

**NDDY****E\_S-1W****PRODUCT SPECIFICATION****1W, FIXED INPUT,  
ISOLATED & UNREGULATED  
DUAL OUTPUT  
DC/DC CONVERTER****● FEATURES**

- Size: 19.65mm\*6.00mm\*10.16mm
- Compact SIP package
- International standard pin-out
- ROHS compliant
- Isolation voltage: 3000VDC
- Operating temperature range: -40°C~+85°C
- 3 years warranty

**● DESCRIPTION**

This is a 1W DC/DC converter designed for applications where an isolated voltage is required in a distributed power supply system, suitable for: pure digital circuits, low frequency analog circuits, relay driven circuits and data switching circuits, and etc.

**● PRODUCT LIST**

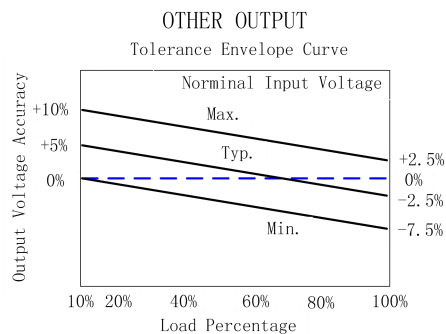
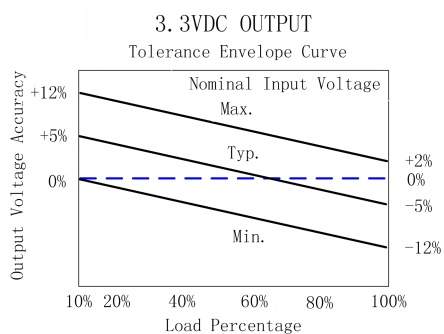
Product Name	Input/VDC	Output		EFF/% (TYP.)
	Nominal (Range)	Voltage/VDC	Current/mA Max./Min.	
E0505S-1W	5 (4.5~5.5)	±5	±100/±10	76
E0509S-1W		±9	±56/±6	76
E0512S-1W		±12	±42/±5	76
E0515S-1W		±15	±34/±4	77
E0524S-1W		±24	±21/±3	77
E1205S-1W	12 (10.8~13.2)	±5	±100/±10	77
E1209S-1W		±9	±56/±6	78
E1212S-1W		±12	±42/±5	78
E1215S-1W		±15	±34/±4	78
E1224S-1W		±24	±21/±3	78
E2405S-1W	24 (21.6~26.4)	±5	±100/±10	76
E2409S-1W		±9	±56/±6	78
E2412S-1W		±12	±42/±5	78
E2415S-1W		±15	±34/±4	78
E2424S-1W		±24	±21/±3	76

Note: with 'T' suffix, the converter has output short circuit protection function, for example, E2405S-1WT.

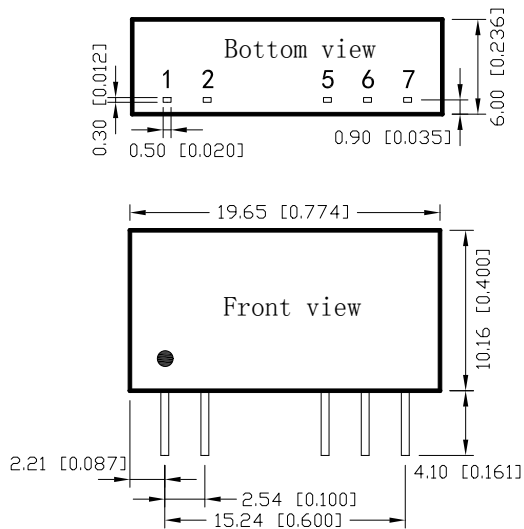
● PRODUCT PARAMETERS

Parameter	Conditions / Description	Min	Nom	Max	Unit	
Voltage accuracy	10%~100%Io	SEE CHARACTERISTIC CURVE				
Load regulation	10%~100%Io (3.3Vo)	-	15	20	%	
	10%~100%Io (Other output)	-	10	15	%	
Line regulation	100%Io	-	±1	±1.5	%	
Ripple & Noise	20MHz BW	3.3~12Vo	-	60	100	mVp-p
		15~24Vo	-	100	-	
Switching frequency	Nominal input voltage, 100%Io	-	100	-	kHz	
Temperature coefficient	Nominal input voltage, 100%Io	-	0.02	-	%/°C	
Operating temperature		-40	-	+85	°C	
Storage temperature		-40	-	+105	°C	
Storage humidity	No condensing	-	-	95	%RH	
Cooling method		Natural air cooling				
Insulation voltage		3000	-	-	VDC	
Insulation resistance	Input-output, 500VDC, 25°C, 70%RH	1000	-	-	MOhms	
MTBF	MIL-HDBK-217F@25°C	3,500	-	-	khrs	
Case material		Black flame retardant plastic				
Weight		-	2.2	-	g	

● PRODUCT CHARACTERISTIC CURVE



## ● DIMENSIONS AND PIN ASSIGNMENT



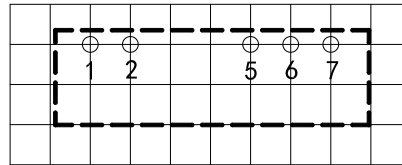
Unit: mm[inch]

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

General tolerance:  $\pm 0.25[\pm 0.010]$

PIN	1	2	5	6	7
FUN	Vin	GND	-Vo	0V	+Vo

Recommended PCB LAYOUT



Notes:

1. Grid is 2.54mm\*2.54mm
2. Hole size is advised 1.00mm

## ● DESIGN CONSIDERATIONS

### 1. Minimum load requirement

The minimum load of this series DC/DC converter is 10% of rated load. It is not advised to be used at no load condition. A resistor (dummy load) should be paralleled at the output if necessary.

### 2. External capacitor limitation

If extreme low ripple voltage is needed, external LC filter should be added at the output. Please note that the maximum capacitor should not be very large. The capacitance is advised to be  $1\mu\text{F}/20\text{mA}$ , while the maximum value is  $2\mu\text{F}/20\text{mA}$ .

For example, E0505S-1W, whose output rated current is 100mA, a 4.7 $\mu\text{F}$  capacitor (less than 10 $\mu\text{F}$ ) is advised to be paralleled at the output to reduce ripple voltage if necessary.

## ● NOTES

1. Unless otherwise specified, data in this specification is tested with nominal input voltage, rated output load, and  $T_a=25^\circ\text{C}$ , humidity < 75%RH.
2. All data testing methods are based on Guangzhou NengDa company standards.
3. Specification of the product may be subject to change without prior notice.
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