

FEATURES :

- 4:1 Wide Input Voltage Range
- High Efficiency up to 92%
- Regulated Output Types
- No Minimum Load Required
- Operating Temperature: -40°C to +78°C
- 3 Years Warranty

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		Output Voltage	Output Current	Efficiency	Maximum capacitor Load
	Vdc	No-Load (mA TYP)	Full Load (mA TYP)	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

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Input Surge Voltage (100 ms max.)	24V Models	-0.7		50	Vdc
	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)	Power-up		30		ms
	Remote ON/OFF		30		
Input Filter	All Models	Internal PI Type			
Remote ON/OFF (Refer to –Vin PIN)	Positive Logic				
	ON : Open	3.5		12	Vdc
	OFF: Short	0		1.2	
	Input Current of Ctrl PIN	-0.5		0.5	mA
	Remote Off Input Current		3		

YUAN DEAN SCIENTIFIC



DC-DC Converter

YNB50 SERIES

50Watt

1600Vdc Isolated

4 : 1 Input Voltage Range

Single Output

2" X 1" Package



www.yds.com.tw



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

Rev:0 2020/7/20

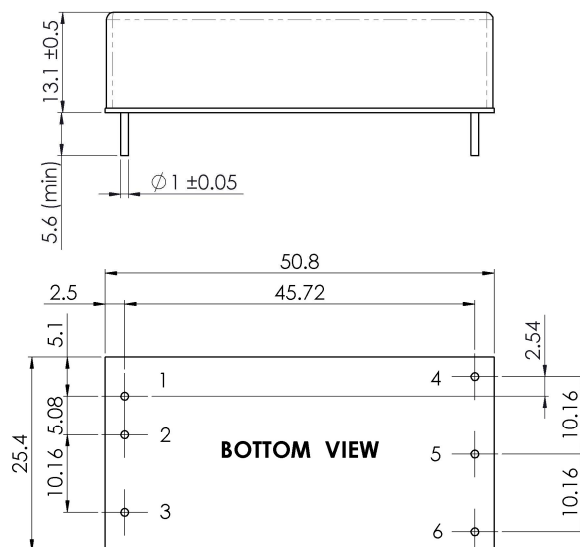
Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% Full Load			±1	%
Short Circuit Protection	Hiccup Mode 0.3 Hz typ. ,Auto-Recovery				
Output Power Protection	Hiccup Mode, Auto-recovery	120		170	%
Over Voltage Protection	5Vd		6.2		Vdc
	12Vdc		15		
	15Vdc		18		
	24Vdc		30		
Line Regulation	Nominal Input Voltage			±0.5	%
Load Regulation	Single Output Models			±0.5	%
Voltage Adjustability				±10	%
Ripple & Noise (BW=DC To 20MHz & Measured with an 1uF MLCC and a 10uF TC)	5Vout			100	mVp-p
	12Vout			150	
	15Vout			150	
	24Vout			150	
Temperature Coefficient				±0.02	%/°C
Transient Response Setting Time	25% Load Step Change		250		us
Transient Response Deviation	25% Load Step Change		±3	±5	%

General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Voltage	Input to Output	1600			Vdc
	Input(Output) to Case	1000			
Isolation Resistance	500Vdc	1000			MΩ
Isolation				2200	Pf
Switching	Full load, Nominal Input		280		KHz
Operating Temperature (Power Derating See Derating Graph)	YNB50-24S05, 24S24	-40		44.7	°C
	YNB50-48S05, 48S24				
	YNB50-24S12, 24S15			51.9	
Thermal Impedance	20LFM		12.2		°C/W
	100LFM		10.8		
	200LFM		8.6		
	400LFM		5.6		
Operating Case Temperature	Case Temperature	-40		105	°C
Over Temperature Protection	Case Temperature		+115		°C
Storage Temperature		-55		125	°C
Humidity	Non Condensing	5		95	%
Cooling	Natural Convection				
Thermal Shock	MIL-STD-810F				
Shock & Vibration	MIL-STD-810F				
Case Material	Six-side Shielded Case				
Potting Material	Silicone (UL94-V0)				
MTBF	MIL-HDBK-217F@25°C		2.59X10 ⁵		Hours
Weight			42		g
Dimensions	50.8 x 25.4 x 13.1				mm

Dimensions



Unit : mm

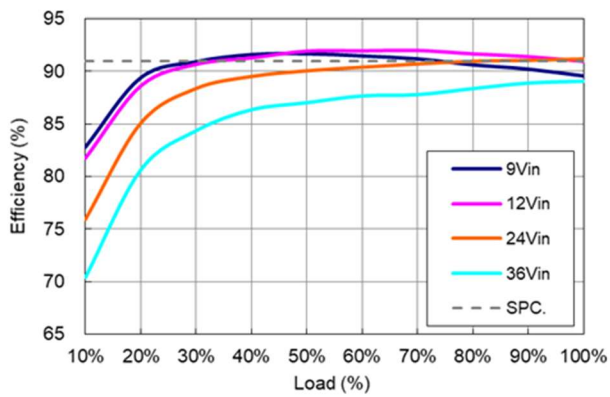
Tolerance : XX.X ±0.5 XX.XX ±0.25

Screw mounting hole size Φ3.5mm is recommend

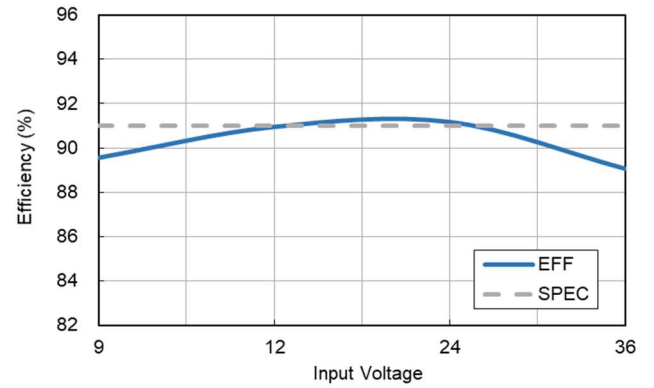
PIN Assignment

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"]

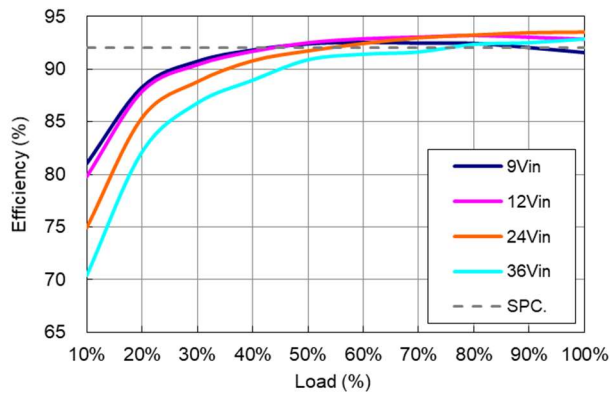
Characteristic Curve



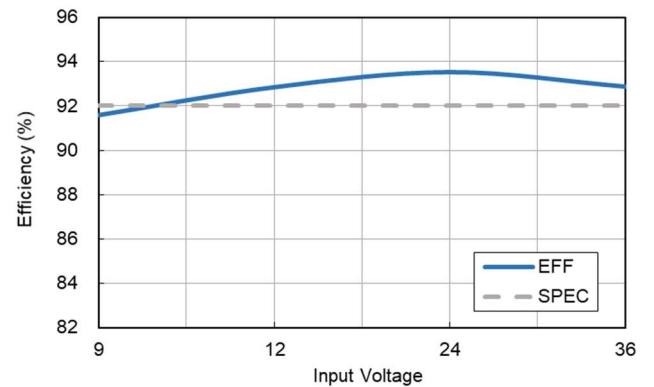
YNB50-24S05



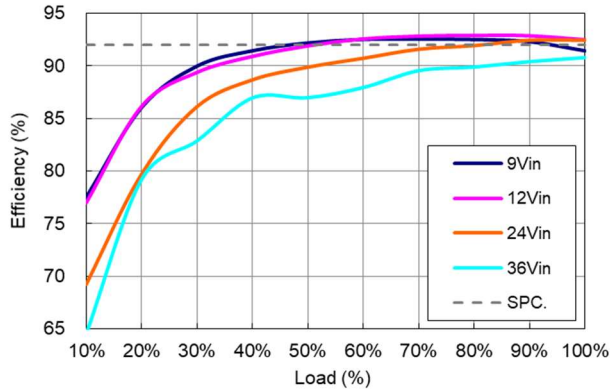
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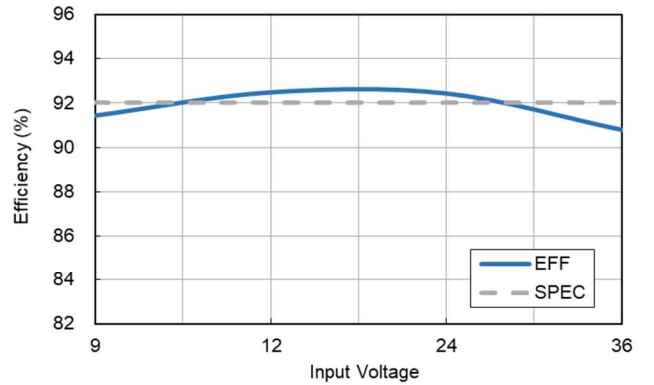
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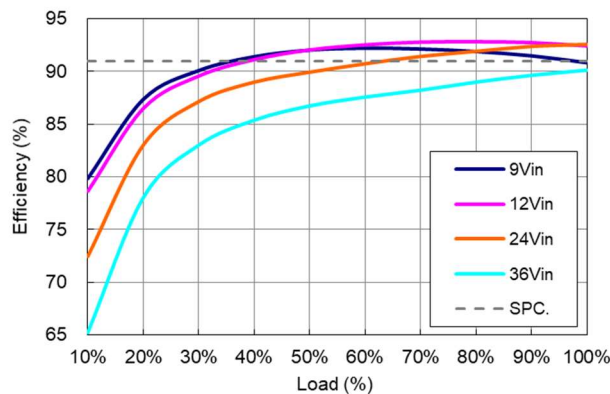
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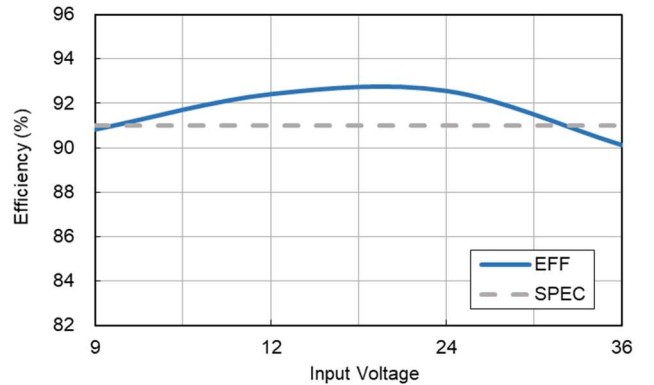
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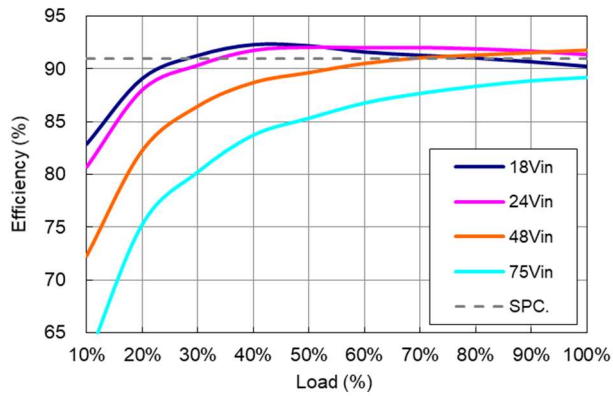
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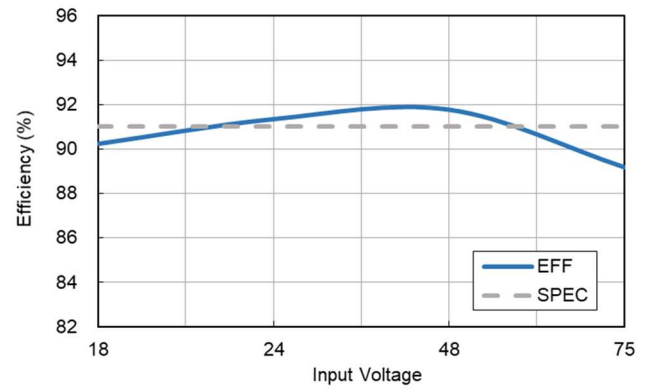
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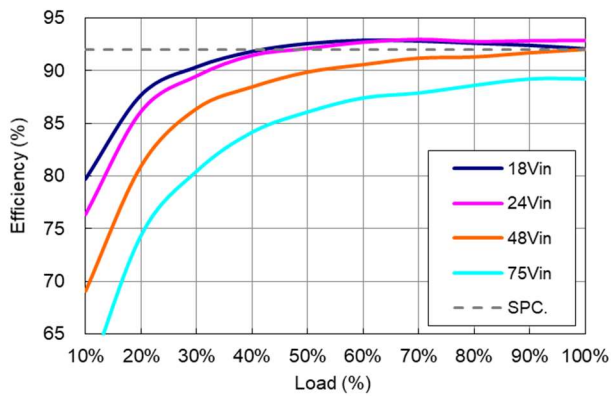
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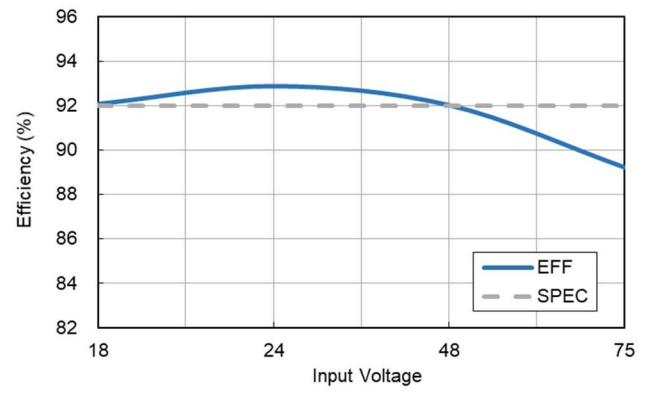
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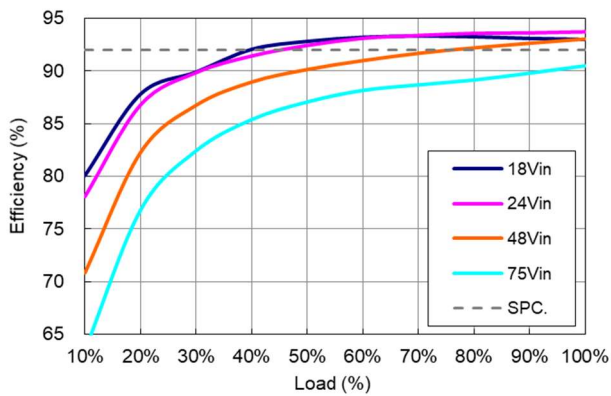
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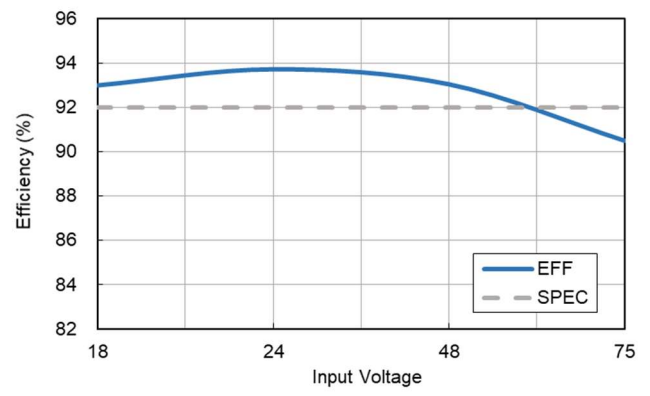
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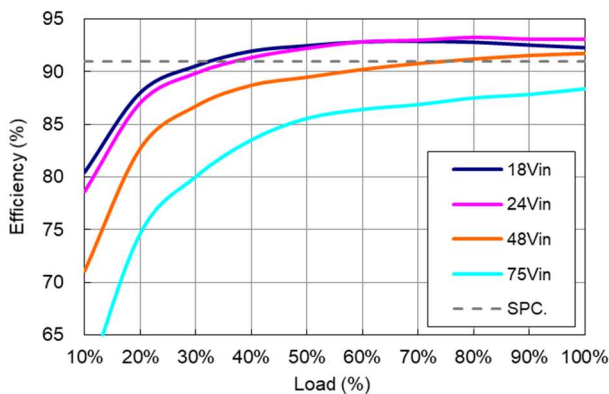
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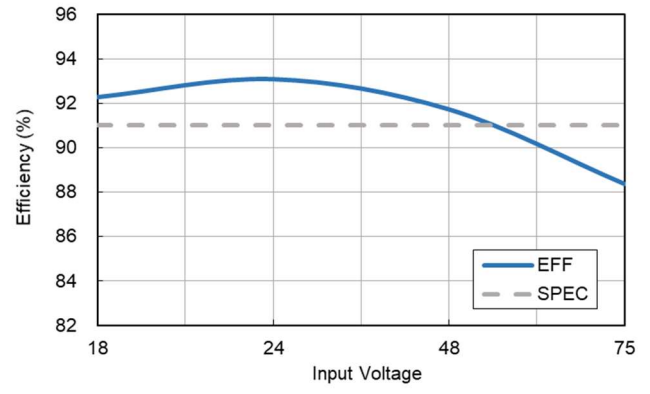
YNB50-48S15



YNB50-48S15

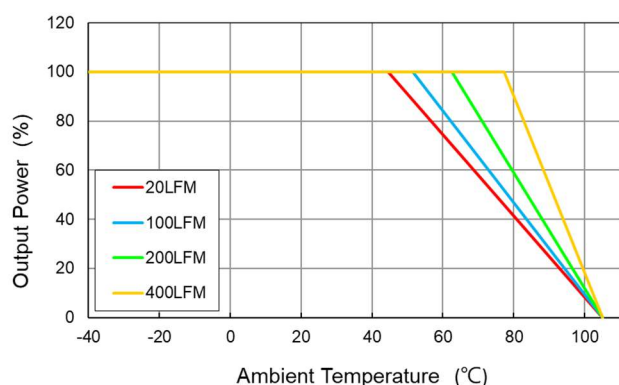


YNB50-48S24



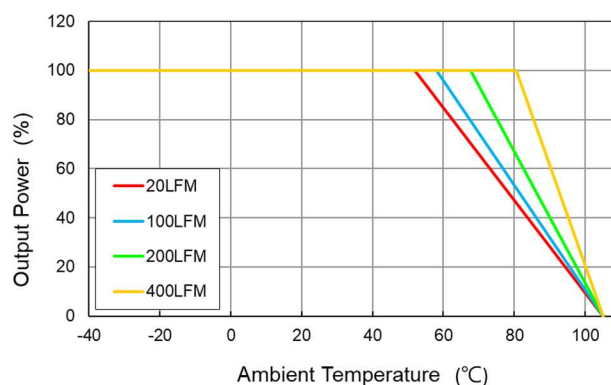
YNB50-48S24

Temperature Derating Graph



YNB50-24S05, 24S24

YNB50-48S05, 48S24

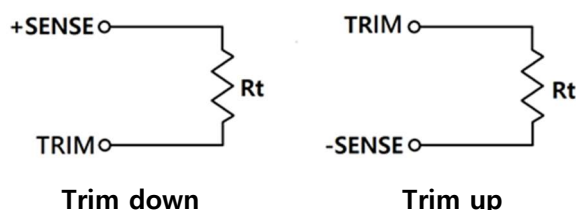


YNB50-24S12, 24S15

YNB50-48S12, 48S15

External Output Trimming

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



YNB50-XXS05 Trim down

Vout=	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
Rt=	138.9 kΩ	62.4 kΩ	36.9 kΩ	24.2 kΩ	16.5 kΩ	11.4 kΩ	7.8 kΩ	5.1 kΩ	2.9 kΩ	1.2 kΩ

YNB50-XXS05 Trim up

Vout=	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
Rt=	106.9 kΩ	47.8 kΩ	28.1 kΩ	18.2 kΩ	12.3 kΩ	8.4 kΩ	5.5 kΩ	3.4 kΩ	1.8 kΩ	0.5 kΩ

YNB50-XXS12 Trim down

Vout=	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
Rt=	280.9 kΩ	125.6 kΩ	73.9 kΩ	48.0 kΩ	32.5 kΩ	22.1 kΩ	14.8 kΩ	9.2 kΩ	4.9 kΩ	1.4 kΩ

YNB50-XXS12 Trim up

Vout=	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
Rt=	225.5 kΩ	100.8 kΩ	59.2 kΩ	38.4 kΩ	25.9 kΩ	17.6 kΩ	11.6 kΩ	7.2 kΩ	3.7 kΩ	1.0 kΩ

YNB50-XXS15 Trim down

Vout=	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
Rt=	499.2 kΩ	223.1 kΩ	131.1 kΩ	85.0 kΩ	57.4 kΩ	39.0 kΩ	25.9 kΩ	16.0 kΩ	8.4 kΩ	2.2 kΩ

YNB50-XXS15 Trim up

Vout=	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
Rt=	404.8 kΩ	180.9 kΩ	106.3 kΩ	69.0 kΩ	46.6 kΩ	31.6 kΩ	21.0 kΩ	13.0 kΩ	6.8 kΩ	1.8 kΩ

YNB50-XXS24 Trim down

Vout=	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
Rt=	599.0 kΩ	267.9 kΩ	157.6 kΩ	102.4 kΩ	69.3 kΩ	47.2 kΩ	31.5 kΩ	19.7 kΩ	10.5 kΩ	3.1 kΩ

YNB50-XXS24 Trim up

Vout=	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
Rt=	486.8 kΩ	217.9 kΩ	128.2 kΩ	83.4 kΩ	56.5 kΩ	38.6 kΩ	25.7 kΩ	16.1 kΩ	8.7 kΩ	2.7 kΩ