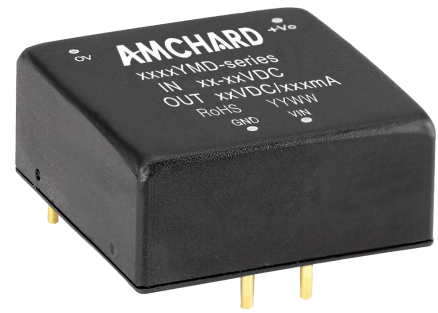


### Product Feature

- 1.Package Type: 1"X 1"
- 2.Input voltage range: 2:1
- 3.Operating temperature range: -40°C - +85°C
- 4.Isolation voltage: 1500VDC
- 5.Equipped with output short-circuit protection and overcurrent protection mechanisms
- 6.Fields of application: Industry, power, instrumentation, communication, rail transit.



3 years  
Warranty

### Selection Guide

Part No	Input Voltage (VDC)		Output		Full Load Efficiency% (Typ.)	Capacitive Load(μF) Max.
	Nominal (Range)	Max.	Voltage (VDC)	Current(mA) Max./Min.		
GTA1205YMD-6WR3	12 (9-18)	20	±5	±600/0	79/81	#470
GTA1212YMD-6WR3			±12	±250/0	83/85	#100
GTA1215YMD-6WR3			±15	±200/0	81/83	#100
GTB1205YMD-6WR3			5	1200/0	79/81	1000
GTB1212YMD-6WR3			12	500/0	83/85	470
GTB1224YMD-6WR3			15	250/0	83/85	100
GTA2405YMD-6WR3	24 (18-36)	40	±5	±600/0	81/83	#470
GTA2412YMD-6WR3			±12	±250/0	85/87	#100
GTA2415YMD-6WR3			±15	±200/0	85/87	#100
GTB2403YMD-6WR3			3.3	1500/0	75/77	1800
GTB2405YMD-6WR3			5	1200/0	80/82	1000
GTB2409YMD-6WR3			9	667/0	83/85	470
GTB2412YMD-6WR3			12	500/0	83/85	470
GTB2415YMD-6WR3			15	400/0	84/86	220
GTB2424YMD-6WR3			24	250/0	83/85	100
GTB4803YMD-6WR3			48 (36-75)	80	3.3	1500/0
GTB4805YMD-6WR3	5	1200/0			81/83	1000
GTB4812YMD-6WR3	12	500/0			85/87	470
GTB4815YMD-6WR3	15	400/0			86/88	220
GTB4824YMD-6WR3	24	250/0			86/88	100

## Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Input Current (full load/no-load)	12VDC nominal input series	--	603/10	633/22	mA	
	24VDC nominal input series	3.3VDC Output	--	268/5		275/15
		Other Output	--	296/5		313/15
	48VDC nominal input series	3.3VDC Output	--	130/4		134/8
Other Output		--	150/4	155/8		
Reflected Ripple Current		--	20	--		
Impulse Voltage	12VDC nominal input series	-0.7	--	25	VDC	
	24VDC nominal input series	-0.7	--	50		
	48VDC nominal input series	-0.7	--	100		
Starting Voltage	12VDC nominal input series	--	--	9		
	24VDC nominal input series	--	--	18		
	48VDC nominal input series	--	--	136		
Input undervoltage protection	12VDC nominal input series	5.5	6.5	--		
	24VDC nominal input series	12	15.5	--		
	48VDC nominal input series	26	30	--		
Input Filter		PI filter				
Hot Plug		Unavailable				

## Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Voltage Accuracy	0%- 100% load	--	±1	±3	%	
Linear Regulation	Input voltage variation from low to high at full load	Vo1	--	±0.2	±0.5	%
		Vo2	--	±0.5	±1	%
Load Regulation	5%- 100% load	Vo1	--	±0.5	±1	%
		Vo2	--	±0.5	±1.5	%
Ripple & Noise	20MHz bandwidth, 5%- 100% load	--	60	85	mVp-p	
Transient Recovery Time	25% load step change, nominal input voltage	--	300	500	µs	
Transient Response Deviation	25% load step change, nominal input voltage	--	±3	±5	%	
Temperature Coefficient	Full load	--	--	±0.03	%/°C	
Over-voltage Protectio	Input voltage range	110	--	160	%Vo	
Over-current Protection	Input voltage range	110	140	190	%Io	
Short-circuit Protection	Input voltage range	Continuous, self-recovery				

## Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Output Voltage Accuracy	5% - 100% Load, Input voltage range	--	±1.0	±3.0	%	
No-load Output Voltage Accuracy	Input Voltage Range		3VDC	±5.0		±8.0
			Other	±1.5		±5.0
Linear Regulation	Full load, Input voltage from low limit to high limit	--	±0.2	±0.5		
Load Regulation	5% - 100% Load	--	±0.6	±1.0		
Transient Recovery Time	25% load step change	--	0.5	3	ms	
Transient Response Deviation		--	±2.5	±5	%	
Temperature Coefficient	Full Load	--	±0.02	±0.03	%/°C	
Over Current Protection		110	140	--	%Io	
Short-circuit Protection		Continuous, Self-Recovery				

## General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Insulation Voltage	Input-output Electric Strength Test for 1 minute with a leakage current of 1mA max.	1500	--	--	VDC
Insulation Resistance	Input-output resistance at 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output capacitance at 100kHz/0. 1V	--	1000	--	pF
Operating Temperature	(See Figure 1)	-40	--	+85	°C
Storage Temperature		-55	--	+125	
Storage Humidity	Non-condensing	5	--	95	%RH
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	+300	°C
Switching Frequency		--	312.5	--	kHz
MTBF	MIL-HDBK-217F@25°C	1000			k hours

## Mechanical Specifications

<b>Case Material</b>	Aluminum alloy
<b>Package Dimensions</b>	25.4 X 25.40 X 12.00 mm
<b>Weight</b>	11.60g(Typ.)
<b>Cooling Method</b>	Free air convection

### EMC Specifications

<b>EMI</b>	CE	CISPR32/EN55032 CLASS A(Open flame) /CLASS B (see Fig.3-② for recommended circuit)	
	RE	CISPR32/EN55032 CLASS A(Open flame) /CLASS B (see Fig.3-② for recommended circuit)	
<b>EMS</b>	ESD	IEC/EN61000-4-2 Contact±4KV	perf.Criteria B
	RS	IEC/EN61000-4-3 10V/m	Perf.Criteria A
	EFT	IEC/EN61000-4-4 ±2KV(see Fig.3-① for recommended circuit)	Perf.Criteria B
	Surge	IEC/EN61000-4-5 line to line±2KV (see Fig.3-① for recommended circuit)	Perf.Criteria B
	Cs	IEC/EN61000-4-6 3 Vr.m.s	Perf.Criteria A

### Typical Characteristic Curves

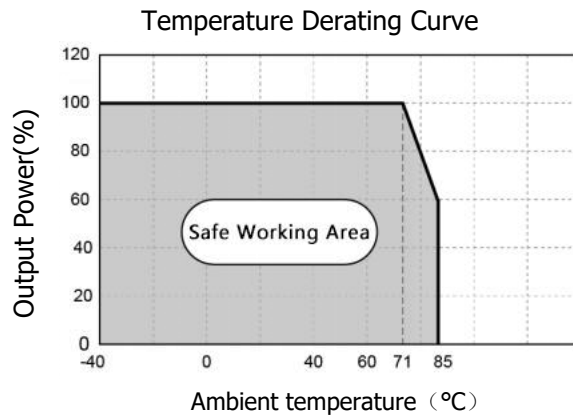
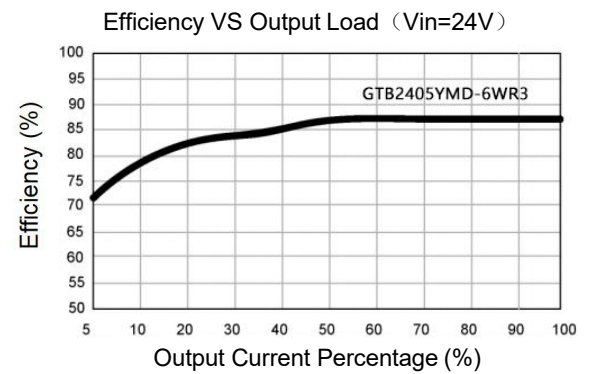
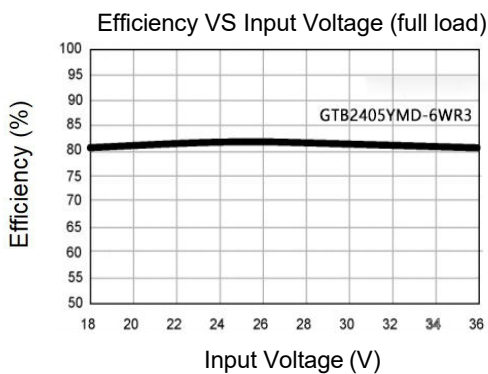
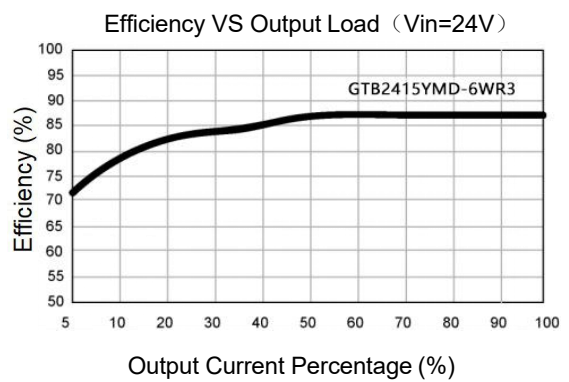
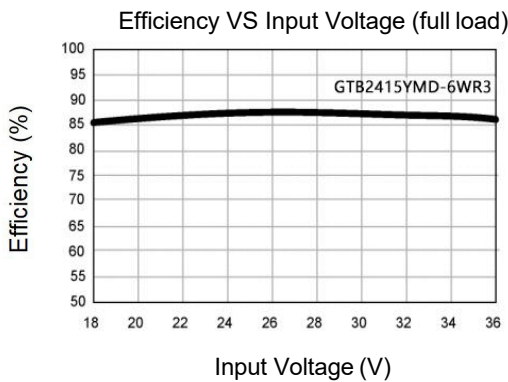


Fig.1



### Typical Circuit Design And Application

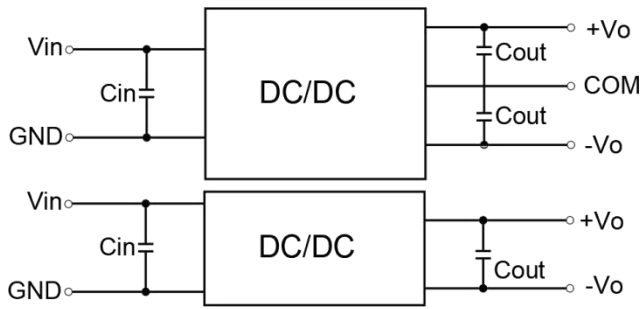


Fig.2

Recommended component parameters

Vin	12V	24V	48V
Cin	100uF	10-47uF	100uF
Cout	10uF		

### EMC compliance circuit

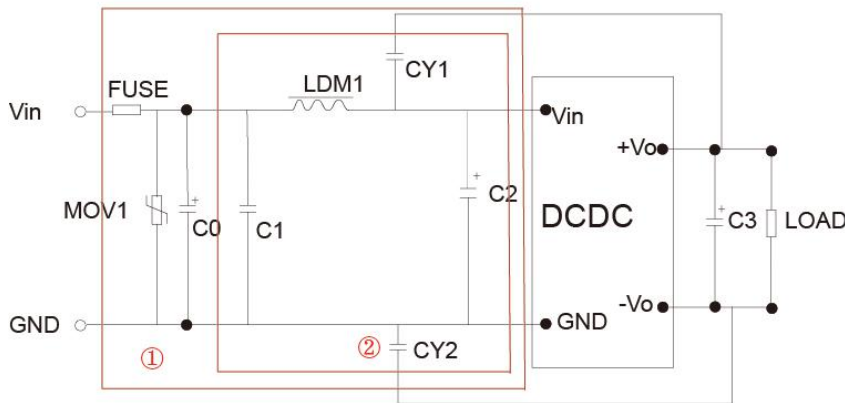


Fig.3

EMI Recommended component parameters

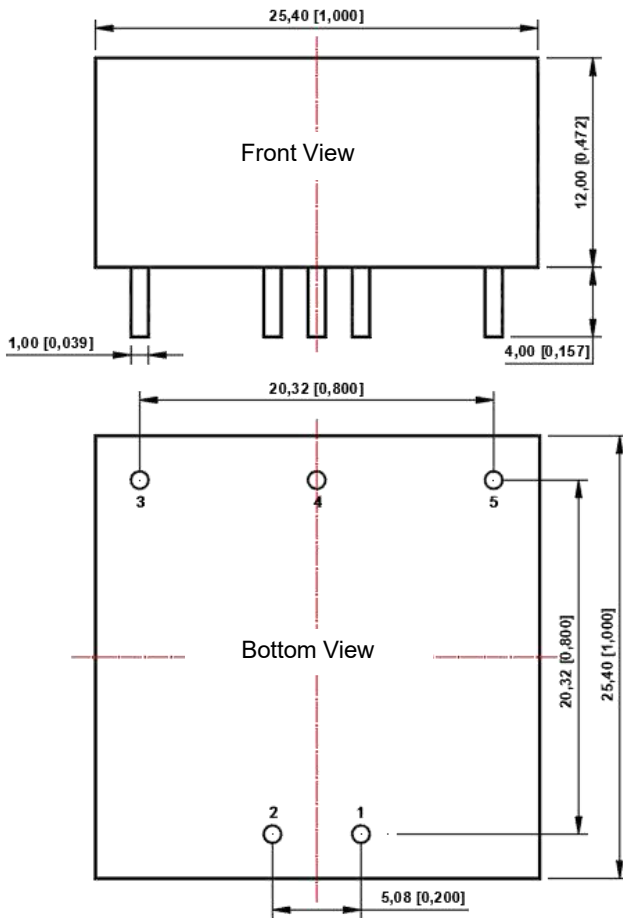
Vin	12V	24V	48V
FUSE	Choose according to actual input current		
MOV	14D330K	20D470K	14D101K
C0	1000uF/50V	1000uF/50V	680uF/100V
C1	1uF/50V	1uF/50V	4.7uF/100V
C2	330uF/50V	330uF/50V	330uF/100V
C3	Refer to the Cout in Fig.2		
LCM	4.7uH		
CY1,CY2	1nF/2KV		

Note:

- 1.All DC-DC converters of this series are tested before delivery using the recommended circuit shown in Fig. 2.
- 2.Input and/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). Also make sure that the capacitance is not exceeding the specified max. capacitive load value of the product.
- 3.The products do not support parallel connection of their output.

### Dimensions and Recommended Layout

#### Dimensions



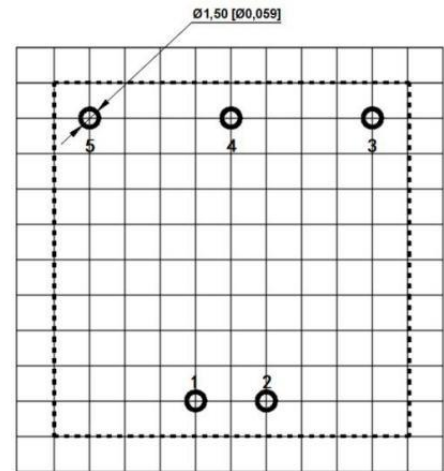
Note:

Unit: mm[inch]

Pin section tolerances:  $\pm 0.10$  [ $\pm 0.004$ ]

General tolerances:  $\pm 0.50$  [ $\pm 0.020$ ]

#### PCB Printing Layout & Pin Definition Table



Note: The grid distance is 2.54mm\*2.54mm

Pin	Function (single)	Function (double)
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	No Pin	COM
5	-Vo	-Vo

#### Note:

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  $T_a=25^\circ\text{C}$ , humidity  $<75\%\text{RH}$ , 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;