances: $\pm 0.05\text{mm}(\pm 0.002\text{inch})$   
General tolerances: $\pm 0.25\text{mm}(\pm 0.010\text{inch})$

## 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,  $C_{in}$  is recommended to use 100uF. If ripple and noise are required, you can increase capacitance of  $C_{out}$  properly. However, the capacitance should not be higher than Max capacitance.



(Figure 1)