Features

1. Ultra-wide 4:1 input voltage range
2. High efficiency up to 91%
3. I/O isolation test voltage 1.5kVDC
4. Inputunder-voltage protection, output short-circuit, over-current, over-voltage protection
5. Operating ambient temperature range:-40℃ to+100℃
6. Industry standard pin-out

RoHS CE 3 years Warranty

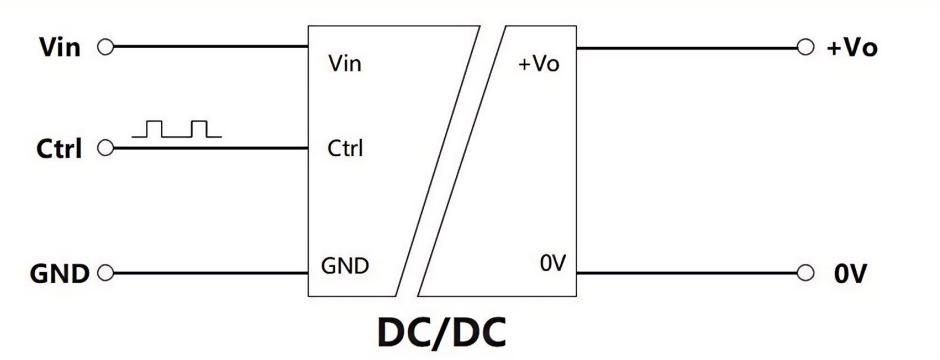
Selection Guide

Part No.	Input Voltage (VDC)		Output		Full Load Efficiency (%)Min./Typ.	Capacitive Load (μF)Max.
	Nominal (Range)	Max.	Voltage (VDC)	Current (mA) Max./Min.		
ATB2403YMD-30WR3	24 (9-36)	40	3.3	6000/0	83/85	10000
ATB2405YMD-30WR3			5	6000/0	85/87	10000
ATB2412YMD-30WR3			12	2500/0	88/90	4700
ATB2415YMD-30WR3			15	2000/0	88/90	2200
ATB2424YMD-30WR3			24	1250/0	89/91	1000
ATB2428YMD-30WR3			28	1071/0	88/90	750
ATB4805YMD-30WR3	48 (18-75)	80	5	6000/0	85/87	10000
ATB4812YMD-30WR3			12	2500/0	86/88	4700
ATB4815YMD-30WR3			15	2000/0	87/89	2200
ATB4824YMD-30WR3			24	1250/0	86/88	1000

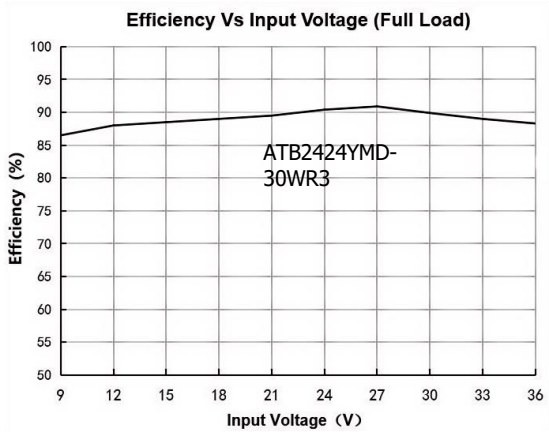
Notes：The specified maximum capacitive load for positive and negative output is equal.

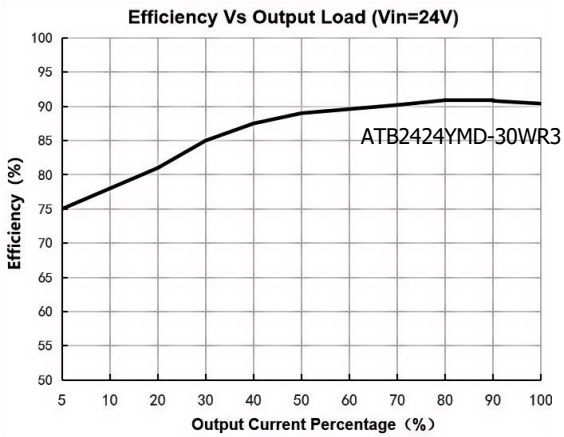
BASIC CHARACTERISTICS

Items	Condition	Min.	Typ.	Max.	Unit
Internal Input Filter	——	Pi Filter			
Input Voltage Range	ATB24xxYMD-30WR3 series	9	--	36	VDC
	ATB48xxYMD-30WR3 series	18	--	75	VDC
Start-up Voltage	ATB24xxYMD-30WR3 series	--	--	9	VDC
	ATB48xxYMD-30WR3 series	--	--	18	VDC
Star-up Time	Nominal input voltage & constant resistance load	--	10	--	ms
Input Reflected Ripple Current	Nominal input voltage	--	30	--	mA
Input static current	Nominal input voltage and no-load	--	15	30	mA
Operating Frequency	PWM mode	--	250	--	kHz
Ripple & Noise	20MHz bandwidth, 5% -100% load	--	120	--	mVp-p
ON/OFF CTRL	Module Turn ON	Ctrl pin open or pulled high (3.5-12VDC)			
	Module Turn OFF	Ctrl pin pulled low to GND (0-1.2VDC)			
	Input current when off	--	2	5	mA
Note: Under 0% -5% load conditions, ripple & noise does not exceed 5%Vo.					



Note: The voltage of the Ctrl pin is relative to the input pin GND; If Ctrl input voltage exceed 12V, the power module may be damaged



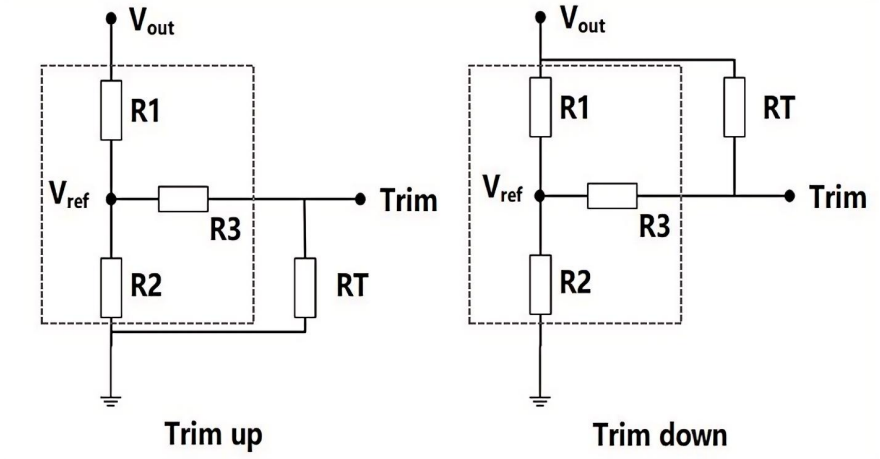


REGUALATIONS

Items	Condition		Min.	Typ.	Max.	Unit
Output accuracy	0%-100%load		--	±1	±3	%
Line Regulations	Full load，Low line to high line	Positive output	--	±0.2	±0.5	%
		Negative output	--	±0.5	±1	%
Load Regulations	0%-100%load	Positive output	--	±0.5	±1	%
		Negative output	--	±0.5	±1.5	%
Cross Regulation	Dual output, Vo1 load at 50%, Vo2 load at range of 25%-100%		--	--	±5	%
Transient Response Recover Time	25% load step change, normal input voltage		--	300	500	μs
Transient Response			--	±3	±5	%

PROTECTIONS

Items	Condition		Min.	Typ.	Max.	Unit
Isolation Voltage	Electric Strength Test for 1 minute with a leakage current of 1mA max.	Input-output	1500	--	--	VDC
		Input-Case	1000	--	--	VDC
		Output-Case	1000	--	--	VDC
Isolation Resistance	Input-output ， resistance at 500VDC		1000M	--	--	Ω
Isolation Capacitance	Input-output ， 100kHz/0. 1V		--	1000	--	pF
Insulation level			Function			
Input Surge Voltage	ATB24xxYMD-30WR3 series,1sec max.		-0.7	--	50	VDC
	ATB48xxYMD-30WR3 series,1sec max.		-0.7	--	100	VDC
Hot Plug	——		Unavailable			
Input under-voltage protection	ATB24xxYMD-30WR3 series,1sec max.		6	8	--	VDC
	ATB48xxYMD-30WR3 series,1sec max.		12	16	--	VDC
Short Circuit Protection	Input voltage range		continuous,automatic recovery			
Over Current Protection	Input voltage range		110	--	240	%Io
Over Voltage protection	Input voltage range		110	--	160	%Vo
Trim	Input voltage range		90	--	110	%Vo
Trim application circuit						

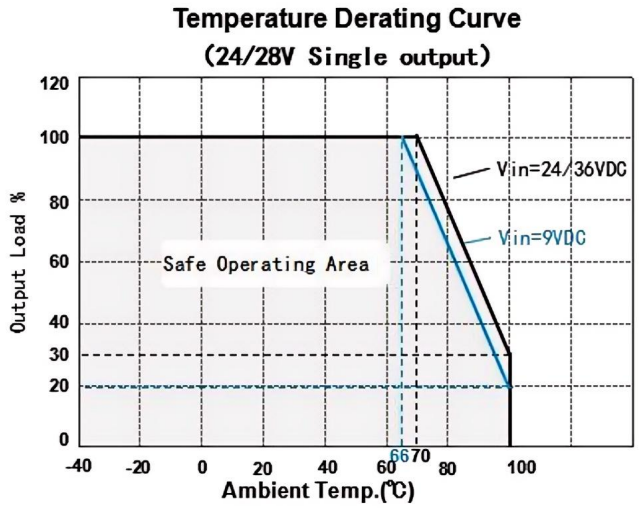


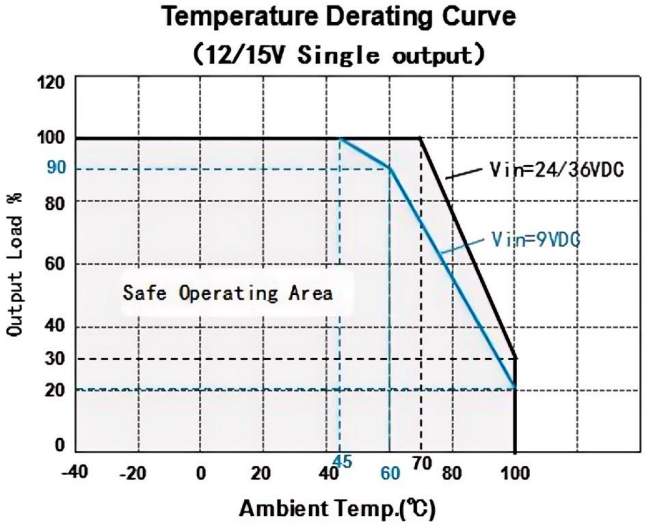
Note: RT is Trim adjusting resistor, dotted line frame is internal equivalent Items; β is a process calculation Items and has no practical significance.

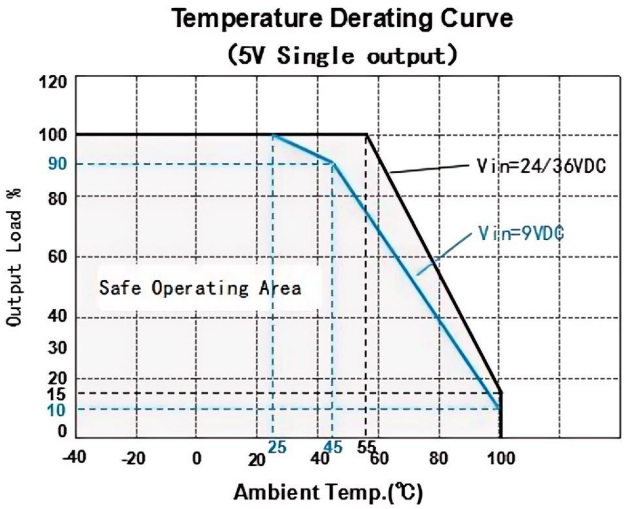
Vout(V)	R1(kΩ)	R2(k Ω)	R3(kΩ)	Vref(V)
3.3	4.775	2.87	15	1.25
5	2.894	2.87	10	2.5
12	11.000	2.87	17.4	2.5
15	14.366	2.87	17.4	2.5
24	24.872	2.87	20	2.5

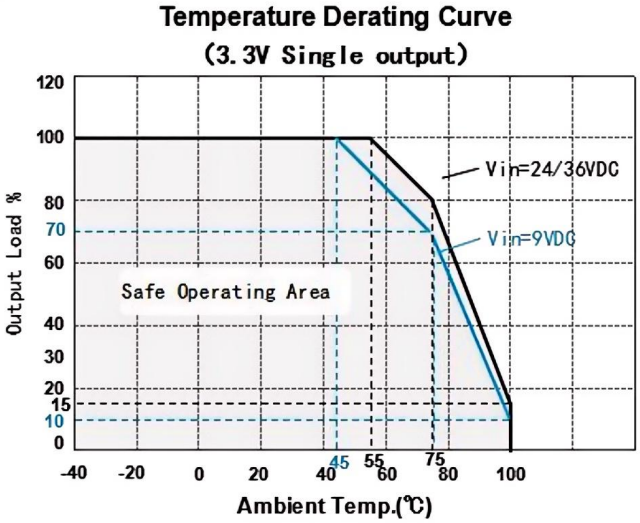
ENVIRONMENTA CHARACTERISTICS

Items	Condition		Min.	Typ.	Max.	Unit
Operating Temperature Range	Nominal input voltage(24/48V) ,Natural convection 0.2m/s		-40	--	100	℃
Maximum Case Temperature			--	--	100	℃
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds		--	--	300	℃
Temperature Coefficient	Full load		--	±0.02	--	%/℃
Thermal Shock			IEC/EN61373 - Category 1, Grade B			
Storage Temperature			-55	--	125	℃
Operating Humidity	Non-condensing		5	--	95	%RH
MTBF	MIL-HDBK-217F	25℃	3000	--	--	k hours
		85℃	1000	--	--	k hours
Derating Graph（Natural convection 0.2m/s）						





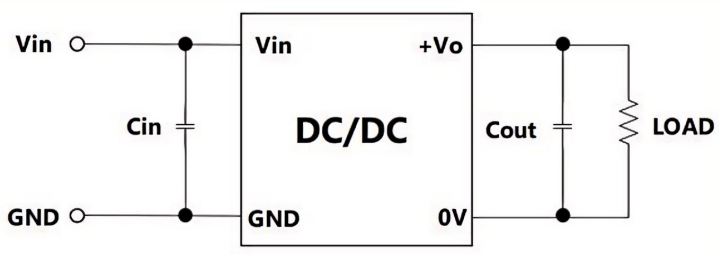




Note：Test PCB: 160x50mm, 2oz, triple layer

Design Reference

All the DC/DC converters of this series are tested before delivery using the recommended circuit shown in Typical application circuit. Input or output ripple can be further reduced by appropriately increasing the input & output capacitor values Cin and Cout and/or by selecting capacitors with a low ESR (equivalent series resistance). Make sure that the capacitance is not exceeding the specified max. capacitive load value of the product.



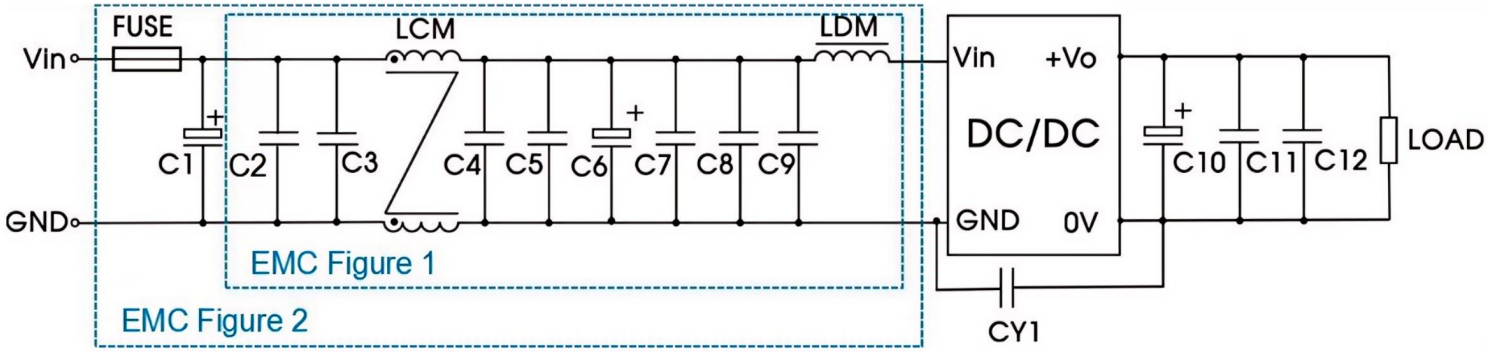
Typical application circuit

Recommended Items Table			
Vin（VDC）	Cin	Vo（VDC）	Cout
24	100μF/50V	5/3.3	100uF/16V
		12/15	100uF/25V
		24/28	47uF/50V
48	100uF/100V	5	100uF/16V
		12/15	100uF/25V
		24	47uF/50V

Electromagnetic Compatibility (EMC)

EMI	CE	CISPR32/EN55032 CLASS B（Refer to EMC figure 2）	
	RE	CISPR32/EN55032 CLASS B（Refer to EMC figure 2）	
EMS	ESD	Contact ±6kV	EN61000-4-2, perf. Criteria B
	RS	10V/m	EN61000-4-3, Criteria B
	EFT	±2kV（Refer to EMC figure1）	EN61000-4-4,Criteria B
	Surge	±2kV（Refer to EMC figure1）	EN61000-4-5, Criteria B
	CS	10Vr.m.s	EN61000-4-6, Criteria B

EMC compliance circuit

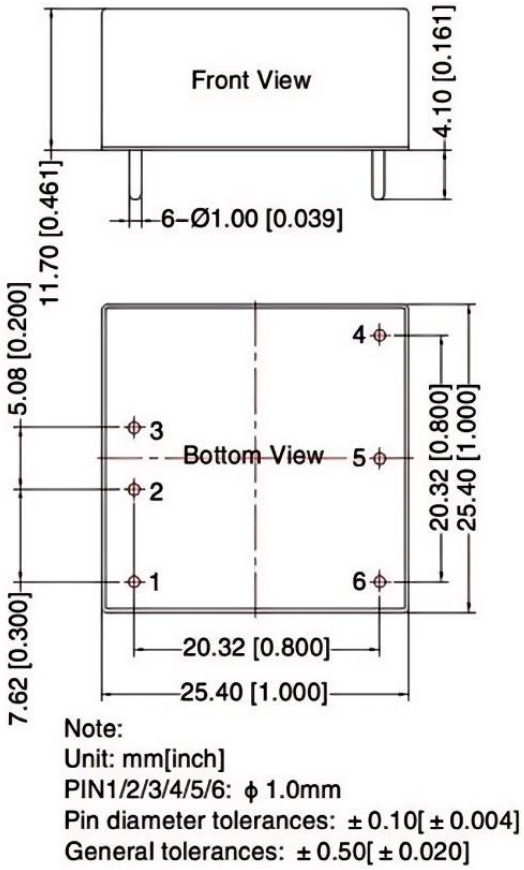


Recommended Items Table		
Symbol	**Vin：24VDC**	**Vin：48VDC**
FUSE	Choose according to input current	
C1	1000uF/50V	470uF/100V
C2/C3/C4/C5/C7/C8/C9	4.7uF/50V	2.2uF/100V
C6	220uF/50V	100uF/100V
LCM	350uH*2	10mH
LDM	2.2uH	22uH
C10	470μF/50V	470μF/50V
C11/C12	See Typical application circuit Items	
CY1	Y2 /222k/250VAC	

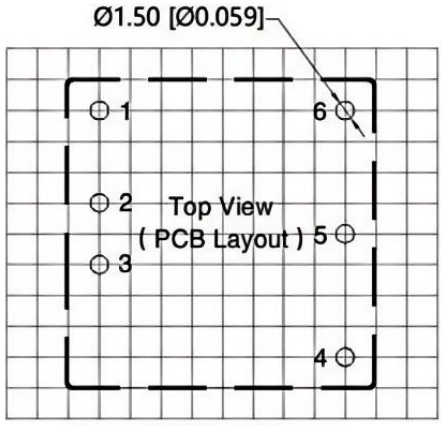
DIMENSION AND PHYSICAL CHARACTERISTICS

Material	Case	Aluminum alloy
	Potting	Epoxy (UL94 V-0)
Dimensions（L*W*H）		25.40 × 25.40 × 11.70 mm
Weight		18.5g (Typ.)

Dimensions and Recommended Layout



Note:
Unit: mm[inch]
PIN1/2/3/4/5/6: ϕ 1.0mm
Pin diameter tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]



Note: Grid 2.54*2.54mm

Pin-Out	
Pin	Mark
1	Ctrl
2	GND
3	Vin
4	+Vo
5	Trim
6	0V

PACKAGING INFORMATION

Packaging Dimension(LxWxH)	Box	610.0 x 285.0 x225.0mm
Packaging	Tube	19pcs

Notes:

1. If the product works under the minimum required load, it cannot guarantee that the performance of the product complies with all the performance indicators in this manual;
2. The maximum capacitive load is tested under the input voltage range and full load condition;
3. Unless otherwise stated, all indexes in this manual are measured at Ta=25℃, humidity <75%RH, nominal input voltage and rated output load;
4. All index testing methods in this manual are based on the enterprise standards of the company;
5. Our company can provide product customization, specific needs can directly contact our technical staff;
6.AMCHARD reserves the right to make changes to the product at any time without notice.