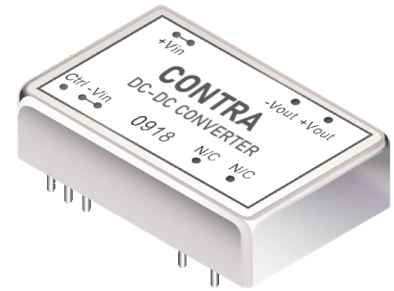


# CYKB15SERIES 15Watt 1600Vdc Isolated DC-DC Converter Single/Dual Output DIP24



## FEATURES :

- 15W DIL Package
- 4:1 Wide Input Voltage Range
- High Efficiency Up to 91%
- Regulated Output Types
- No Minimum Load Required
- Over Power and Short Circuit Protection
- Operating Temperature: -40°C to +88°C(with derating)
- UL94V-0 Package Material
- 100% Burned In
- 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 | Maximum capacitor Load |
|--------------|---------------------|---------------|-----------|----------------|----------------|------------|------------------------|
|              |                     | No-Load       | Full-Load |                |                |            |                        |
|              |                     | mA (typ)      | mA (typ)  |                |                |            |                        |
|              | Vdc                 |               |           | Vdc            | mA (typ)       | % (typ)    | μF                     |
| CYKB15-24S05 | 9-36                | 7             | 687       | 5              | 3000           | 91         | 6800                   |
| CYKB15-24S12 | 9-36                | 7             | 702       | 12             | 1250           | 89         | 1200                   |
| CYKB15-24S15 | 9-36                | 7             | 694       | 15             | 1000           | 90         | 750                    |
| CYKB15-24S24 | 9-36                | 7             | 694       | 24             | 625            | 90         | 300                    |
| CYKB15-24D12 | 9-36                | 7             | 702       | ±12            | ±625           | 89         | ±680                   |
| CYKB15-24D15 | 9-36                | 7             | 694       | ±15            | ±500           | 90         | ±560                   |
| CYKB15-48S05 | 18-75               | 5             | 344       | 5              | 3000           | 91         | 6800                   |
| CYKB15-48S12 | 18-75               | 5             | 347       | 12             | 1250           | 90         | 1200                   |
| CYKB15-48S15 | 18-75               | 5             | 344       | 15             | 1000           | 91         | 750                    |
| CYKB15-48S24 | 18-75               | 5             | 344       | 24             | 625            | 91         | 300                    |
| CYKB15-48D12 | 18-75               | 5             | 347       | ±12            | ±625           | 90         | ±680                   |
| CYKB15-48D15 | 18-75               | 5             | 347       | ±15            | ±500           | 90         | ±560                   |

## Part Number

$\frac{\text{CYKB}}{\text{A}}$ 
 $\frac{15}{\text{B}}$ 
-
 $\frac{24}{\text{C}}$ 
 $\frac{\text{S}}{\text{D}}$ 
 $\frac{05}{\text{E}}$

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

# CYKB15SERIES 15Watt 1600Vdc Isolated DC-DC Converter Single/Dual Output DIP24



## Input Specifications

| Parameters                                    | Conditions                           |               | Min              | Typ | Max              | Units |
|-----------------------------------------------|--------------------------------------|---------------|------------------|-----|------------------|-------|
| Input Voltage                                 | 24V Models                           |               | 9                |     | 36               | Vdc   |
|                                               | 48V Models                           |               | 18               |     | 75               |       |
| Input Surge Voltage<br>(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, Nominal Vin | Power-up      |                  | 30  |                  | ms    |
|                                               |                                      | Remote ON/OFF |                  | 30  |                  |       |
| Input Filter                                  | All Models                           |               | Internal Pi type |     |                  |       |
| Remote ON/OFF<br>(Ctrl PIN Refer To –Vin PIN) | Positive Logic                       | DC/DC ON      | Open             | or  | 3.5 Vdc - 12 Vdc | mA    |
|                                               |                                      | 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                    | 5V Output     | -1   | +1    | %     |
|                                 |                                         | Other Outputs | -0.5 | +0.5  |       |
| Load Cross Regulation           | Asymmetrical Load<br>25% / 100% Load    | Dual Output   | -5.0 | +5.0  | %     |
| Ripple & Noise<br>(BW=20MHz)    | 24Vout                                  |               |      | 150   | mVp-p |
|                                 | Other Outputs                           |               |      | 100   |       |
| Transient Response Setting Time | 25% Load Step Change                    |               | 300  | 500   | us    |
| Transient Response Deviation    | 25% Load Step Change                    | -5            | ±3   | +5    | %     |
| Temperature Coefficient         |                                         | -0.02         |      | +0.02 | %/°C  |
| 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   |       |       |

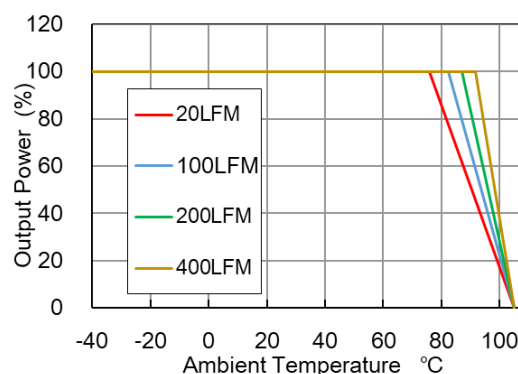
# CYKB15SERIES 15Watt 1600Vdc Isolated DC-DC Converter Single/Dual Output DIP24



## 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        | 5V Output                                                                                |                      | 250  | KHz   |
|                                                                      |                                 | Other Output                                                                             |                      | 330  |       |
| Operating Ambient Temperature<br>(Power Derating See Derating Graph) | Nominal Vin, 100% Load          | CYKB15-24S05, CYKB15-48S05<br>CYKB15-48S15, CYKB15-48S24                                 | -40                  | 75.9 | °C    |
|                                                                      |                                 | CYKB15-24S12, CYKB15-24D12                                                               |                      | 68.7 |       |
|                                                                      |                                 | CYKB15-24S15, CYKB15-24S24,<br>CYKB15-24D15, CYKB15-48S12,<br>CYKB15-48D12, CYKB15-48D15 |                      | 72.3 |       |
|                                                                      |                                 |                                                                                          |                      |      |       |
| Thermal Impedance                                                    | 20LFM                           |                                                                                          |                      | 19.6 | °C/W  |
|                                                                      | 100LFM                          |                                                                                          |                      | 15.3 |       |
|                                                                      | 200LFM                          |                                                                                          |                      | 12.1 |       |
|                                                                      | 400LFM                          |                                                                                          |                      | 8.9  |       |
| Maximum Case Temperature                                             |                                 |                                                                                          |                      | 105  | °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) |                                                                                          | 9.03X10 <sup>5</sup> |      | Hours |
| Weight                                                               |                                 |                                                                                          | 17                   |      | g     |
| Dimensions                                                           |                                 | 31.6 x 20.1 x 10.0                                                                       |                      |      | mm    |

## Temperature Derating Graph

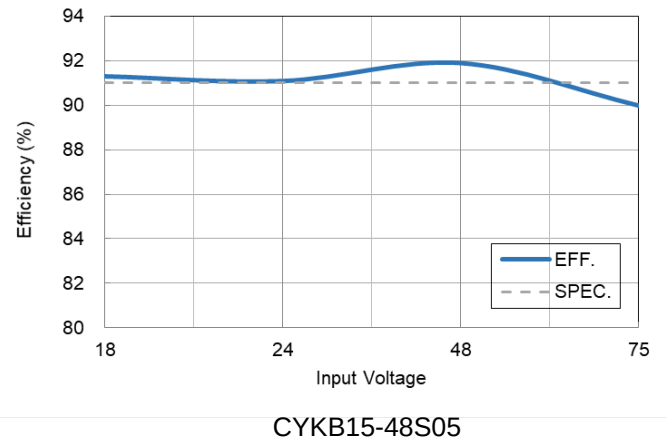
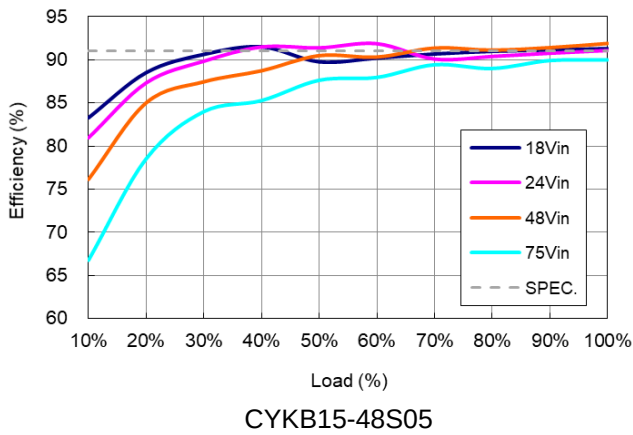


CYKB15-48S05

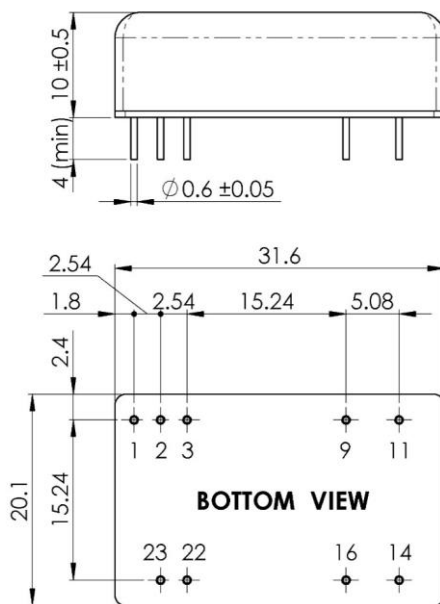
# CYKB15SERIES 15Watt 1600Vdc Isolated DC-DC Converter Single/Dual Output DIP24



## Characteristic Curve



## Dimensions



Unit : mm  
Tolerance : XX.X ± 0.5 , XX.XX ± 0.25

## PIN Assignment

| Pin | Single | Dual  | Diameter      |
|-----|--------|-------|---------------|
| 1   | Ctrl   | Ctrl  | 0.6mm[0.024"] |
| 2   | -Vin   | -Vin  | 0.6mm[0.024"] |
| 3   | -Vin   | -Vin  | 0.6mm[0.024"] |
| 9   | NC     | Com   | 0.6mm[0.024"] |
| 11  | NC     | -Vout | 0.6mm[0.024"] |
| 14  | +Vout  | +Vout | 0.6mm[0.024"] |
| 16  | -Vout  | Com   | 0.6mm[0.024"] |
| 22  | +Vin   | +Vin  | 0.6mm[0.024"] |
| 23  | +Vin   | +Vin  | 0.6mm[0.024"] |