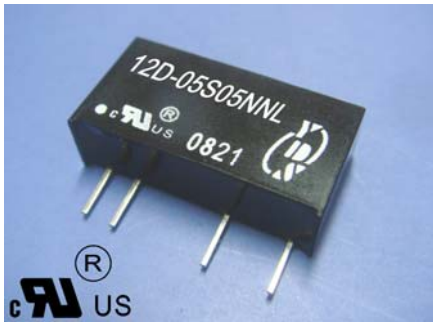




## 3000Vdc Single & Dual Output 1 Watt Dc-Dc Converter



### FEATURES:

- 7PIN SIP Package
- High Efficiency up to 85%
- Unregulated Output Types
- Recognized By UL 60950-1
- Internal SMD Construction ● No External Component Required
- Operating Temperature: -40°C TO +85°C ● Industry Standard Pinout



Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	Output Voltage	Output Current	Efficiency	Package Style
	Vdc	mA	%TYP	
12D-XXS03NNL	3.3	303	70	1
12D-XXS05NNL	5	200	70	1
12D-XXS09NNL	9	112	75	1
12D-XXS12NNL	12	84	78	1
12D-XXS15NNL	15	67	80	1
12D-XXS24NNL	24	42	82	1
12D-XXD03NNL	±3.3	±150	70	1
12D-XXD05NNL	±5	±100	70	1
12D-XXD09NNL	±9	±56	75	1
12D-XXD12NNL	±12	±42	78	1
12D-XXD15NNL	±15	±34	80	1
12D-XXD24NNL	±24	±21	82	1
12D-XXS05N2NL	5	200	70	2
12D-XXS09N2NL	9	112	75	2
12D-XXS12N2NL	12	84	78	2
12D-XXS15N2NL	15	67	80	2
12D-XXS24N2NL	24	42	82	2
12D-XXD05N2NL	±5	±100	70	2
12D-XXD09N2NL	±9	±56	75	2
12D-XXD12N2NL	±12	±42	78	2
12D-XXD15N2NL	±15	±34	80	2
12D-XXD24N2NL	±24	±21	82	2

Note: 1. "XX" Is Input Voltage :03=3.3Vdc 05=5Vdc, 09=9Vdc 12=12Vdc, 15=15Vdc, 24=24Vdc, 48=48Vdc.

2. Over 48Vdc input voltage, using the 2nd package.

3. The input voltage increases, there will be an increase in efficiency.

### Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Vo, Io Nom			±5	%
Filter	Capacitor				

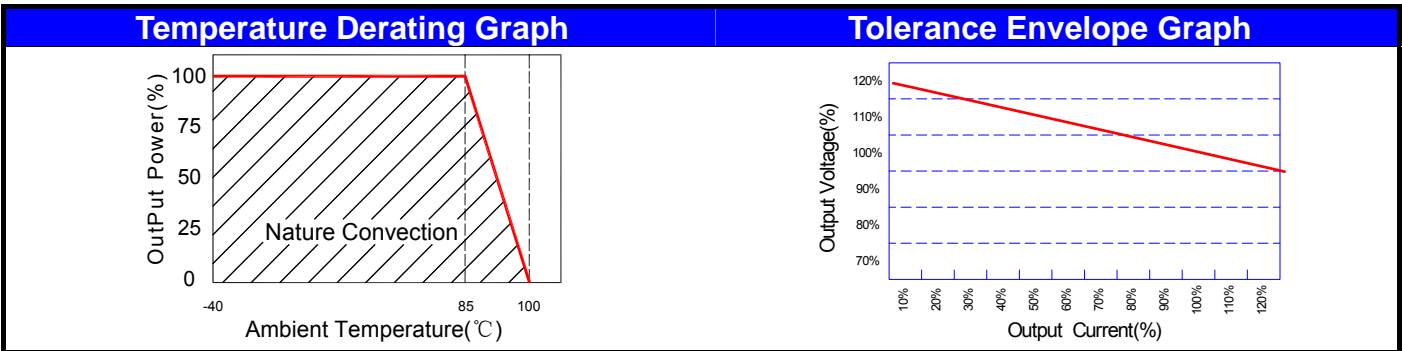
### Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	Short Term			1 Sec	
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	3.3V, 5V (10% To 100% F.L)			15	%
Load Regulation	9V, 12V, 15V, 24V (10% To 100% F.L)			10	%
Ripple & Noise	BW=DC To 20MHz			100	mVp-p
Transient response setting time	50% load step change		350		us



3000Vdc Single & Dual Output 1 Watt Dc-Dc Converter

General Specifications					
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency	Full load,nominal input		100		KHz
Operation Temperature		-40		+85	°C
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case material	DAP				
MTBF	MIL-HDBK-217F@25°C	3500000			Hours
Weight	Package1 or Package2		2.1 or 2.7		g
Dimensions	Package 1		19.5x6.0x10.0		mm
Dimensions	Package 2		19.5x7.1x10.0		mm



### Recommended Test Circuit

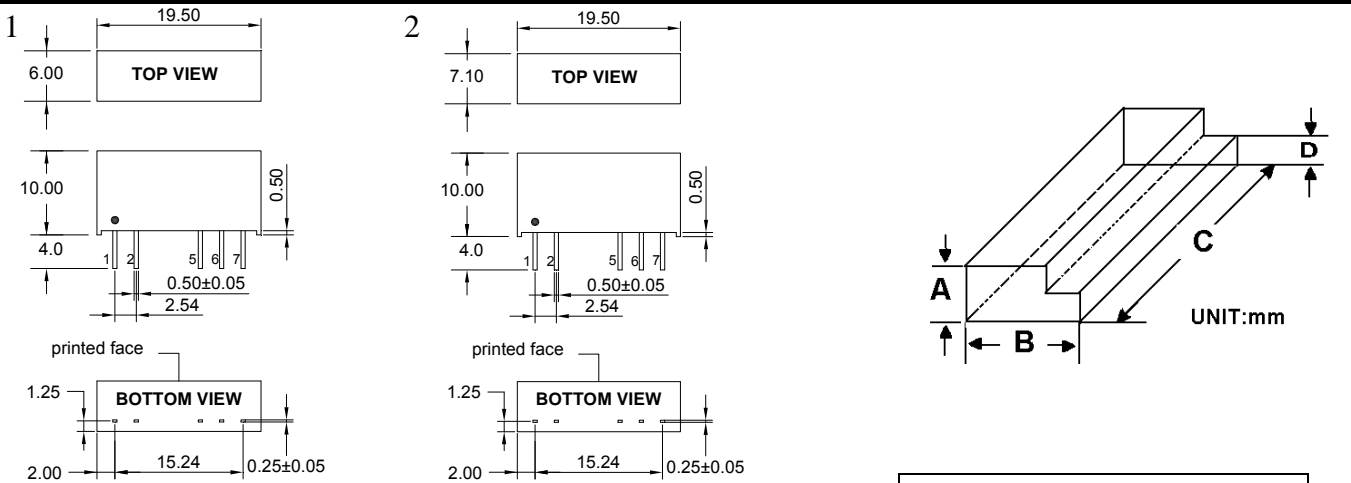
3.3V:Cin 4.7uF,25V 3.3V:Cout 22uF,25V  
 5V:Cin 4.7uF,25V 5V:Cout 10uF,25V  
 9V:Cin 4.7uF,25V 9V:Cout 4.7uF,25V  
 12V:Cin 2.2uF,25V 12V:Cout 2.2uF,25V  
 15V:Cin 1uF,50V 15V:Cout 1uF,50V  
 24V:Cin 1uF,50V 24V:Cout 1uF,50V  
 48V:Cin 1uF,100V

### Part Number

12D - 05 S 05 N 2 NL  
 A B C D E F G

A:Series  
 B:Input Voltage  
 C:Single(S)Dual(D)  
 D:Output Voltage  
 E:Unregulated(N)  
 F:Package  
 G:RoHS Version

Markings and dimensions      Packaging



UNIT:mm Unless otherwise specified,all tolerances are ±0.25

PIN Connection					
PIN	1	2	5	6	7
Single	+Vin	-Vin	-Vout	No Pin	+Vout
Dual	+Vin	-Vin	-Vout	Com	+Vout

