

YNC20 Series

DC/DC Converters 8:1 Input 20W



FEATURES :

- 20W DIL Package
- 8:1 Wide Input Voltage Range
- High Efficiency Up to 92%
- Regulated Output Types
- No Minimum Load Required
- Over Power/Short Circuit/Temperature Protection
- Operating Temperature: -40°C to +83°C (Without Derating)
- 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

DC-DC Converter

YNC20 SERIES

20Watt

2250Vdc Isolated

8 : 1 Input Voltage Range

Single/Dual Output

2" X 1" Size

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
YNC20-36S05	9-75	8	617	5	4000	90	6800
YNC20-36S12	9-75	8	611	12	1667	91	1200
YNC20-36S15	9-75	8	611	15	1334	91	750
YNC20-36S24	9-75	8	604	24	833	92	300
YNC20-36S48	9-75	8	611	48	417	91	100
YNC20-36D12	9-75	8	610	±12	±833	91	±600
YNC20-36D15	9-75	8	611	±15	±667	91	±390

Part Number

YNC
20
-
36
S
05

A
B
C
D
E

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



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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	30		ms	
		Remote ON/OFF	30			
Input Filter	All Models			Internal Pi type		
Remote ON/OFF (Ctrl PIN Refer To -Vin PIN)	Positive Logic	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	mA
	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)	5Vout			100	mVp-p
	12Vout			120	
	15Vout			150	
	24Vout			150	
	48Vout			200	
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	115	150	190	%
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		

YNC20 Series

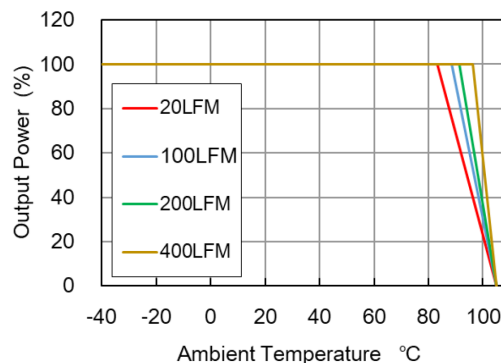
DC/DC Converters 8:1 Input 20W



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	200	235	270	KHz
Operating Ambient Temperature (Power Derating See Derating Graph)	Nominal Vin, 100% Load	YNC20-36S05, YNC20-36S15, YNC20-36D12,		77.2	°C
		YNC20-36S12, YNC20-36D15, YNC20-36S48	-40	80.2	
		YNC20-36S24		83.3	
Thermal Impedance	20LFM		12.5		°C/W
	100LFM		9.5		
	200LFM		7.8		
	400LFM		5.1		
Maximum Case Temperature				105	°C
Over Temperature Protection	Case temperature		120		°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)		976,017		Hours
Weight			35		g
Dimensions	50.8 x 25.4 x 11.6				mm

Temperature Derating Graph



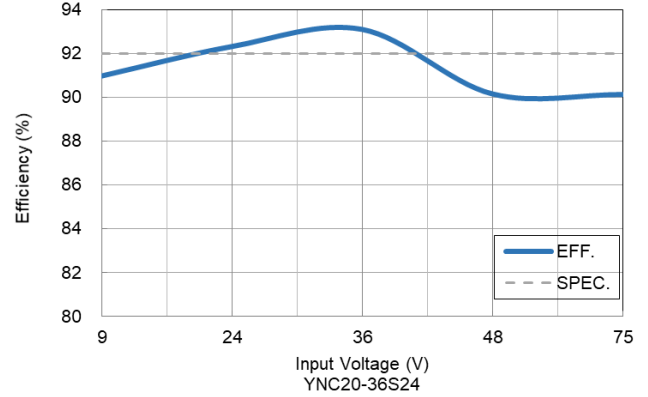
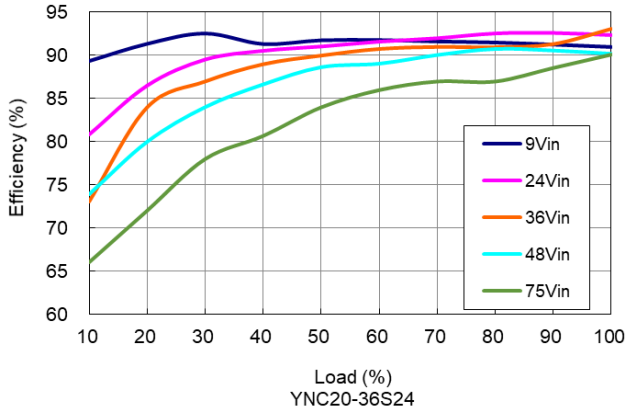
YNC20-36S24

YNC20 Series

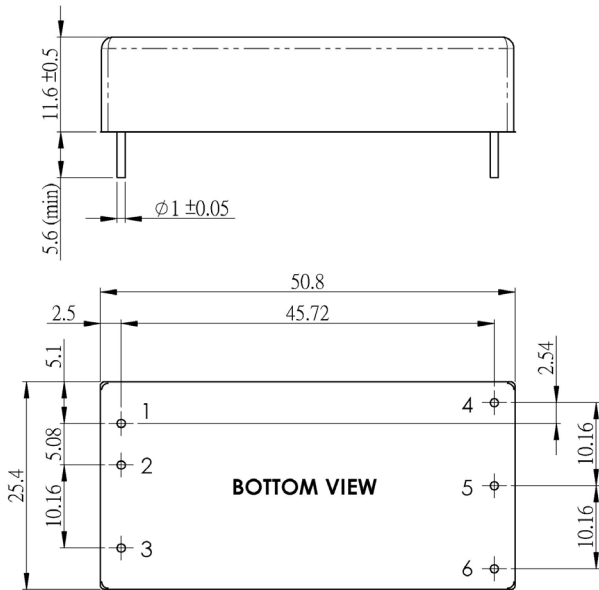
DC/DC Converters 8:1 Input 20W



Characteristic Curve



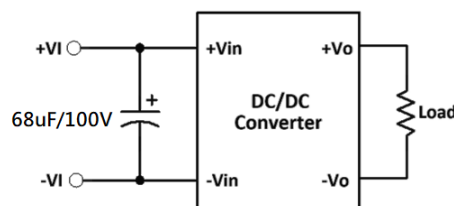
Dimensions



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

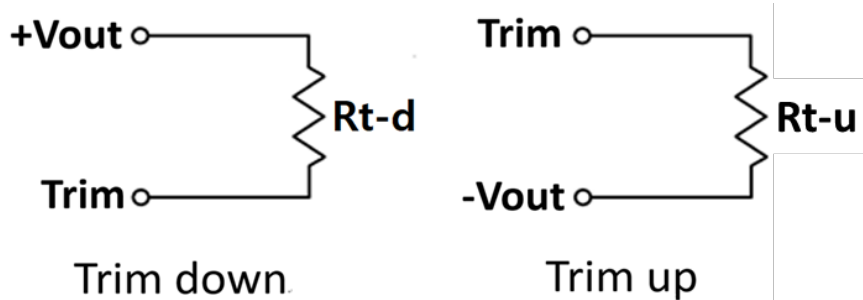


It is necessary to parallel a capacitor across the input pins under normal operation.

Minimum Capacitance: 68μF/100V.

External Output Trimming

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



YNC20-36S05

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
Trim	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	up	Rt-u =	106.87KΩ	47.76KΩ	28.06KΩ	18.21KΩ	12.30KΩ	8.36KΩ	5.55KΩ	3.44KΩ	1.79KΩ

YNC20-36S12

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
Trim	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	up	Rt-u =	225.50KΩ	100.75KΩ	59.17KΩ	38.38KΩ	25.90KΩ	17.58KΩ	11.64KΩ	7.19KΩ	3.72KΩ

YNC20-36S15

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
Trim	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	up	Rt-u =	404.82KΩ	180.91KΩ	106.27KΩ	68.95KΩ	46.56KΩ	31.64KΩ	20.97KΩ	12.98KΩ	6.76KΩ

YNC20-36S24

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
Trim	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	up	Rt-u =	486.83KΩ	217.87KΩ	128.21KΩ	83.38KΩ	56.49KΩ	38.56KΩ	25.75KΩ	16.14KΩ	8.67KΩ

YNC20-36S48

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 =	1075.19KΩ	481.35KΩ	283.40KΩ	184.42KΩ	125.04KΩ	85.45KΩ	57.17KΩ	35.96KΩ	19.47KΩ
Trim	Vout	Vo*101%	Vo*102%	Vo*103%	Vo*104%	Vo*105%	Vo*106%	Vo*107%	Vo*108%	Vo*109%	Vo*110%
	up	Rt-u =	871.31KΩ	390.15KΩ	229.77KΩ	149.58KΩ	101.46KΩ	69.38KΩ	46.47KΩ	29.29KΩ	15.92KΩ