

FEATURES :

- 40W DIL Package
- 8:1 Wide Input Voltage Range
- High Efficiency Up To 91%
- Regulated Output Types
- No Minimum Load Required
- Over Power and Short Circuit Protection
- Over Temperature Protection
- Operating Temperature: -40°C To +60°C
- UL94V-0 Package Material
- 100% Burned In
- 3 Years Warranty



electronic powersolutions

DC-DC Converter

YNC40 SERIES

40Watt

1600Vdc 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 |
| YNC40-36S05 | 9-75 | 10 | 1235 | 5 | 8000 | 90 | 13600 |
| YNC40-36S12 | 9-75 | 10 | 1221 | 12 | 3333 | 91 | 2400 |
| YNC40-36S15 | 9-75 | 10 | 1221 | 15 | 2667 | 91 | 1500 |
| YNC40-36S24 | 9-75 | 10 | 1221 | 24 | 1667 | 91 | 600 |
| YNC40-36D12 | 9-75 | 10 | 1221 | ±12 | ±1667 | 91 | ±1200 |
| YNC40-36D15 | 9-75 | 10 | 1221 | ±15 | ±1333 | 91 | ±800 |

Part Number

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

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



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 | mA |
| | Remote Off Input Current | | | | 3 | |

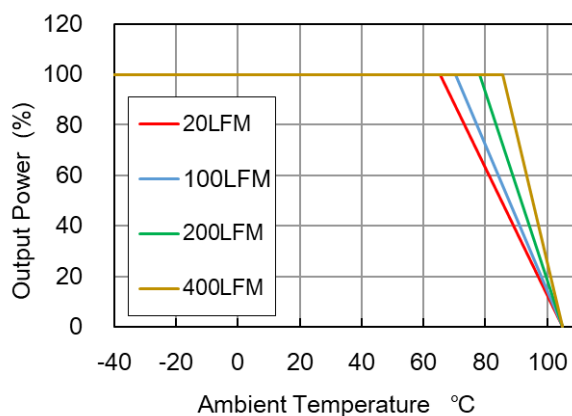
Output Specifications

| 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) | With an 1uF MLCC | 5Vout | | 100 | mVp-p |
| | | 12Vout | | 150 | |
| | | 15Vout | | 150 | |
| | | 24Vout | | 150 | |
| 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 | | |

General Specifications

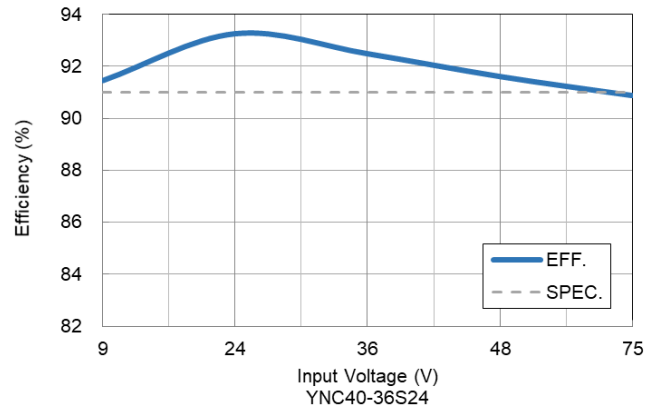
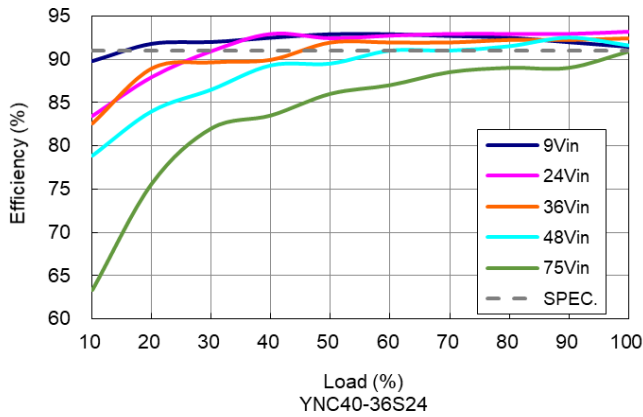
| Parameters | Conditions | Min | Typ | Max | Units |
|--|---------------------------------|---|----------------------|------|-------|
| Isolation Voltage | Input to Output (60sec.) | 1600 | | | Vdc |
| | Input (Output) To Case (60sec.) | 1000 | | | Vdc |
| Isolation Resistance | 500Vdc | 1000 | | | MΩ |
| Isolation Capacitance | 100kHz, 1V | | | 2200 | pF |
| Switching Frequency | Full Load, Nominal Input | 5Vout | 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, YNC40-36D12, 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 ⁵ | | Hours |
| Weight | | | 50 | | g |
| Dimensions | 50.8 x 25.4 x 11.6 | | | | mm |

Temperature Derating Graph

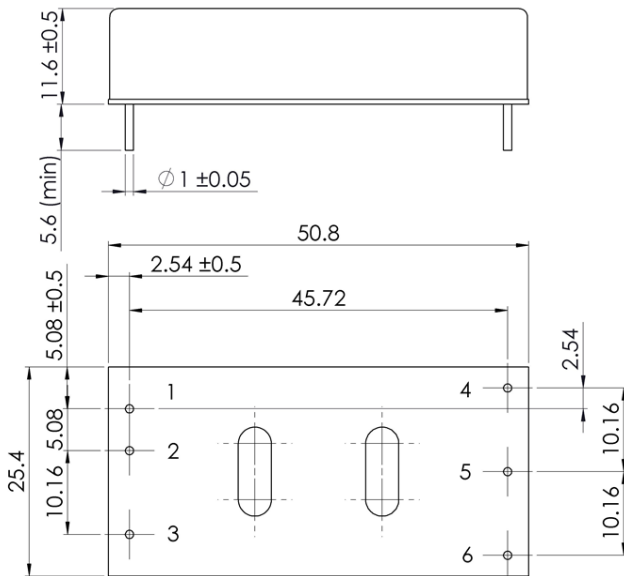


YNC40-36S24

Characteristic Curve



Dimensions



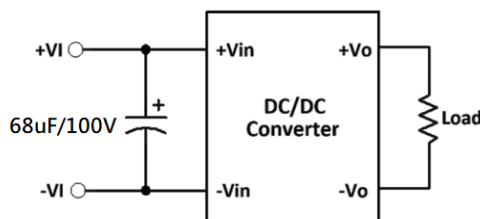
BOTTOM VIEW

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"] |

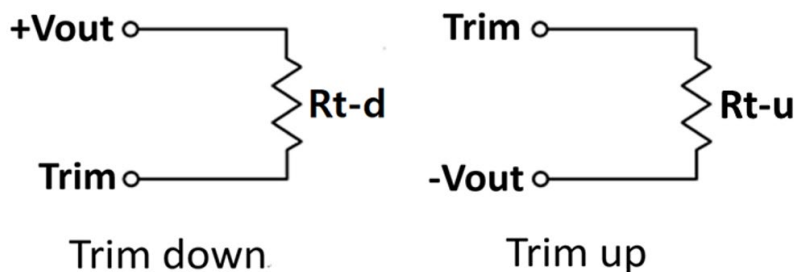
Application Examples



It is necessary to parallel a capacitor across the input pins under normal operation.
Minimum Capacitance: 68 μ 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 |