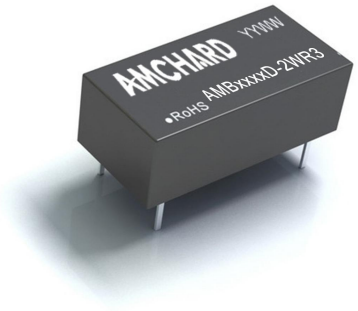
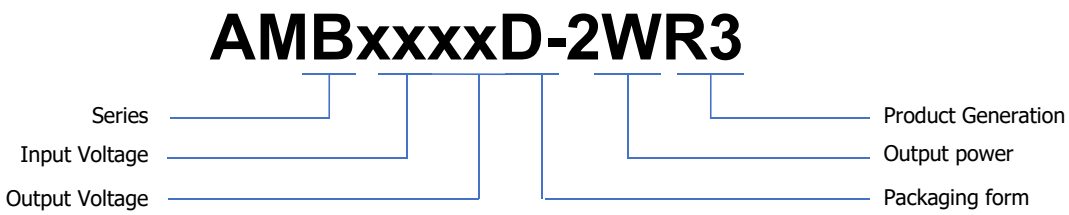
Features



1. Sustainable short-circuit protection
2. Wide operating temperature range: -40℃ to +85℃
3. Up to 85% efficiency
4. No load current as low as 5MA
5. International standard DIP packaging saves PCB installation space
6. Isolation:1500VDC
7. Isolated non stabilized 2W single channel output DC-DC module power supply.

RoHS CE 3 years Warranty

Model Numbering



Selection Guide

Product model	Input Voltage Standard value(range)	Output Voltage	Output Current (mA)	Efficiency % (Min./Typ.)	Maximum capacitive load (μF)
AMB2403D-2WR3	24VDC (21.6-26.4)	3.3	400/40	74/79	2400
AMB2405D-2WR3		5	400/40	79/85	2400
AMB2409D-2WR3		9	222/22	79/85	1000
AMB2412D-2WR3		12	167/17	79/85	560
AMB2415D-2WR3		15	133/13	81/86	560
AMB2424D-2WR3		24	83/8	81/86	220

Input Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Units
Input current (Rated Load)	Nominal voltage input	- -	466	488	mA
Input current (No-load)		4	8	20	mA
Reflected ripple current		- -	15	- -	mA
Input impulse voltage		-0.7	- -	30	VDC
Input filter	Capacitive filtering				
Remarks : **This product does not support hot plug**					

Output Characteristic

Parameter	Conditions	Min.	Typ.	Max.	Units
Output voltage accuracy		See Figure 1 (envelope curve)			
Linear regulation rate	Input voltage variation+/- 1%	- -	- -	+/-1.1	- -
Load regulation rate	10% to 100% load	- -	6	- -	%
Ripple & Noise	20MHz bandwidth	- -	70	180	mVp-p
Temperature drift coefficient	100% load	- -	+/-0.03	- -	%/℃
Short circuit protection	Sustainable, Self-healing				

General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation voltage	Input output, Test time 1 minute, Leakage current less than 1 mA	1500	- -	- -	VDC
Insulation resistance	Input output, Insulation voltage 500VDC	1000	- -	- -	MΩ
Isolation capacitance	Input output, 100KHz/0.1V	- -	20	- -	pF
Working temperature	Temperature ≥ 85 ℃ for derating (See Figure 2)	-40	- -	+85	℃
Storage temperature		-55	- -	+125	℃
Storage humidity	Non condensing	5	- -	95	%RH
Housing temperature rise during operation	Ta=25 ℃, Nominal input, Full output	- -	25	- -	℃
Soldering temperature resistance of pins	The distance from the welding spot to the shell is 1.5mm, 10 seconds	- -	- -	300	℃
Switching frequency	Full load, Nominal input voltage	- -	260	- -	kHz
Mean time between failures	MIL-HDBK-217F@25℃	3500	- -	- -	kHours

Physical Characteristics

Parameter	Content
Housing material	Black flame retardant and heat-resistant plastic (UL94V-0)
Overall dimensions	20.32 x 10.16 x 8.20 mm
Weight	2.4g(Typ.)
Cooling mode	Natural air cooling

EMC Characteristics

Parameter	Category	Content
EMI	Conductive disturbance	CISPR32/EN55032 CLASS B (The recommended circuit is shown in Figure 2)
	Radiation disturbance	CISPR32/EN55032 CLASS B (The recommended circuit is shown in Figure 2)
EMS	Electrostatic discharge	IEC/EN61000-4-2 Contact ±6KV perf. Criteria B

Circuit Design and Application

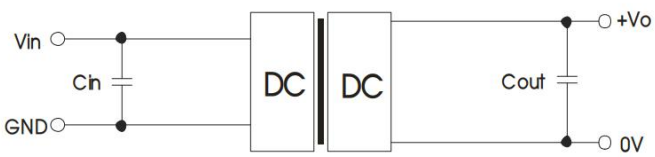


Figure 1: Application circuit

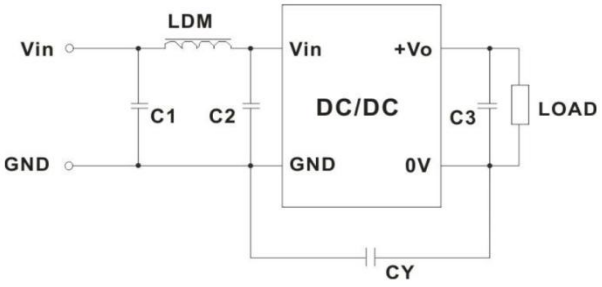


Figure 2: EMC Typical Recommended Circuits

Table 1:
Recommended Capacitive Load Values

Vin(VDC)	Cin(μF)	Vo(VDC)	Cout(μF)
Nominal voltage	2.2	Nominal voltage	10

Table 2:
Recommended Circuit Parameter Values

Category	Component	Value
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	C3/C4	10μF /16V
	CY	270pF/3kV
	LDM	6.8μH

1) Typical application: If it is required to further reduce the input and output ripple, a capacitor filter network can be connected at the input and output terminals. The application circuit is shown in Figure 1. However, proper filter capacitor shall be selected. If the capacitance is too large, it may cause startup problems. For each output, under the condition of ensuring safe and reliable operation, the recommended capacitive load values are shown in Table 1.
2) Typical EMC recommended circuits are shown in Figure 2.

Product Characteristic Curve

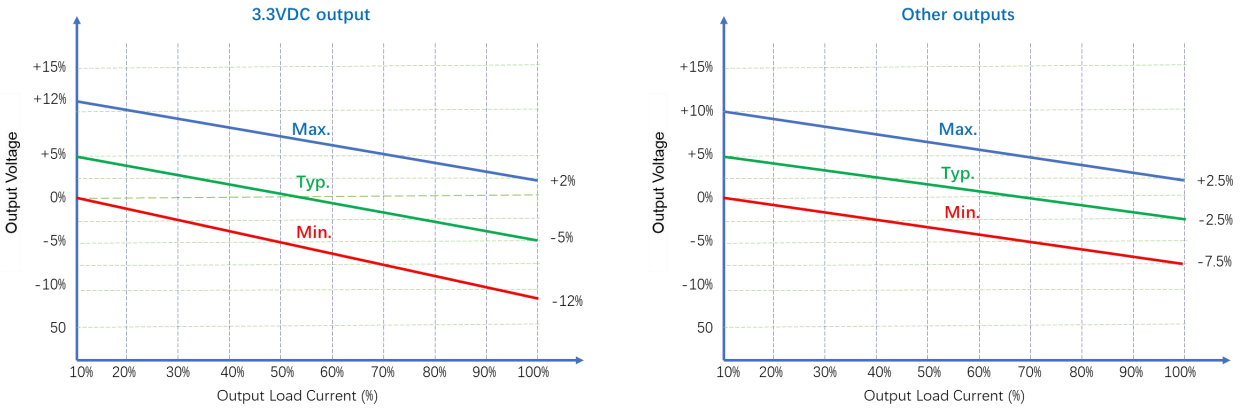


Figure 3: Voltage tolerance envelope

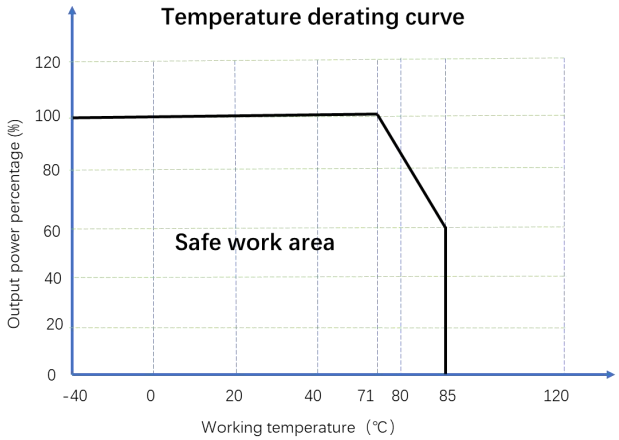


Figure 4: Temperature Derating Curve

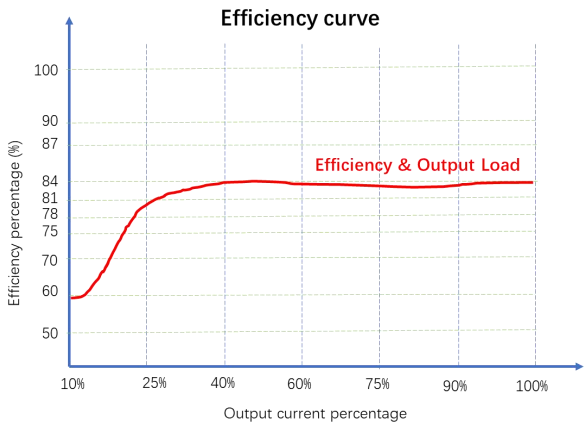


Figure 5: Efficiency VS Output Load (Nominal Voltage Input)

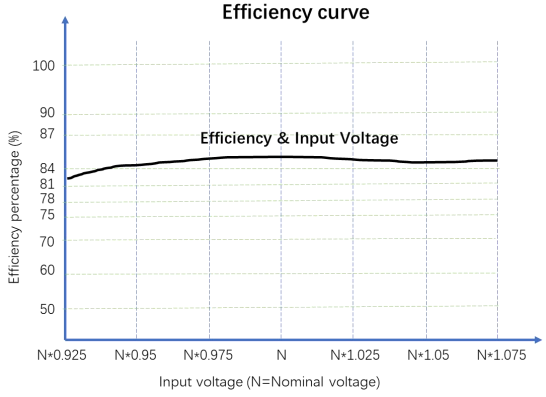


Figure 6: Efficiency VS Input Voltage (100% Load)

Overall Dimensions and Pin Functions

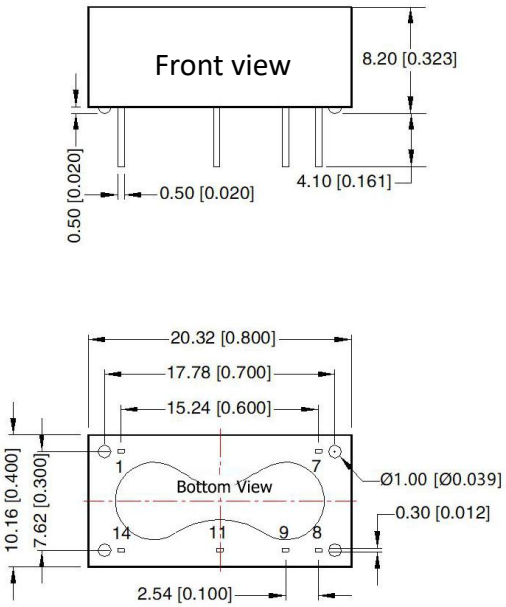


Figure 7: Overall dimensions

Note:
Dimensions in mm [inch]
Terminal diameter tolerance:+/-0.10 [+/-0.004]
Undeclared tolerance:+/-0.50 [+/-0.020]

Table 3: Pin Function Table

Pin	Function
1	GND
7	NC
8	0V / -Vo
9	+Vo
11	No Pin
14	Vin

Notes & Instructions

1) The input voltage shall not exceed the specified range value, otherwise permanent and unrecoverable damage may be caused;
2) Unless otherwise specified, the parameters in this manual are measured at 25 ℃, 40%~75% humidity, input nominal voltage and output pure resistance mode under full load;
3) All index test methods are based on the company's enterprise standards.
4) The copyright and the final interpretation right of the product belong to AMCHARD.