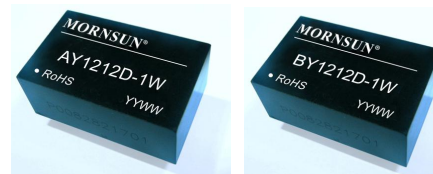


# MORNSUN®

## AY\_D-1W & BY\_D-1W SERIES 1W, FIXED INPUT, ISOLATED & UNREGULATED DUAL / SINGLE OUTPUT DC-DC CONVERTER



RoHS

### FEATURES

- 12KVDC Isolation
- DIP Package
- Temperature Range: -40°C ~ +85°C
- No Heat sink Required
- No External Component Required
- Low isolation capacitance
- Internal SMD Construction
- Industry Standard Pinout
- RoHS Compliance

### APPLICATIONS

The AY\_D-1W & BY\_D-1W Series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

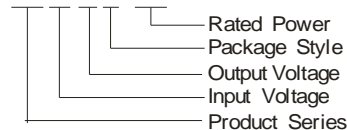
These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation  $\leq \pm 10\%$ );
- 2) Where isolation is necessary between input and output (isolation voltage  $\leq 12000\text{VDC}$ );
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding.

Such as: purely digital circuits, ordinary low frequency analog circuits, and IGBT power device driving circuits.

### MODEL SELECTION

AY1212D-1W



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### PRODUCT PROGRAM

Part Number	Input		Output		Efficiency (%) (Typ)
	Voltage (VDC)	range (VDC)	Voltage (VDC)	Current (mA)	
AY1212D-1W	12	10.8-13.2	$\pm 12$	$\pm 41.6$	78
BY1212D-1W	12	10.8-13.2	12	83	78

### INPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Input current (No-load/Full-load)			15/106		mA
Surge voltage (1S max)				21	V

### OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output power				1	W
Line regulation	For $V_{in}$ change of $\pm 1\%$			$\pm 1.2$	%
Load regulation	10% to 100% load			15	%
Output voltage accuracy		See tolerance envelope graph			
Temperature drift	100% full load			0.03	%/°C
Ripple and noise*	20MHz bandwidth			100	mVp-p
Switching frequency	Full load, nominal input		100		KHz
Maximum capacitive Load	AY1212D-1W	100/-100			$\mu\text{F}$
	BY1212D-1W	100			

\*Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

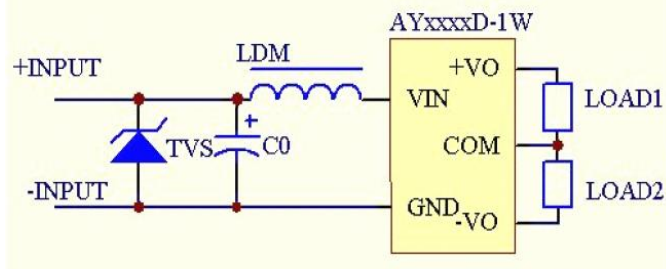
### COMMON SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Storage humidity				95	%
Operating temperature		-40		85	°C
Storage temperature		-55		125	
Temp. rise at full load			20	30	
Lead temperature	1.5mm from case for 10 seconds			300	
Short circuit protection		Continuous			
Cooling		Free air convection			
Case material		Plastic(UL94-V0)			
MTBF		1000			k hours
Weight			23		g
Isolation voltage	Tested for 1 minute and 1mA max	12000			VDC
Isolation resistance	Test at 500VDC	1000			M $\Omega$
Isolation capacitance				5	pF

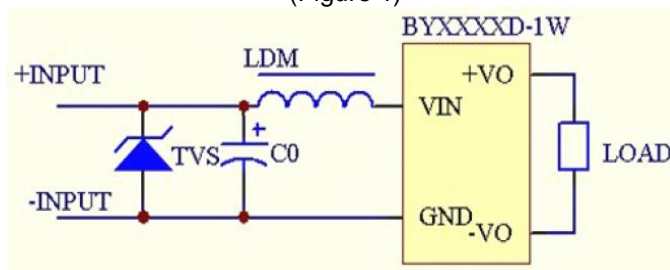
## EMC SPECIFICATIONS

EMI	CE	CISPR22/EN55022 Class B (External Circuit Refer to Figure1、2)	
	RE	CISPR22/EN55022 Class B (External Circuit Refer to Figure1、2)	
EMS	ESD	IEC/EN 61000-4-2	Air ±8KV / Contact ±6KV perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN 61000-4-4	±2KV (External Circuit Refer to Figure1、2) perf. Criteria B
	Surge	IEC/EN 61000-4-5	±1KV (External Circuit Refer to Figure1、2) perf. Criteria B
	CS	IEC/EN61000-4-6	10 Vr.m.s perf. Criteria A
	PFM	IEC/EN61000-4-8	10A/m perf. Criteria A
	Voltage dips、short and interruptions immunity	IEC/EN61000-4-29	0%-40% perf. Criteria B

## EMC RECOMMENDED CIRCUIT



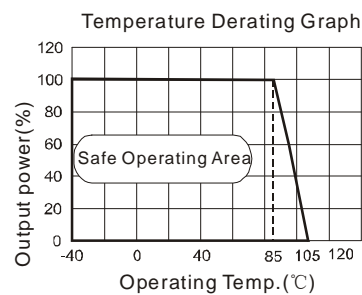
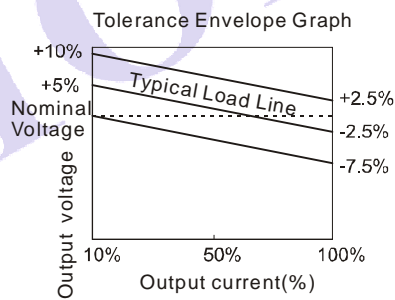
(Figure 1)



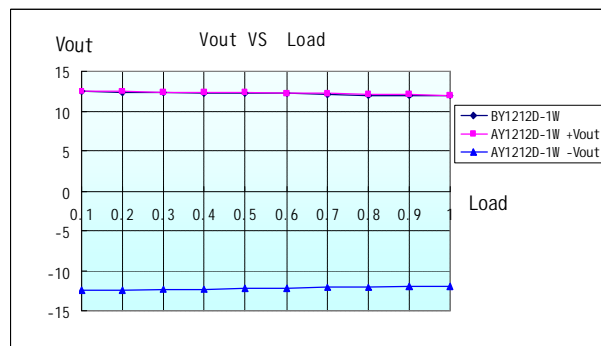
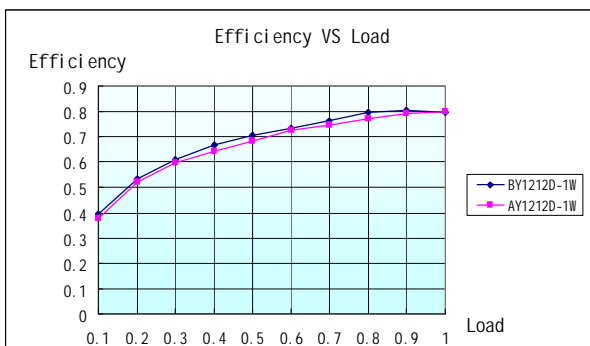
(Figure 2)

EMC recommended external circuit parameters  
 TVS:SMCJ18A,1500W(Epcos)  
 C0:220µF/25V(Rubycon)  
 LDM:6.8µH CD43

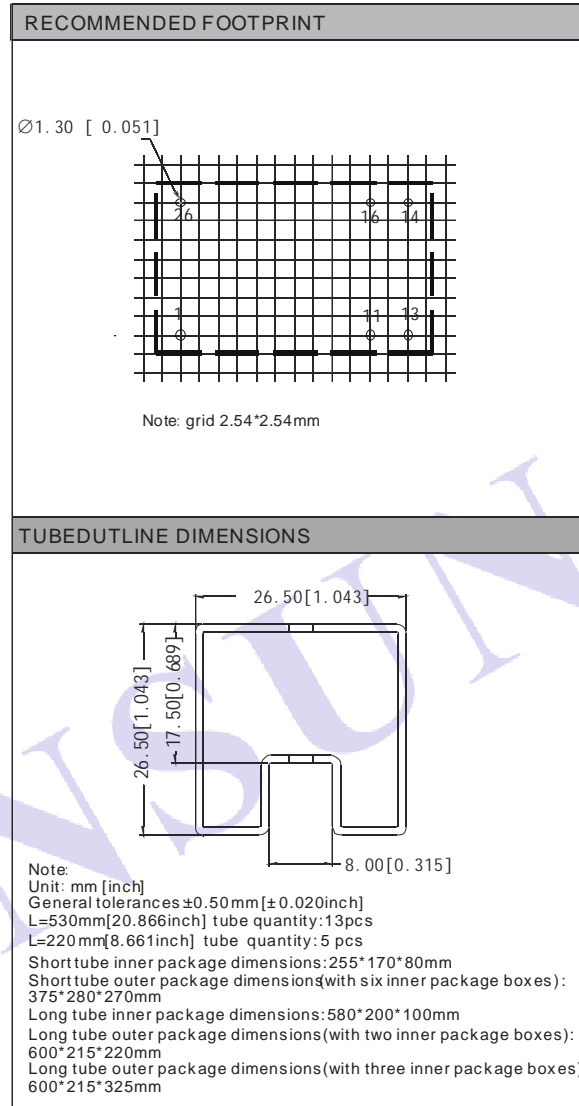
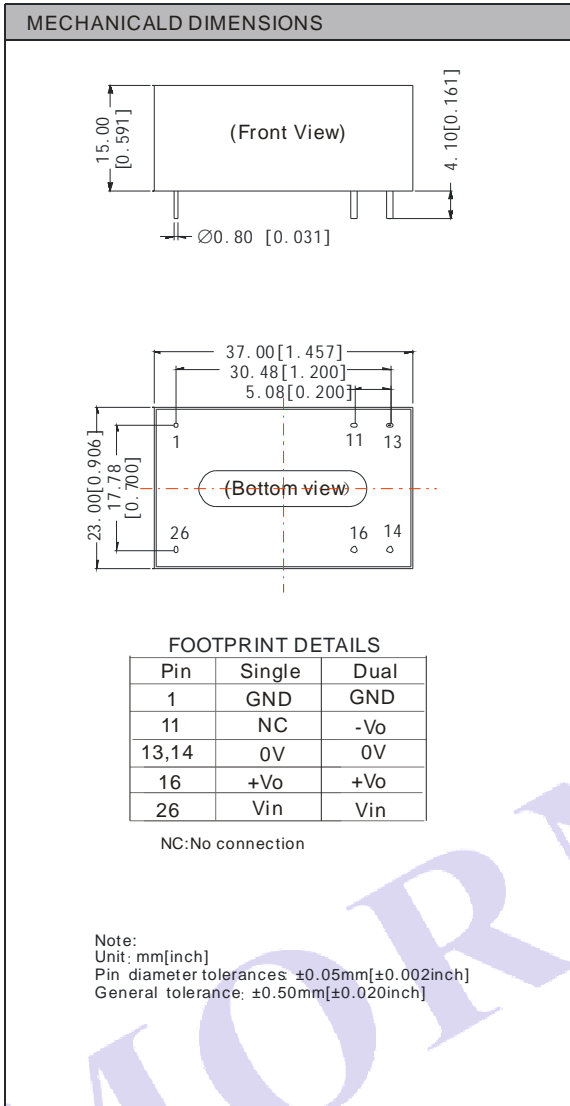
## TYPICAL CHARACTERISTICS



## TYPICAL EFFICIENCY CURVE



## OUTLINE DIMENSIONS 、 RECOMMENDED FOOTPRINT & FOOTPRINT DETAILS



Note:

1. Operation under minimum load will not damage the converter; However, they may not meet all specification listed, and that will reduce the life of product.
2. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
3. In this datasheet, all the test methods of indications are based on corporate standards.
4. Only typical models listed, other models may be different, please contact our technical person for more details.