



# YKC03-SERIES



- 3 WATTS REGULATED OUTPUT POWER
- 2:1 WIDE INPUT VOLTAGE RANGE
- INTERNATIONAL SAFETY STANDARD APPROVAL
- FIVE-SIDED SHIELD
- HIGH EFFICIENCY UP TO 80%
- STANDARD 24 PIN DIP PACKAGE & SMD TYPE PACKAGE
- OVER CURRENT PROTECTION

The YKC03 series offers 3 watts of output power from a package in an IC compatible 24pin DIP configuration without derating to 71°C ambient temperature. YKC03 series have 2:1 wide input voltage of 9-18, 18-36 and 36-75VDC. The YKC03 features 1600VDC of isolation, short-circuit protection and as well as five sided shielding. A safety designed meet to EN60950 and UL1950. All models are particularly suited to telecommunications, industrial, mobile telecom and test equipment applications.



UL E193009  
TUV R3-50007936  
CB JPTUV-003641  
CE MARK

## TECHNICAL SPECIFICATION

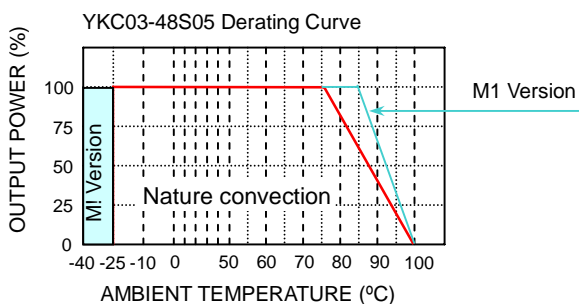
All specifications are typical at nominal input, full load and 25°C otherwise noted

| OUTPUT SPECIFICATIONS            |  |                                |
|----------------------------------|--|--------------------------------|
| Output power                     |  | 3 Watts max                    |
| Voltage accuracy                 | Full load and nominal Vin              | ± 2%                           |
| Minimum load (Note 1)            |  | 10% of FL                      |
| Line regulation                  | LL to HL at Full Load                  | ± 0.2%                         |
| Load regulation                  | 25% to 100% FL Single                  | ± 0.2%                         |
|                                  | Dual                                   | ± 1%                           |
| Cross regulation                 | Asymmetrical load 25% / 100% FL        | ± 5%                           |
| Ripple and noise                 | 20MHz bandwidth                        | 50mVp-p                        |
| Temperature coefficient          |  | ±0.02% / °C, max               |
| Transient response recovery time | 25% load step change                   | 200uS                          |
| Over load protection             | % of FL at nominal input               | 180% typ                       |
| Short circuit protection         |  | Continuous, automatic recovery |
| INPUT SPECIFICATIONS             |  |                                |
| Input voltage range              | 12V nominal input                      | 9 – 18VDC                      |
|                                  | 24V nominal input                      | 18 – 36VDC                     |
|                                  | 48V nominal input                      | 36 – 75VDC                     |
| Input filter                     |  | PI type                        |
| Input surge voltage<br>100mS max | 12V input                              | 36VDC                          |
|                                  | 24V input                              | 50VDC                          |
|                                  | 48V input                              | 100VDC                         |
| Input reflected ripple (Note 2)  | Nominal Vin and full load              | 20mA <sub>p-p</sub>            |
| Start up time                    | Nominal Vin and constant resistor load | 350mS typ                      |

| GENERAL SPECIFICATIONS      |                           |  |
|-----------------------------|---------------------------|--|
| Efficiency                  |                           | See table  |
| Isolation voltage           | Input to Output           | 1600VDC, min                                       |
|                             | Input(Output) to Case DIP | 1600VDC, min                                       |
|                             | SMD                       | 1000VDC, max                                       |
| Isolation resistance        |                           | 10 <sup>9</sup> ohms, min                          |
| Isolation capacitance       |                           | 300pF, max   |
| Switching frequency         |                           | 300KHz, typ  |
| Design meet safety standard |                           | UL1950, EN60950                                    |
| Case material               |                           | Nickel-coated copper                               |
| Base material               |                           | Non-conductive black plastic                       |
| Potting material            |                           | Epoxy (UL94-Vo)                                    |
| Dimensions                  |                           | 1.25 X 0.80 X 0.40 Inch<br>(31.8 X 20.3 X 10.2 mm) |
| Weight                      | DIP                       | 16g (0.55oz)                                       |
|                             | SMD                       | 18g (0.62oz)                                       |
| MTBF (Note 3)               |                           | 3.139 x 10 <sup>6</sup> hrs                        |

| ENVIRONMENTAL SPECIFICATIONS |                   |  |
|------------------------------|-------------------|--|
| Operating temperature range  | Standard          | -25°C ~ +85°C (with derating)          |
|                              | M1 (Note 4)       | -40°C ~ +85°C (non-derating)           |
| Maximum case temperature     |                   | 100°C                                  |
| Storage temperature range    |                   | -55°C ~ +105°C                         |
| Thermal impedance            | Nature convection | 20°C/Watt                              |
| Thermal shock                |                   | MIL-STD-810D                           |
| Vibration                    |                   | 10~55Hz, 2G, 30minutes along X,Y and Z |
| Relative humidity            |                   | 5% to 95% RH                           |

| EMC CHARACTERISTICS |             |                 |
|---------------------|-------------|-----------------|
| Conducted emissions | EN55022     | Level A         |
| Radiated emissions  | EN55022     | Level A         |
| ESD                 | EN61000-4-2 | Perf. Criteria2 |
| Radiated immunity   | EN61000-4-3 | Perf. Criteria2 |
| Fast transient      | EN61000-4-4 | Perf. Criteria2 |
| Surge               | EN61000-4-5 | Perf. Criteria2 |
| Conducted immunity  | EN61000-4-6 | Perf. Criteria2 |

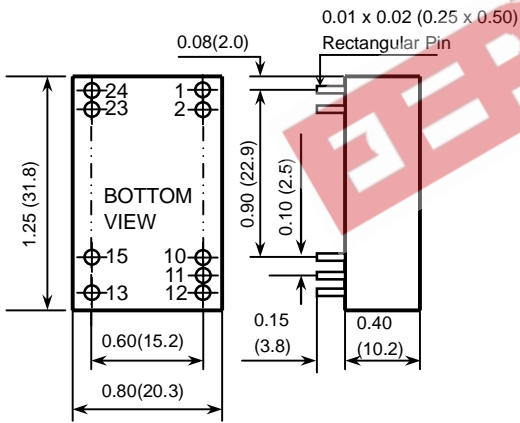




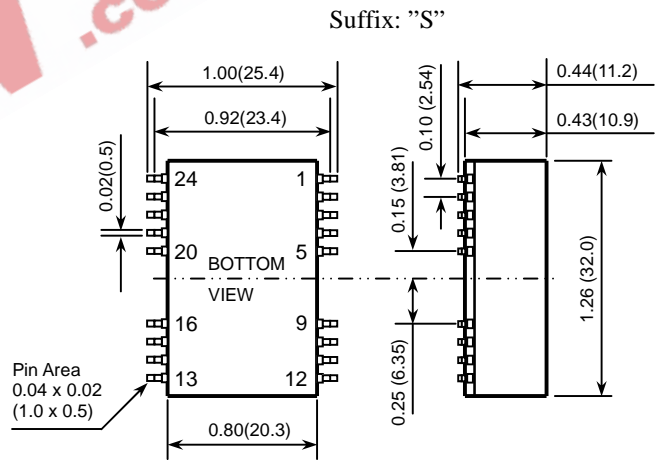
| Model Number | Input Range | Output Voltage | Output Current | Input Current <sup>(5)</sup> | Eff <sup>(6)</sup> (%) | Capacitor <sup>(7)</sup> Load max |
|--------------|-------------|----------------|----------------|------------------------------|------------------------|-----------------------------------|
| YKC03-12S05  | 9 – 18 VDC  | 5 VDC          | 500mA          | 290mA                        | 76                     | 1000uF                            |
| YKC03-12S12  | 9 – 18 VDC  | 12 VDC         | 250mA          | 329mA                        | 80                     | 220uF                             |
| YKC03-12S15  | 9 – 18 VDC  | 15 VDC         | 200mA          | 334mA                        | 79                     | 150uF                             |
| YKC03-12D05  | 9 – 18 VDC  | ± 5 VDC        | ± 250mA        | 290mA                        | 76                     | ± 470uF                           |
| YKC03-12D12  | 9 – 18 VDC  | ± 12 VDC       | ± 125mA        | 334mA                        | 79                     | ± 100uF                           |
| YKC03-12D15  | 9 – 18 VDC  | ± 15 VDC       | ± 100mA        | 334mA                        | 79                     | ± 68uF                            |
| YKC03-24S05  | 18 – 36 VDC | 5 VDC          | 500mA          | 151mA                        | 73                     | 1000uF                            |
| YKC03-24S12  | 18 – 36 VDC | 12 VDC         | 250mA          | 169mA                        | 78                     | 220uF                             |
| YKC03-24S15  | 18 – 36 VDC | 15 VDC         | 200mA          | 171mA                        | 77                     | 150uF                             |
| YKC03-24D05  | 18 – 36 VDC | ± 5 VDC        | ± 250mA        | 151mA                        | 73                     | ± 470uF                           |
| YKC03-24D12  | 18 – 36 VDC | ± 12 VDC       | ± 125mA        | 174mA                        | 76                     | ± 100uF                           |
| YKC03-24D15  | 18 – 36 VDC | ± 15 VDC       | ± 100mA        | 171mA                        | 77                     | ± 68uF                            |
| YKC03-48S05  | 36 – 75 VDC | 5 VDC          | 500mA          | 76mA                         | 73                     | 1000uF                            |
| YKC03-48S12  | 36 – 75 VDC | 12 VDC         | 250mA          | 83mA                         | 79                     | 220uF                             |
| YKC03-48S15  | 36 – 75 VDC | 15 VDC         | 200mA          | 82mA                         | 80                     | 150uF                             |
| YKC03-48D05  | 36 – 75 VDC | ± 5 VDC        | ± 250mA        | 76mA                         | 73                     | ± 470uF                           |
| YKC03-48D12  | 36 – 75 VDC | ± 12 VDC       | ± 125mA        | 85mA                         | 78                     | ± 100uF                           |
| YKC03-48D15  | 36 – 75 VDC | ± 15 VDC       | ± 100mA        | 86mA                         | 77                     | ± 68uF                            |

**Note**

- The YKC03 series required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
- Simulated source impedance of 12uH. 12uH inductor on series with + Vin.
- BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
- M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard.
- Maximum value at nominal input voltage and full load of standard type.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistor load.



- All dimensions in Inches (mm)
- Pin pitch tolerance ±0.014(0.35)



Suffix: "S"

| DIP PIN CONNECTION |          |         |     |          |          |
|--------------------|----------|---------|-----|----------|----------|
| PIN                | SINGLE   | DUAL    | PIN | SINGLE   | DUAL     |
| 1                  | + INPUT  | + INPUT | 24  | - INPUT  | - INPUT  |
| 2                  | + INPUT  | + INPUT | 23  | - INPUT  | - INPUT  |
| 10                 | NC       | COMMON  | 15  | NC       | + OUTPUT |
| 11                 | NC       | COMMON  |     |          |          |
| 12                 | - OUTPUT | NC      | 13  | + OUTPUT | - OUTPUT |

| SMD PIN CONNECTION |          |         |        |          |          |
|--------------------|----------|---------|--------|----------|----------|
| PIN                | SINGLE   | DUAL    | PIN    | SINGLE   | DUAL     |
| 1                  | + INPUT  | + INPUT | 24     | - INPUT  | - INPUT  |
| 2                  | + INPUT  | + INPUT | 23     | - INPUT  | - INPUT  |
| 10                 | NC       | COMMON  | 15     | NC       | + OUTPUT |
| 11                 | NC       | COMMON  |        |          |          |
| 12                 | - OUTPUT | NC      | 13     | + OUTPUT | - OUTPUT |
| Others             | NC       | NC      | Others | NC       | NC       |