

FEATURES :

- 7PIN SIP Package
- High Efficiency up to 85%
- Unregulated Output Types
- Single Output 5/9/12/15V Approved By UL 60950-1
- 12D-05S12NNL approved by UL/CUL 62368-1
- 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.
- 4." ★" marked as recognized by UL 60950-1. (Without input voltage: 03=3.3Vdc, 09=9Vdc)
5. 12D-05S12NNL approved by UL/CUL 62368-1.

Input Specifications

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

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DC-DC Converter

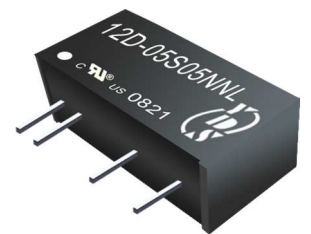
12D-3KV SERIES

1Watt

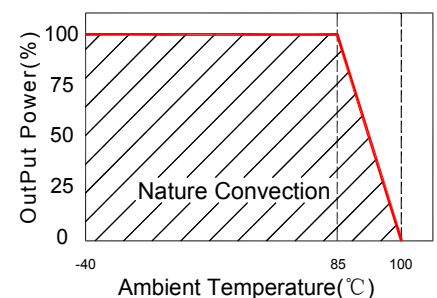
3KV Isolated

Single & Dual Output

SIP7



Temperature Derating Graph



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TEL : 886-6-3842899 FAX : 886-6-3843288
E-MAIL : ydsweb@yds.com.tw

Rev:5 2020/01/14

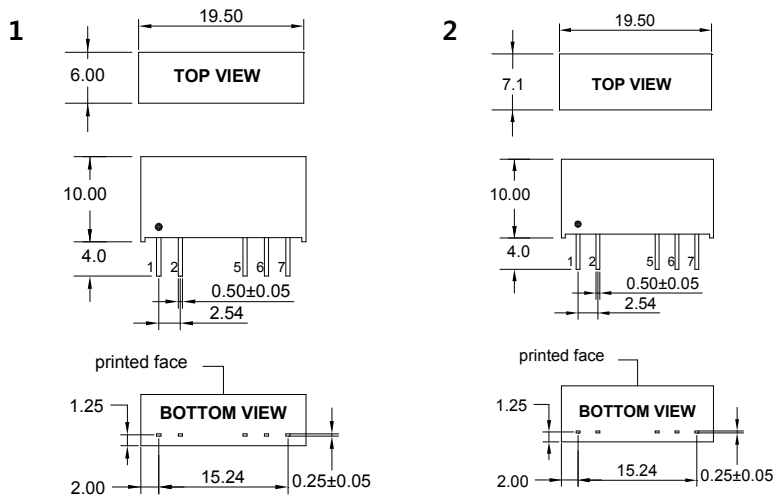
Output Specifications

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

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 Package2		2.1 or 2.7		g
Dimensions	Package 1		19.5x6.0x10.0		mm
Dimensions	Package 2		19.5x7.1x10.0		mm

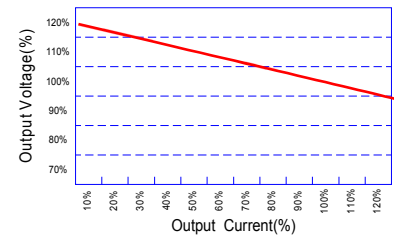
Markings and dimensions



PIN Connection

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

Tolerance Envelope Graph

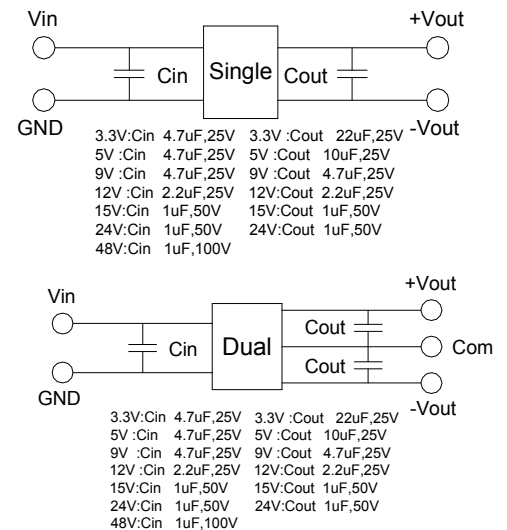


Part Number

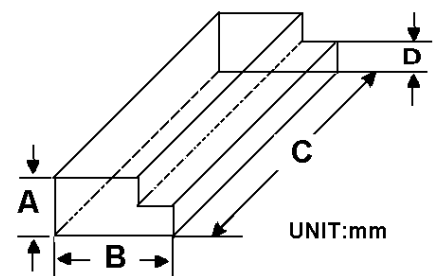
12D - 05 S 05 N 2 NL
A B C D E F G

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

Recommended Test Circuit



Packaging



Size (mm)			
A	B	C	D
9.5	16.5	522	5.0