



## 1000Vdc Dual Output 1 Watt Dc-Dc Converter



### FEATURES:

- 14PIN DIL Package
- High Efficiency up to 85%
- Recognized By UL 60950-1
- Internal SMD Construction
- Unregulated Output Types
- 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	
22D-XXS03NNL	3.3	303	70	1
22D-XXS05NNL	5	200	70	1
22D-XXS09NNL	9	112	75	1
22D-XXS12NNL	12	84	78	1
22D-XXS15NNL	15	67	80	1
22D-XXS24NNL	24	42	82	1
22D-XXD03NNL	±3.3	±150	70	1
22D-XXD05NNL	±5	±100	70	1
22D-XXD09NNL	±9	±56	75	1
22D-XXD12NNL	±12	±42	78	1
22D-XXD15NNL	±15	±34	80	1
22D-XXD24NNL	±24	±21	82	1
22D-XXS05N2NL	5	200	70	2
22D-XXS09N2NL	9	112	75	2
22D-XXS12N2NL	12	84	78	2
22D-XXS15N2NL	15	67	80	2
22D-XXS24N2NL	24	42	82	2
22D-XXD05N2NL	±5	±100	70	2
22D-XXD09N2NL	±9	±56	75	2
22D-XXD12N2NL	±12	±42	78	2
22D-XXD15N2NL	±15	±34	80	2
22D-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.

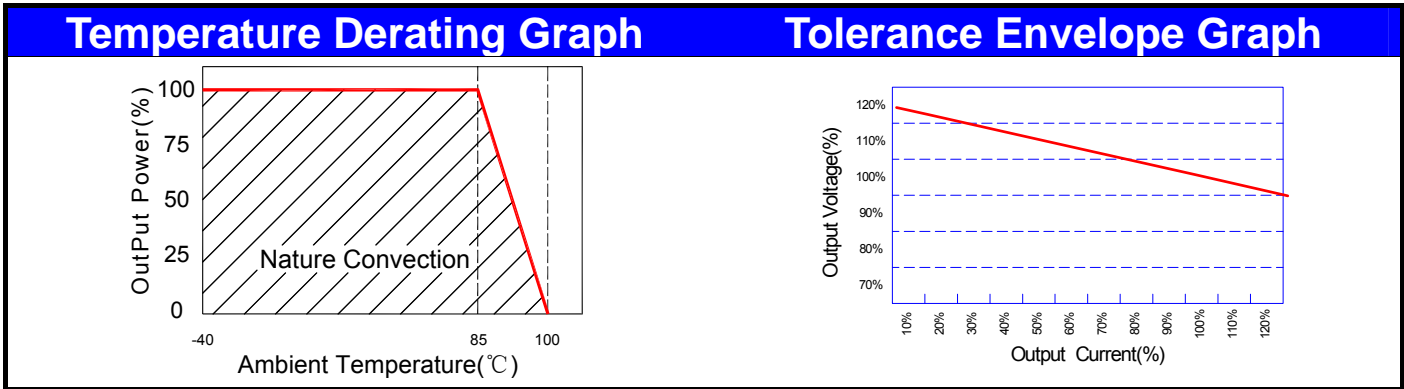
Input Specifications					
Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Vo,lo Nom			±10	%
Filter	Capacitor				

Output Specifications					
Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	Short Term			1Sec	
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

General Specifications					
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency	Full load,nominal input		100		KHz
Operating Temperature		-40		+85	°C
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case material	DAP				
MTBF	MIL-HDBK-217F@25°C	3500000			Hours
Weight	Package 1 or Package 2		2.3 or 2.8		g
Dimensions	Package 1		20.32x10.16x6.80		mm
Dimensions	Package 2		20.32x10.16x7.70		mm

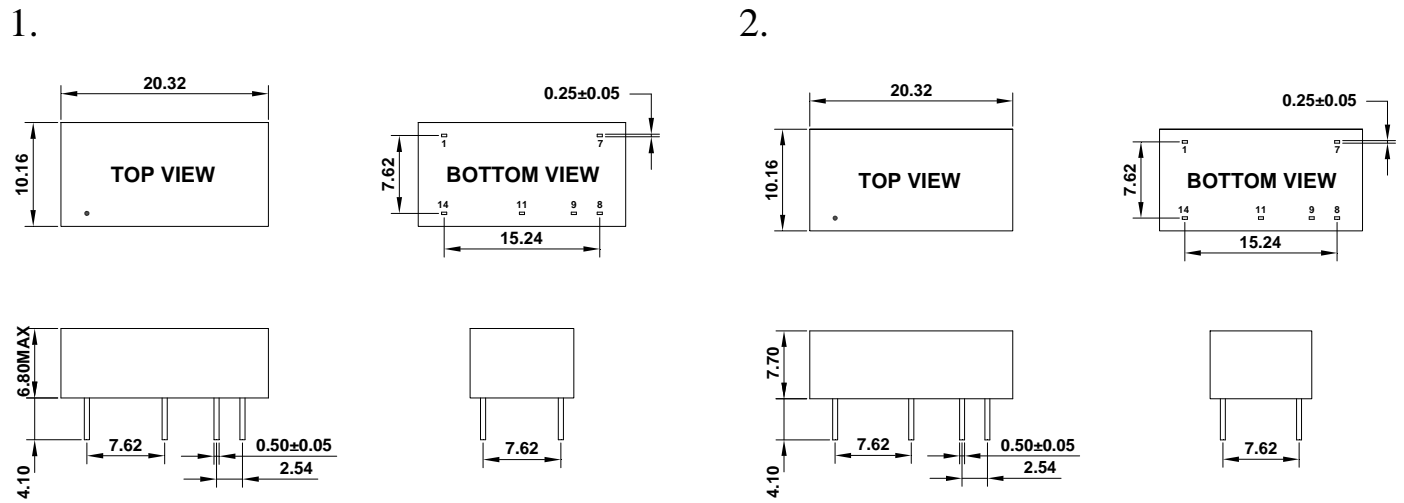


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Recommended Test Circuit		Part Number
<p>Single converter circuit: Vin, Cin, Single, Cout, +Vout, -Vout.</p>	<p>Dual converter circuit: Vin, Cin, Dual, Cout, +Vout, Com, -Vout.</p>	<p>22D - 05 D 05 N 2 NL</p> <p>A B C D E F G</p> <p>A:Series B:Input Voltage C:Single(S)Dual(D) D:Output Voltage E:Unregulated(N) F:Package G:RoHS Version</p>
<p>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</p>	<p>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</p>	

Markings and dimensions



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

PIN Connection						
PIN	1	7	8	9	11	14
Single	-Vin	NC	-Vout	+Vout	NC	+Vin
Dual	-Vin	NC	COM	+Vout	-Vout	+Vin