

# YNC40 SERIES

DC/DC Converters 40W 8:1 input window



## FEATURES :

- 40W DIL Package
- 8:1 Wide Input Voltage Range
- High Efficiency Up to 91%
- Regulated Output Types
- No Minimum Load Required
- Over Power/Short Circuit/ Temperature Protection
- Operating Temperature: -40°C to +60°C
- UL94V-0 Package Material
- 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		Output Voltage	Output Current	Efficiency ( @36Vin )	Maximum capacitor Load
		No-Load	Full-Load				
	Vdc	mA (typ)	mA (typ)	Vdc	mA (typ)	% (typ)	µF
YNC40-36S05	9-75	8	1235	5	8000	90	13600
YNC40-36S12	9-75	8	1221	12	3333	91	2400
YNC40-36S15	9-75	8	1221	15	2667	91	1500
YNC40-36S24	9-75	8	1221	24	1667	91	600
YNC40-36S48	9-75	8	1221	48	833	91	120
YNC40-36D12	9-75	8	1221	±12	±1667	91	±1200
YNC40-36D15	9-75	8	1221	±15	±1333	91	±800

### Part Number

$\frac{YNC}{A} \quad \frac{40}{B} \quad - \quad \frac{36}{C} \quad \frac{S}{D} \quad \frac{05}{E}$

- A : Series  
 B : Output Power  
 C : Input Voltage  
 D : Single/Dual Output  
 E : Output Voltage

DC-DC Converter

**YNC40 SERIES**

40Watt

2250Vdc Isolated

8 : 1 Input Voltage Range

Single/Dual Output

2" X 1" Size



### Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Input Voltage		9	36	75	Vdc
Input Surge Voltage (100 ms max.)		-0.7		100	Vdc
Start-up Voltage				9	Vdc
Under Voltage Shutdown			7.5		Vdc
Start-up Time	Constant Resistive Load, Nominal Vin		Power-up	35	ms
			Remote ON/OFF	35	
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 Vdc – 12 Vdc	
			DC/DC OFF	Short or 0 Vdc – 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	-2		+2	%	
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		5Vout		100	mVp-p
			12Vout		150	
			15Vout		150	
			24Vout		150	
			48Vout		200	
Transient Response Setting Time	25% Load Step Change		350	650	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	115	150	185	%	
Short Circuit Protection	Continuous [Hiccup Mode], Auto-Recovery					
Over Voltage Protection			5Vout		6.2	Vdc
			12Vout, ±12Vout		15	
			15Vout, ±15Vout		18	
			24Vout		30	
			48Vout		60	

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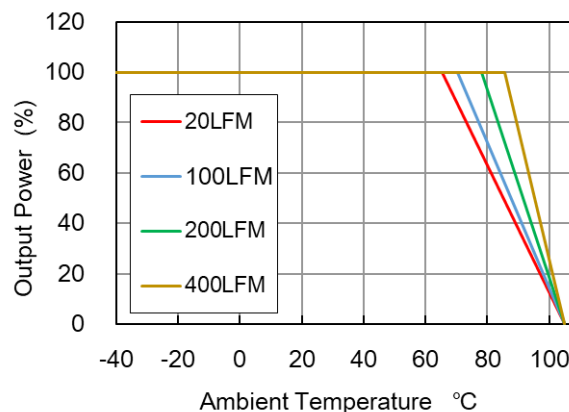
DC/DC Converters 40W 8:1 input window



## General Specifications

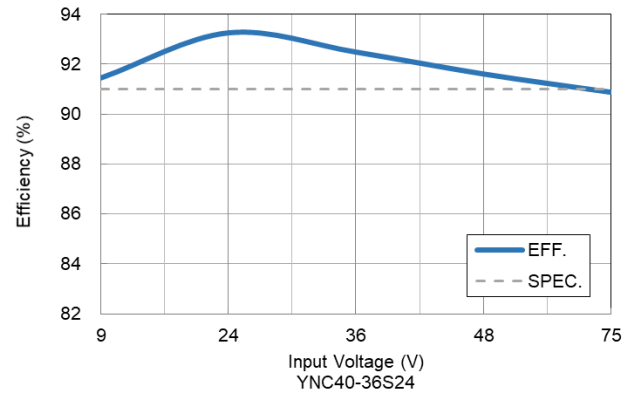
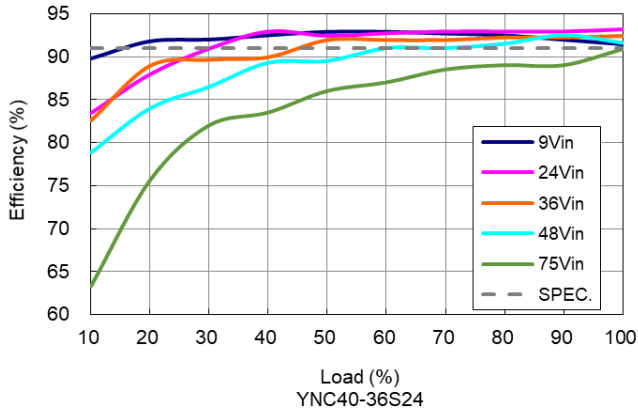
Parameters	Conditions	Min	Typ	Max	Units
Isolation Voltage	Input to Output (60sec.)	2250			Vdc
	Input (Output) To Case (60sec.)	1000			Vdc
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	100kHz, 1V			2200	pF
Switching Frequency	Full Load, Nominal Input	5Vout, 48Vout		185	KHz
		Others		230	
Operating Ambient Temperature (Power Derating See Derating Graph)	Nominal Vin, 100% Load	YNC40-36S05		60	°C
		YNC40-36S12, YNC40-36S15, YNC40-36S24, YNC40-36S48, YNC40-36D12, YNC40-36D15	-40	65	
Thermal Impedance	20LFM		10		°C/W
	100LFM		8.8		
	200LFM		6.8		
	400LFM		4.9		
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)		4.15x10 <sup>5</sup>		Hours
Weight			50		g
Dimensions	50.8 x 25.4 x 11.6				mm

## Temperature Derating Graph

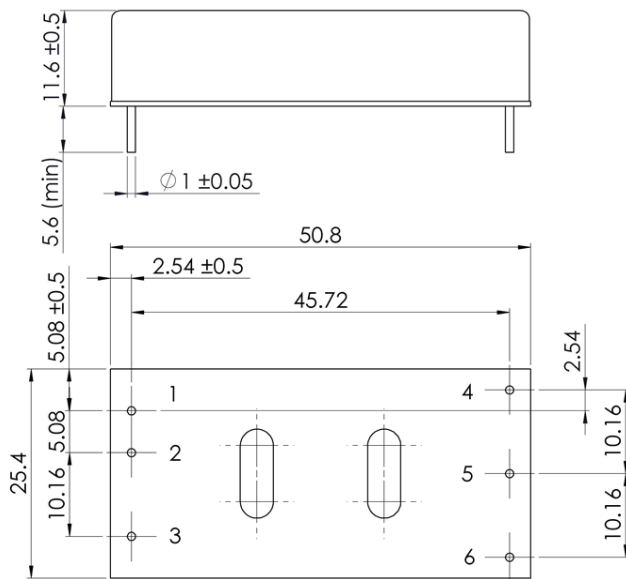


YNC40-36S24

### Characteristic Curve



### Dimensions



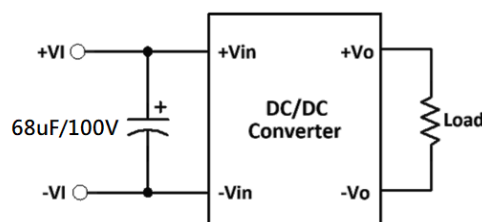
**BOTTOM VIEW**

Unit : mm  
Tolerance :  $XX.X \pm 0.5$  ,  $XX.XX \pm 0.25$

### PIN Assignment

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

### Application Examples

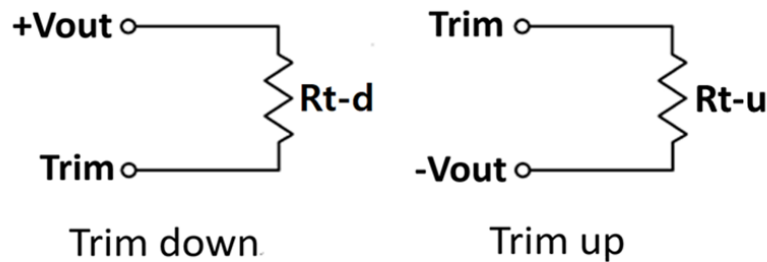


It is necessary to parallel a capacitor across the input pins under normal operation.

Minimum Capacitance: 68 $\mu$ F/100V.

### External Output Trimming

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



### Trim Table:

YNC40-36S05											
Trim down	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
	Rt-d =	138.88KΩ	62.41KΩ	36.92KΩ	24.18KΩ	16.53KΩ	11.44KΩ	7.79KΩ	5.06KΩ	2.94KΩ	1.24KΩ
Trim up	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	Rt-u =	106.87KΩ	47.76KΩ	28.06KΩ	18.21KΩ	12.30KΩ	8.36KΩ	5.55KΩ	3.44KΩ	1.79KΩ	0.48KΩ

YNC40-36S12											
Trim down	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
	Rt-d =	280.90KΩ	125.65KΩ	73.90KΩ	48.02KΩ	32.50KΩ	22.15KΩ	14.76KΩ	9.21KΩ	4.90KΩ	1.45KΩ
Trim up	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	Rt-u =	225.50KΩ	100.75KΩ	59.17KΩ	38.38KΩ	25.90KΩ	17.58KΩ	11.64KΩ	7.19KΩ	3.72KΩ	0.95KΩ

YNC40-36S15											
Trim down	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
	Rt-d =	499.18KΩ	223.09KΩ	131.06KΩ	85.05KΩ	57.44KΩ	39.03KΩ	25.88KΩ	16.02KΩ	8.35KΩ	2.22KΩ
Trim up	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	Rt-u =	404.82KΩ	180.91KΩ	106.27KΩ	68.95KΩ	46.56KΩ	31.64KΩ	20.97KΩ	12.98KΩ	6.76KΩ	1.78KΩ

YNC40-36S24											
Trim down	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
	Rt-d =	598.97KΩ	267.93KΩ	157.59KΩ	102.42KΩ	69.31KΩ	47.24KΩ	31.48KΩ	19.66KΩ	10.46KΩ	3.11KΩ
Trim up	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	Rt-u =	486.83KΩ	217.87KΩ	128.21KΩ	83.38KΩ	56.49KΩ	38.56KΩ	25.75KΩ	16.14KΩ	8.67KΩ	2.69KΩ

YNC40-36S48											
Trim down	Vout	Vo*99%	Vo*98%	Vo*97%	Vo*96%	Vo*95%	Vo*94%	Vo*93%	Vo*92%	Vo*91%	Vo*90%
	Rt-d =	1075.19KΩ	481.35KΩ	283.40KΩ	184.42KΩ	125.04KΩ	85.45KΩ	57.17KΩ	35.96KΩ	19.47KΩ	6.27KΩ
Trim up	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	Rt-u =	871.31KΩ	390.15KΩ	229.77KΩ	149.58KΩ	101.46KΩ	69.38KΩ	46.47KΩ	29.29KΩ	15.92KΩ	5.23KΩ