



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

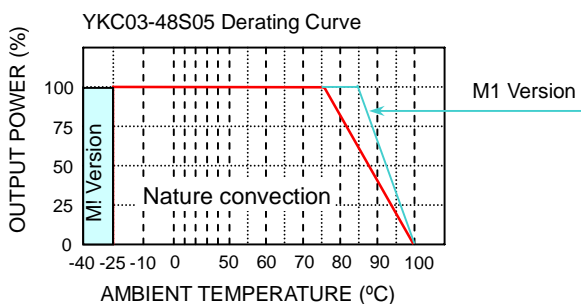
All specifications are typical at nominal input, full load and 25°C otherwise noted

| 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 100mS max | 12V input | 36VDC |
| | 24V input | 50VDC |
| | 48V input | 100VDC |
| Input reflected ripple (Note 2) | Nominal Vin and full load | 20mA _{p-p} |
| 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 ⁹ 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 (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 ⁶ 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 |



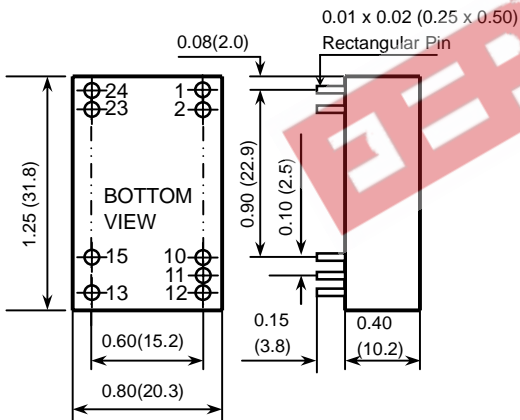


3 WATTS DC-DC CONVERTER

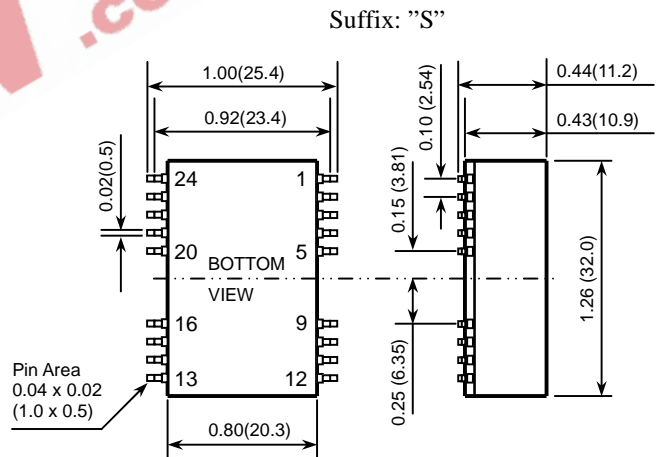
| Model Number | Input Range | Output Voltage | Output Current | Input Current ⁽⁵⁾ | Eff ⁽⁶⁾ (%) | Capacitor ⁽⁷⁾ Load max |
|--------------|-------------|----------------|----------------|------------------------------|------------------------|-----------------------------------|
| YKC03-12S05 | 9 – 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 |