

FEATURES :

- 6PIN SIP Package
- High Efficiency up to 85%
- Unregulated Output Types
- Single Output 5/9/12/15V/24V Approved By UL60950-1
- 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	
10D-XXS03NNL	3.3	303	70	1
★10D-XXS05NNL	5	200	70	1
★10D-XXS09NNL	9	112	75	1
★10D-XXS12NNL	12	84	78	1
★10D-XXS15NNL	15	67	80	1
★10D-XXS24NNL	24	42	82	1
10D-XXS05N2NL	5	200	70	2
10D-XXS09N2NL	9	112	75	2
10D-XXS12N2NL	12	84	78	2
10D-XXS15N2NL	15	67	80	2
10D-XXS24N2NL	24	42	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.

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Vo,Io Nom			±10	%
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



DC-DC Converter

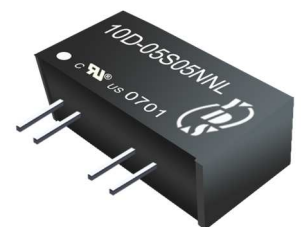
10D SERIES

1Watt

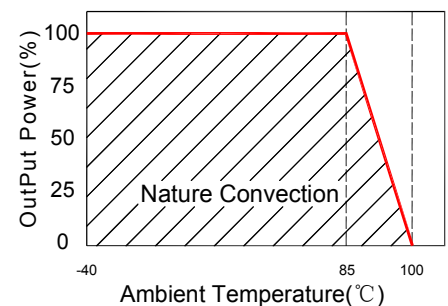
1KV Isolated

Single Output

SIP6



Temperature Derating Graph



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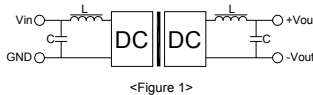
General Specifications

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	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

Application Note

Filtering

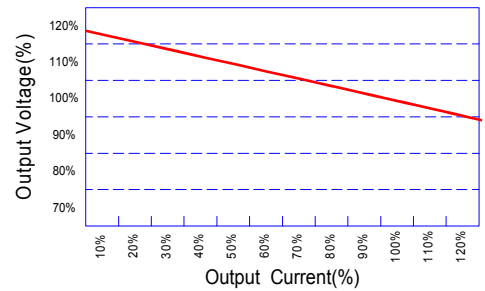
In some circuits which are sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. However, the capacitance of the output filter capacitor must proper. If the capacitance is too big, a startup problem might arise. For every channel of output, providing the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor refer to the external capacitor table. To get an extreme low ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, which may produce a more significant filtering effect. It should also be noted that the inductance and the frequency of the "LC" filtering network should be staggered with the DC/DC frequency to avoid mutual interference (see figure 1).



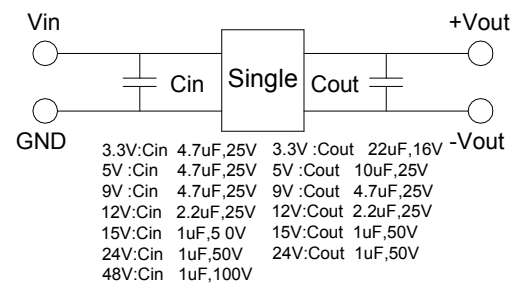
<Figure 1>
External Capacitor Table

Vin	External Capacitor	Vout	External Capacitor
3.3VDC	4.7uF/25V	3.3VDC	22uF/16V
5VDC	4.7uF/25V	5VDC	10uF/25V
9VDC	4.7uF/25V	9VDC	4.7uF/25V
12VDC	2.2uF/25V	12VDC	2.2uF/25V
15VDC	1uF/50V	15VDC	1uF/50V
24VDC	1uF/50V	24VDC	1uF/50V
48VDC	1uF/100V	--	--

Tolerance Envelope Graph



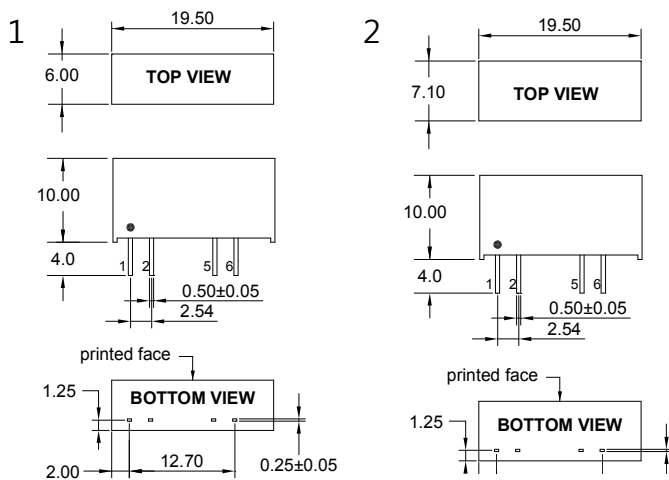
Recommended Test Circuit



Part Number

10D - 05 S 05 N 2 NL A:Series
 A B C D E F G B:Input Voltage
 C:Single(S)
 D:Output Voltage
 E:UNRegulated(N)
 F:Packge
 G:RoHS Version

Markings and dimensions

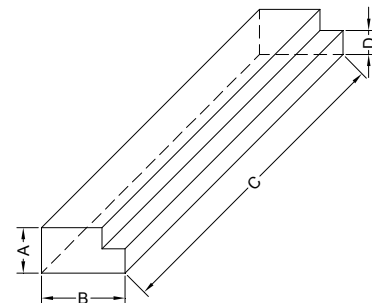


UNIT: mm Unless otherwise specified, all tolerances are ±0.25

PIN Connection

PIN	1	2	5	6
Single	+Vin	-Vin	-Vout	+Vout

Packaging



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