

FEATURES :

- 50W DIL Package
- 4:1 Wide Input Voltage Range
- High Efficiency Up to 92%
- Regulated Output Types
- No Minimum Load Required
- Over Power and Short Circuit Protection
- Over Temperature Protection
- Operating Temperature: -40°C to +82°C
- UL/cUL/IEC/EN 62368-1 approved, CB-Report, CE Marking
- EMC standard of EMI EN55032:2015 approved
- EMC standard of EMS EN55035:2017 approved
- EMC standard of Canadian ICES-003 issue7(2020) approved
- EMC standard of 47CFR FCC Part 15 subpart B approved

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

Selection Guide

Part Number	Input Voltage Range	Input Current (typ)		Output Voltage	Output Current	Efficiency (typ)	Maximum capacitor Load
		No-Load	Full Load				
	Vdc	mA	mA	Vdc	mA (typ)	%	μF
YNB50-24S05	9-36	60	2290	5	10000	91	17000
YNB50-24S12	9-36	80	2267	12	4170	92	3000
YNB50-24S15	9-36	80	2263	15	3330	92	2000
YNB50-24S24	9-36	80	2286	24	2080	91	750
YNB50-48S05	18-75	40	1145	5	10000	91	17000
YNB50-48S12	18-75	60	1134	12	4170	92	3000
YNB50-48S15	18-75	60	1131	15	3330	92	2000
YNB50-48S24	18-75	60	1143	24	2080	91	750

Part Number

YNB 50 - 24 S 05 HS
 A B C D E F

- A: Series
- B: Output Power
- C: Input Voltage
- D: Single Output
- E: Output Voltage
- F: Heatsink (Option)

YUAN DEAN SCIENTIFIC



DC-DC Converter

YNB50 SERIES

50Watt

1600Vdc Isolated

4 : 1 Input Voltage Range

Single Output

2" X 1" Size



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Input Specifications

Parameters	Conditions	Min	Typ	Max	Units	
Input Voltage	24V Models	9		36	Vdc	
	48V Models	18		75		
Input Surge Voltage (100 ms max.)	24V Models	-0.7		50		
	48V Models	-0.7		100		
Start-up Voltage	24V Models			9	Vdc	
	48V Models			18		
Under Voltage Shutdown	24V Models		7.5		Vdc	
	48V Models		16			
Start-up Time	Constant Resistive Load, Nominal Vin	Power-up	30		ms	
		Remote ON/OFF	30			
Input Filter	All Models	Internal Pi Type				
Remote ON/OFF (Ctrl PIN Refer To -Vin PIN)	Positive Logic (Standard)	DC/DC ON	Open or 3.5 - 12 Vdc		mA	
		DC/DC OFF	Short or 0 - 1.2 Vdc			
	Input Current Of Ctrl PIN		-0.5			0.5
	Remote Off Input Current			3		

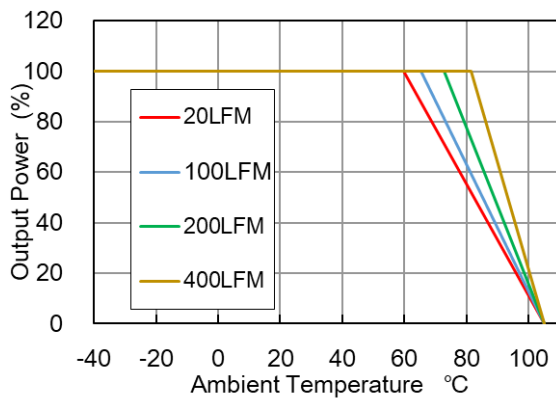
Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% Load	-1		+1	%
Line Regulation	Vin(min) To Vin(max) @100% Load	-0.2		+0.2	%
Load Regulation	0% Load To 100% Load	-0.5		+0.5	%
Ripple & Noise (BW=20MHz)	With an 1uF MLCC and a 10uF tantalum Capacitor	5Vout		100	mVp-p
		12Vout		150	
		15Vout		150	
		24Vout		150	
Transient Response Setting Time	25% Load Step Change		350	500	us
Transient Response Deviation	25% Load Step Change	-5	±3	+5	%
Temperature Coefficient		-0.02		+0.02	%/°C
Voltage Adjustability	% of Vout	-10		+10	%
Output Power Protection	% of Io, Hiccup mode, Auto-recovery	120	150	180	%
Short Circuit Protection	Continuous [Hiccup Mode], Auto-Recovery				
Over Voltage Protection	5Vout		6.2		Vdc
	12Vout		15		
	15Vout		18		
	24Vout		30		

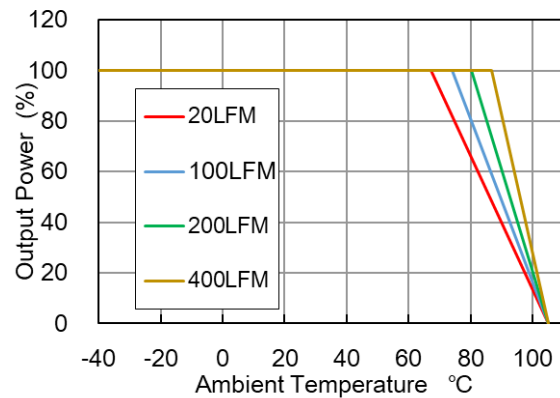
General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Voltage	Input To Output (60sec)	1600			Vdc
	Input(Output) To Case (60sec)	1000			Vdc
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	100kHz, 1V			2200	pF
Switching Frequency	100% Load, Nominal Input		280		KHz
Operating Ambient Temperature (Power Derating See Derating Graph)	Nominal Vin, 100% Load	YNB50-24S05, YNB50-24S24 YNB50-48S05, YNB50-48S24	-40	53	°C
		YNB50-24S12, YNB50-24S15 YNB50-48S12, YNB50-48S24			
	Nominal Vin, 100% Load With Heatsink	YNB50-24S05, YNB50-24S24 YNB50-48S05, YNB50-48S24		62	
		YNB50-24S12, YNB50-24S15 YNB50-48S12, YNB50-48S24		67	
Maximum Case Temperature				105	°C
Over Temperature Protection	Case Temperature		115		°C
Storage Temperature		-55		125	°C
Humidity	Non Condensing	5		95	%
Cooling			Natural Convection		
Case Material			Copper		
Potting Material			Silicone (UL94-V0)		
MTBF	MIL-HDBK-217F@25°C (Calculated)		2.59X10 ⁵		Hours
Weight			50		g
Dimensions			50.8 x 25.4 x 11.6		mm

Temperature Derating Graph

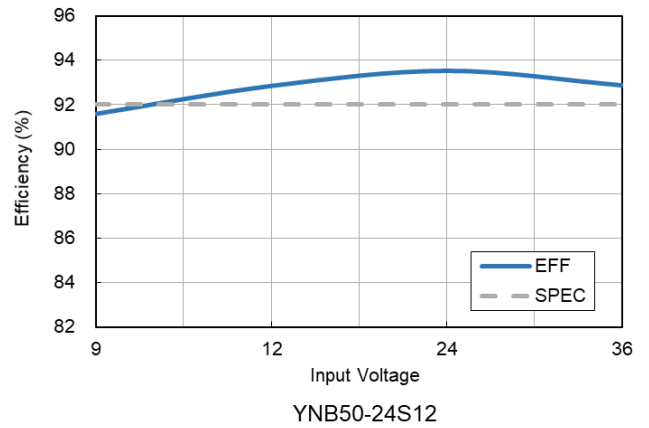
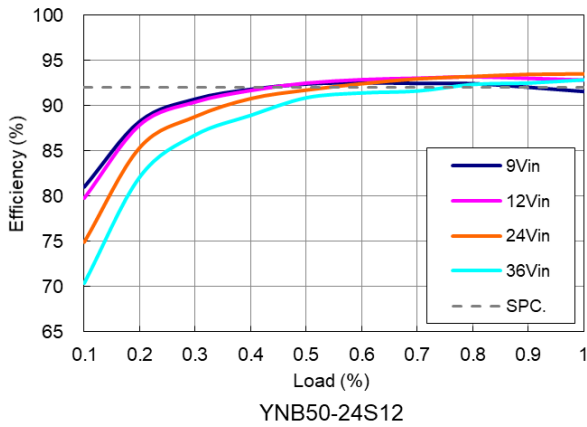


YNB50-24S12

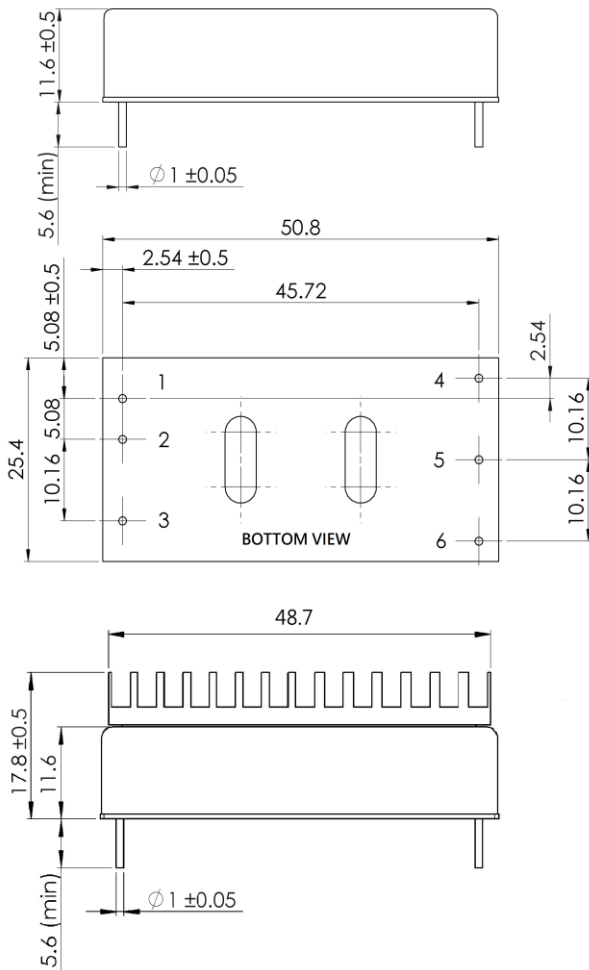


YNB50-24S12 with heatsink

Characteristic Curve



Dimensions



Unit: mm

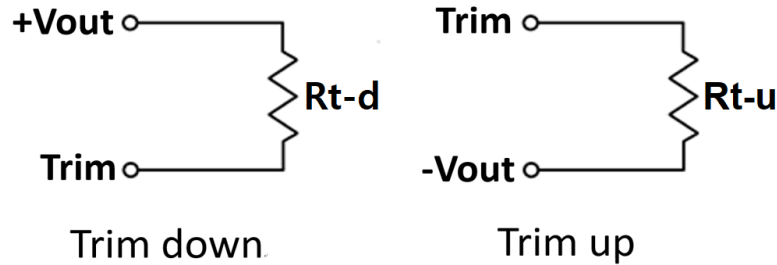
Tolerance: XX.X ± 0.5 ; XX.XX ± 0.25

PIN Assignment

Pin	Define	Diameter
1	+Vin	1.0mm[0.04"]
2	-Vin	1.0mm[0.04"]
3	Ctrl	1.0mm[0.04"]
4	+Vout	1.0mm[0.04"]
5	-Vout	1.0mm[0.04"]
6	Trim	1.0mm[0.04"]

External Output Trimming

Output can be externally trimmed by using the method, shown as below.



YNB50-□□S05

Trim	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
down	Rt-d =	138.88KΩ	62.41KΩ	36.92KΩ	24.18KΩ	16.53KΩ	11.44KΩ	7.79KΩ	5.06KΩ	2.94KΩ	1.24KΩ
up	Rt-u =	106.87KΩ	47.76KΩ	28.06KΩ	18.21KΩ	12.30KΩ	8.36KΩ	5.55KΩ	3.44KΩ	1.79KΩ	0.48KΩ

YNB50-□□S12

Trim	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
down	Rt-d =	280.90KΩ	125.65KΩ	73.90KΩ	48.02KΩ	32.50KΩ	22.15KΩ	14.76KΩ	9.21KΩ	4.90KΩ	1.45KΩ
up	Rt-u =	225.50KΩ	100.75KΩ	59.17KΩ	38.38KΩ	25.90KΩ	17.58KΩ	11.64KΩ	7.19KΩ	3.72KΩ	0.95KΩ

YNB50-□□S15

Trim	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
down	Rt-d =	499.18KΩ	223.09KΩ	131.06KΩ	85.05KΩ	57.44KΩ	39.03KΩ	25.88KΩ	16.02KΩ	8.35KΩ	2.22KΩ
up	Rt-u =	404.82KΩ	180.91KΩ	106.27KΩ	68.95KΩ	46.56KΩ	31.64KΩ	20.97KΩ	12.98KΩ	6.76KΩ	1.78KΩ

YNB50-□□S24

Trim	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
down	Rt-d =	598.97KΩ	267.93KΩ	157.59KΩ	102.42KΩ	69.31KΩ	47.24KΩ	31.48KΩ	19.66KΩ	10.46KΩ	3.11KΩ
up	Rt-u =	486.83KΩ	217.87KΩ	128.21KΩ	83.38KΩ	56.49KΩ	38.56KΩ	25.75KΩ	16.14KΩ	8.67KΩ	2.69KΩ