

**DESCRIPTION**

The AD-URBxxxxYMD-10WR3 (Single) and AD-URAxxxxYMD-10WR3 (Dual) series are isolated 6W DC-DC converter products a 4:1 input voltage range. They feature efficiencies of up to 91%, 1500VDC input to output isolation, operating ambient temperature of -40°C to +85°C, input under-voltage protection, output over-current, short-circuit protection, which is widely used in medical, industrial controls, electricity, instrumentation, communications and other fields.

FEATURES

- Wide 4:1 input voltage range
- High efficiency up to 91%
- I/O isolation test voltage 1.5K VDC
- No-load power consumption bottom 0.036W
- Input under-voltage protection, output short-circuit, over-current protection
- Continuous short-circuit protection
- Operating temperature range:-40°C to +85°C
- International Standard Pin out
- DIP Package

ORDERING INFORMATION

Part Number	Input Voltage (VDC)	Output		Full Load Efficiency(%) Min/Typ	Capacitive Load (uF) Max.	
	Nominal (Range)	Voltage (VDC)	Current (mA) Max/Min			
AD-URA2405YMD-10WR3	24.0 (9.0~36.0) Max:40	±5	±1000/0	83/85	1100	
AD-URA2409YMD-10WR3		±9	±555/0	84/86	470	
AD-URA2412YMD-10WR3		±12	±416/0	86/88	330	
AD-URA2415YMD-10WR3		±15	±333/0	88/90	220	
AD-URA2424YMD-10WR3		±24	±208/0	89/91	100	
AD-URB2403YMD-10WR3		3.3	2400/0	80/82	2500	
AD-URB2405YMD-10WR3		5	2000/0	83/85	2200	
AD-URB2409YMD-10WR3		9	1111/0	84/86	680	
AD-URB2412YMD-10WR3		12	833/0	87/89	470	
AD-URB2415YMD-10WR3		15	666/0	88/90	330	
AD-URB2424YMD-10WR3		24	416/0	89/91	220	
AD-URA4805YMD-10WR3		48 (18.0~75) Max:80	±5	±1000/0	83/85	1100
AD-URA4812YMD-10WR3			±12	±416/0	86/88	330
AD-URA4815YMD-10WR3	±15		±333/0	88/90	220	
AD-URA4824YMD-10WR3	±24		±208/0	89/91	100	
AD-URB4803YMD-10WR3	3.3		2400/0	80/82	2500	
AD-URB4805YMD-10WR3	5		2000/0	83/85	2200	
AD-URB4812YMD-10WR3	12		833/0	87/89	680	
AD-URB4815YMD-10WR3	15		666/0	88/90	470	
AD-URB4824YMD-10WR3	24		416/0	89/91	220	



INPUT SPECIFICATIONS

Item	Operating Conditions	Min	Typ	Max	Unit
Input Current (Full Load/No-Load)	24VDC input, 3.3VDC output	--	402/1	413/1	mA
	24VDC input, Others	--	490/1	502/1	
	48VDC input, 3.3VDC output	--	201/1	207/1	
	48VDC input, Others	--	245/1	251/1	
Reflect Ripple Current	24V series input	--	40	--	mA
	48V series input	--	30	--	
Surge Voltage (1sec. max)	24VDC input	-0.7	--	50	VDC
	48VDC input	-0.7	--	100	
Start-up Voltage	24VDC input	--	--	9	VDC
	48VDC input	--	--	18	
input under-voltage protection	24VDC input	5.5	6.5	--	VDC
	48VDC input	12	15.5	--	
Input Filter		PI Filter			
Hot Plug		Unavailable			
Start-up Time	Standard input with CR load	1 ms			
Ctrl *	Module on	Ctrl pin open or pulled high (>0.8VDC)			
	Module off	Ctrl pin pull low to GND (<0.6VDC)			

*The Ctrl pin voltage is referenced to input GND.

OUTPUT SPECIFICATIONS

Item	Operating Conditions	Min	Typ	Max	Unit	
Output Voltage Accuracy		Vo1	--	±1.0	±2.0	%
		Vo2	-	±2.0	±3.0	
Linear Regulation	Input voltage variation from low to high at full load	Vo1	--	±0.2	±0.5	%
		Vo2	-	±1.5	±2.0	
Load Regulation	20~100% Load	Vo1	--	±0.5	±1.0	%
		Vo2	-	±4.0	±5.0	
Ripple & Noise	Pure resistance load, 20MHz bandwidth peak-to-peak value	--	50	80	mVp-p	
Start Delay time		--	1	--	ms	
Output Over Current Protection	Full Voltage input range	110	150	200		
Output Over Voltage Protection	Full Voltage input range	110		160		
Output Short Circuit Protection	Full Voltage input range	Continuous, self-recovery				
Transient Recovery Time	25% load step change	--	0.3	0.5	ms	
Transient Response Deviation	25% load step change	Vo1	--	±3.0	±5.0	%
		Vo2	--	±3.0	±5.0	

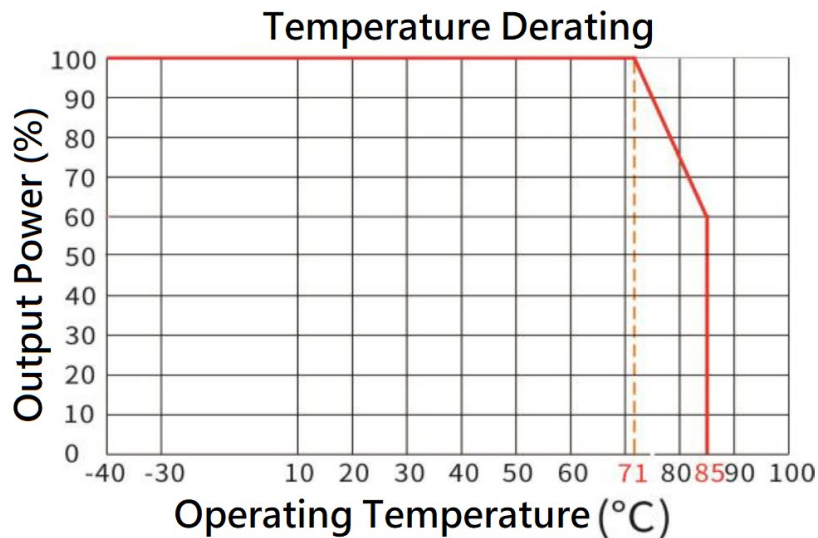


GENERAL SPECIFICATIONS

Item	Test Condition	Min	Typ	Max	Unit
Isolation Voltage	Input-output, test time 1minute, leakage current less than 1mA	1500	--	--	VDC
Isolation Resistance	Input-output, insulation voltage 500VDC	1000	--	--	MΩ
Isolation Capacitor	Input-output, 100KHz/0.1V	--	1000	--	pF
Operating Temperature	Refer to Fig1. Temperature Derating	-40	--	+85	°C
Storage Temperature		-40	--	+125	°C
Max Operation Case Temperature		--	100	--	°C
Storage Humidity	No Condensation	5	--	95	%RH
Pin Soldering Temperature Resistance	Solder joint distance from housing 1.5mm, 10s	--	--	+300	°C
Switching Frequency	Full load, nominal voltage input	--	250	--	KHz
Vibrations	10-55Hz, 10G, 30Min along X,Y & Z				
Housing Material	Aluminum alloy shell plastic bottom cover				
MTBF	MIL-HDBK-217F@25°C		2x10 ⁵		Hrs

TYPICAL CHARACTERISTIC CURVES

Fig 1.





DESIGN REFERENCE

Typical Application

Fig 2. Single Output

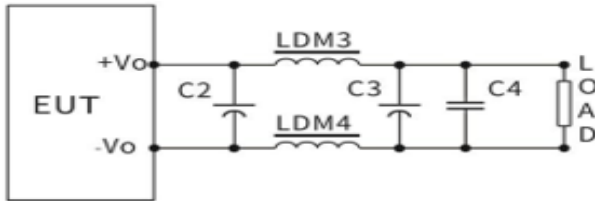


Fig 3. Dual Output

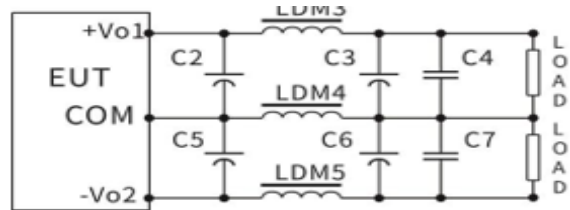


Table1. Recommend Input and output Capacitor Values

Item	3.3VDC	±5VDC	±9/12VDC	±15VDC	±24VDC
LDM3 Inductor	0.47uH	1uH	2.2uH	2.2uH	4.7uH
LDM4 Inductor	0.47uH	1uH	2.2uH	2.2uH	4.7uH
LDM5 Inductor (Dual)		1uH	2.2uH	2.2uH	4.7uH
C2, C3 Electrolytic Cap	220uF	220uF	100uF	100uF	68uF
C5,C6 Electrolytic Cap	220uF	220uF	100uF	100uF	68uF
C4,C7 Electrolytic Cap	1uF/50V				

EMC Compliance Circuit

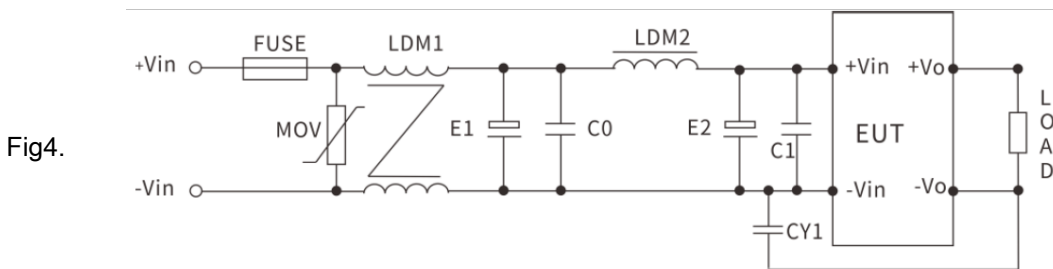


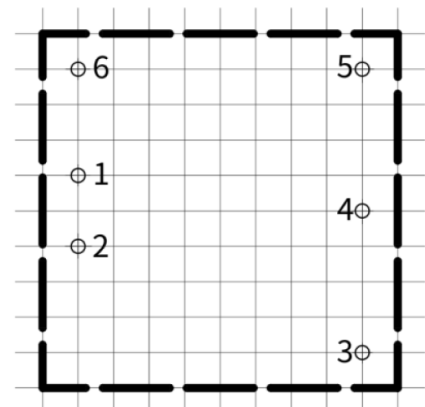
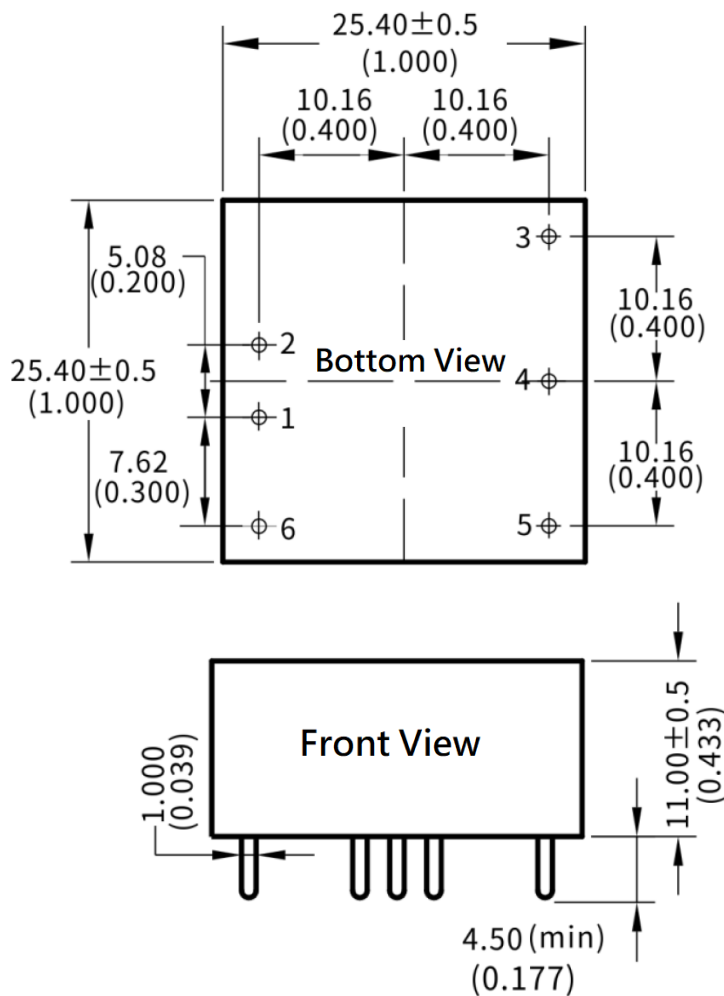
Table 2. Typical components Parameter Description

Components	24V input	48V Input	110V input
Fuse	Choose according to actual input current		
MOV Varistor	14D560K	14D101K	14D201K
LDM1 inductor	10mH	15mH	30mH
E1,E2 Electrolytic Cap	100uF/50V	100uF/50V	63uF/50V
C0, C1 Ceramic Cap	1uF/50V	1uF/50V	0.47uF/50V
CY1 Safety Cap Y2	1nF/250Vac		



PACKAGE INFORMATION

Package Code: YMD Dimension: 25.4x25.4x11.0 mm (1.000x1.000x0.433 inch)



Note: Grid 2.54 * 2.54mm
Unit: mm(inch)
Pin section tolerances: ± 0.10 (± 0.004)
General tolerances: ± 0.25 (± 0.010)

Pin-Out		
Pin #	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	+Vo	+Vo1
4	NC	COM
5	GND	-Vo2
6	Ctrl	Ctrl