



APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Measurement Equipment
Semiconductor Equipment

FEATURES

- 3 WATTS REGULATED OUTPUT POWER
- OUTPUT CURRENT UP TO 600mA
- STANDARD 1.25 X 0.80X 0.40 INCH
- HIGH EFFICIENCY UP TO 80%
- 2:1 WIDE INPUT VOLTAGE RANGE
- SWITCHING FREQUENCY (100kHz, MIN)
- INCLUDE 3.3VDC OUTPUT
- STANDARD 24 PIN DIP PACKAGE & SMD TYPE PACKAGE
- DUAL SEPARATE OUTPUT
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

OPTIONS

SMD TYPE

DESCRIPTION

The PMKC03 series offer 3 watts of output power from a package in an IEC compatible 24pin DIP configuration without derating to 71°C ambient temperature. PMKC03 series have 2:1 wide input voltage of 4.5~6, 9~18, 18~36 and 36~75VDC.

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 | ± 1% | | |
| Minimum load (Note 7) | See table | | |
| Line regulation | LL to HL at Full Load | DS | ± 0.2% ± 0.5% |
| Load regulation | Min Load to Full Load | Single | 3.3Vout ± 0.3% |
| | | Dual | Others ± 0.2% |
| | | DS | ± 2% |
| | | DS | ± 2% |
| Cross regulation (Dual) | Asymmetrical load 25% / 100% FL | | ± 5% |
| Ripple and noise | 20MHz bandwidth | | See table |
| Temperature coefficient | ±0.02% / °C, max. | | |
| Transient response recovery time | 25% load step change | | 500µs |
| Over load protection | % of FL at nominal input | | 180% |
| Short circuit protection | Continuous, automatics recovery | | |
| GENERAL SPECIFICATIONS | | | |
| Efficiency | See table | | |
| Isolation voltage | Input to Output | 1600VDC, min. 1minute | |
| | DS Type, Output to Output | 500VDC, min. 1minute | |
| Isolation resistance | 500VDC | 10 ⁹ ohms, min. | |
| Isolation capacitance | 300pF, max. | | |
| Switching frequency | 100kHz, min. | | |
| Safety approvals | IEC60950-1, UL60950-1, & EN60950-1 | | |
| Case material | Non-conductive black plastic | | |
| Base material | Non-conductive black plastic | | |
| Potting material | Epoxy (UL94 V-0) | | |
| Dimensions | 1.25 X 0.80 X 0.40 Inch (31.8 X 20.3 X 10.2 mm) | | |
| Weight | DIP | 14g (0.48oz) | |
| | SMD | 15g (0.52oz) | |
| MTBF (Note 1) | MIL-HDBK-217F | 7.942 x 10 ⁶ hrs | |

| INPUT SPECIFICATIONS | | | |
|--------------------------------|---|----------------------------|------------------------|
| Input voltage range | 5VDC nominal input | 4.5 ~ 6VDC | |
| | 12VDC nominal input | 9 ~ 18VDC | |
| | 24VDC nominal input | 18 ~ 36VDC | |
| | 48VDC nominal input | 36 ~ 75VDC | |
| Input filter | Pi type | | |
| Input surge voltage | 5VDC input | 18VDC 100ms, max. | |
| | 12VDC input | 36VDC 100ms, max. | |
| | 24VDC input | 50VDC 100ms, max. | |
| | 48VDC input | 100VDC 100ms, max. | |
| Input reflected ripple current | 120mA _{p-p} | | |
| Start up time | Nominal input and constant resistive load | Power up | 30ms |
| ENVIRONMENTAL SPECIFICATIONS | | | |
| Operating ambient temperature | -25°C ~ +71°C(non derating) | | |
| Storage temperature range | -55°C ~ +125°C | | |
| Thermal shock | MIL-STD-810F | | |
| Vibration | MIL-STD-810F | | |
| Relative humidity | 5% to 95% RH | | |
| EMC CHARACTERISTICS | | | |
| EMI | EN55022 | Class A | |
| ESD | EN61000-4-2 | Air | ± 8kV Perf. Criteria A |
| | | Contact | ± 6kV Perf. Criteria A |
| Radiated immunity | EN61000-4-3 | 10 V/m Perf. Criteria A | |
| Fast transient (Note 6) | EN61000-4-4 | ± 2kV Perf. Criteria B | |
| Surge (Note 6) | EN61000-4-5 | ± 1kV Perf. Criteria B | |
| Conducted immunity | EN61000-4-6 | 10 Vr.m.s Perf. Criteria A | |

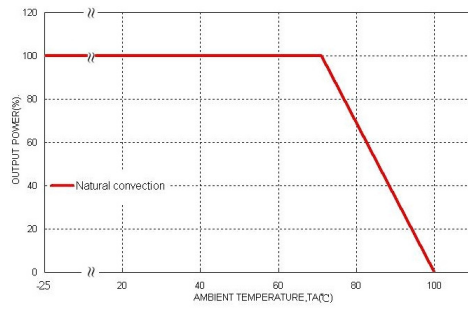
| Model Number | Input Range | Output Voltage | Output Current | | Output ⁽²⁾ Ripple & Noise | No load ⁽³⁾ Input Current | Eff ⁽⁴⁾ (%) | Capacitor ⁽⁵⁾ Load max |
|---------------|-------------|-------------------|-------------------|-------------------|---|---|---------------------------|--------------------------------------|
| | | | Min. load | Full load | | | | |
| PMKC03-05S33 | 4.5 ~ 6 VDC | 3.3 VDC | 60mA | 600mA | 75mVp-p | 15mA | 69 | 2200μF |
| PMKC03-05S05 | 4.5 ~ 6 VDC | 5 VDC | 60mA | 600mA | 75mVp-p | 15mA | 74 | 1000μF |
| PMKC03-05S12 | 4.5 ~ 6 VDC | 12 VDC | 25mA | 250mA | 120mVp-p | 30mA | 75 | 170μF |
| PMKC03-05S15 | 4.5 ~ 6 VDC | 15 VDC | 20mA | 200mA | 150mVp-p | 25mA | 75 | 110μF |
| PMKC03-05D05 | 4.5 ~ 6 VDC | ± 5 VDC | ±30mA | ± 300mA | 75mVp-p | 15mA | 73 | ± 500μF |
| PMKC03-05D12 | 4.5 ~ 6 VDC | ± 12 VDC | ±12mA | ± 125mA | 120mVp-p | 20mA | 75 | ± 96μF |
| PMKC03-05D15 | 4.5 ~ 6 VDC | ± 15 VDC | ±10mA | ± 100mA | 150mVp-p | 50mA | 75 | ± 47μF |
| PMKC03-05DS05 | 4.5 ~ 6 VDC | V1:5VDC;V2:5VDC | V1: 30mA;V2: 30mA | V1:300mA;V2:300mA | 75mVp-p | 30mA | 73 | V1:500μF;V2:500μF |
| PMKC03-05DS12 | 4.5 ~ 6 VDC | V1:12VDC;V2:12VDC | V1:12mA;V2:12mA | V1:125mA;V2:125mA | 120mVp-p | 40mA | 75 | V1:96μF;V2:96μF |
| PMKC03-05DS15 | 4.5 ~ 6 VDC | V1:15VDC;V2:15VDC | V1:10mA;V2:10mA | V1:100mA;V2:100mA | 150mVp-p | 40mA | 73 | V1:47μF;V2:47μF |
| PMKC03-12S33 | 9 ~ 18 VDC | 3.3 VDC | 60mA | 600mA | 75mVp-p | 20mA | 70 | 2200μF |
| PMKC03-12S05 | 9 ~ 18 VDC | 5 VDC | 60mA | 600mA | 75mVp-p | 20mA | 75 | 1000μF |
| PMKC03-12S12 | 9 ~ 18 VDC | 12 VDC | 25mA | 250mA | 120mVp-p | 20mA | 79 | 170μF |
| PMKC03-12S15 | 9 ~ 18 VDC | 15 VDC | 20mA | 200mA | 150mVp-p | 30mA | 79 | 110μF |
| PMKC03-12D05 | 9 ~ 18 VDC | ± 5 VDC | ±30mA | ± 300mA | 75mVp-p | 20mA | 74 | ± 500μF |
| PMKC03-12D12 | 9 ~ 18 VDC | ± 12 VDC | ±12mA | ± 125mA | 120mVp-p | 35mA | 79 | ± 96μF |
| PMKC03-12D15 | 9 ~ 18 VDC | ± 15 VDC | ±10mA | ± 100mA | 150mVp-p | 45mA | 79 | ± 47μF |
| PMKC03-12DS05 | 9 ~ 18 VDC | V1:5VDC;V2:5VDC | V1: 30mA;V2: 30mA | V1:300mA;V2:300mA | 75mVp-p | 10mA | 74 | V1:500μF;V2:500μF |
| PMKC03-12DS12 | 9 ~ 18 VDC | V1:12VDC;V2:12VDC | V1:12mA;V2:12mA | V1:125mA;V2:125mA | 120mVp-p | 15mA | 79 | V1:96μF;V2:96μF |
| PMKC03-12DS15 | 9 ~ 18 VDC | V1:15VDC;V2:15VDC | V1:10mA;V2:10mA | V1:100mA;V2:100mA | 150mVp-p | 30mA | 79 | V1:47μF;V2:47μF |
| PMKC03-24S33 | 18 ~ 36 VDC | 3.3 VDC | 60mA | 600mA | 75mVp-p | 10mA | 70 | 2200μF |
| PMKC03-24S05 | 18 ~ 36 VDC | 5 VDC | 60mA | 600mA | 75mVp-p | 10mA | 76 | 1000μF |
| PMKC03-24S12 | 18 ~ 36 VDC | 12 VDC | 25mA | 250mA | 120mVp-p | 20mA | 80 | 170μF |
| PMKC03-24S15 | 18 ~ 36 VDC | 15 VDC | 20mA | 200mA | 150mVp-p | 20mA | 80 | 110μF |
| PMKC03-24D05 | 18 ~ 36 VDC | ± 5 VDC | ±30mA | ± 300mA | 75mVp-p | 20mA | 76 | ± 500μF |
| PMKC03-24D12 | 18 ~ 36 VDC | ± 12 VDC | ±12mA | ± 125mA | 120mVp-p | 20mA | 79 | ± 96μF |
| PMKC03-24D15 | 18 ~ 36 VDC | ± 15 VDC | ±10mA | ± 100mA | 150mVp-p | 20mA | 80 | ± 47μF |
| PMKC03-24DS05 | 18 ~ 36 VDC | V1:5VDC;V2:5VDC | V1: 30mA;V2: 30mA | V1:300mA;V2:300mA | 75mVp-p | 20mA | 76 | V1:500μF;V2:500μF |
| PMKC03-24DS12 | 18 ~ 36 VDC | V1:12VDC;V2:12VDC | V1:12mA;V2:12mA | V1:125mA;V2:125mA | 120mVp-p | 20mA | 79 | V1:96μF;V2:96μF |
| PMKC03-24DS15 | 18 ~ 36 VDC | V1:15VDC;V2:15VDC | V1:10mA;V2:10mA | V1:100mA;V2:100mA | 150mVp-p | 20mA | 80 | V1:47μF;V2:47μF |
| PMKC03-48S33 | 36 ~ 75 VDC | 3.3 VDC | 60mA | 600mA | 75mVp-p | 10mA | 72 | 2200μF |
| PMKC03-48S05 | 36 ~ 75 VDC | 5 VDC | 60mA | 600mA | 75mVp-p | 10mA | 75 | 1000μF |
| PMKC03-48S12 | 36 ~ 75 VDC | 12 VDC | 25mA | 250mA | 120mVp-p | 10mA | 79 | 170μF |
| PMKC03-48S15 | 36 ~ 75 VDC | 15 VDC | 20mA | 200mA | 150mVp-p | 10mA | 79 | 110μF |
| PMKC03-48D05 | 36 ~ 75 VDC | ± 5 VDC | ±30mA | ± 300mA | 75mVp-p | 10mA | 77 | ± 500μF |
| PMKC03-48D12 | 36 ~ 75 VDC | ± 12 VDC | ±12mA | ± 125mA | 120mVp-p | 10mA | 79 | ± 96μF |
| PMKC03-48D15 | 36 ~ 75 VDC | ± 15 VDC | ±10mA | ± 100mA | 150mVp-p | 10mA | 79 | ± 47μF |
| PMKC03-48DS05 | 36 ~ 75 VDC | V1:5VDC;V2:5VDC | V1: 30mA;V2: 30mA | V1:300mA;V2:300mA | 75mVp-p | 10mA | 77 | V1:500μF;V2:500μF |
| PMKC03-48DS12 | 36 ~ 75 VDC | V1:12VDC;V2:12VDC | V1:12mA;V2:12mA | V1:125mA;V2:125mA | 120mVp-p | 10mA | 79 | V1:96μF;V2:96μF |
| PMKC03-48DS15 | 36 ~ 75 VDC | V1:15VDC;V2:15VDC | V1:10mA;V2:10mA | V1:100mA;V2:100mA | 150mVp-p | 10mA | 79 | V1:47μF;V2:47μF |

Note

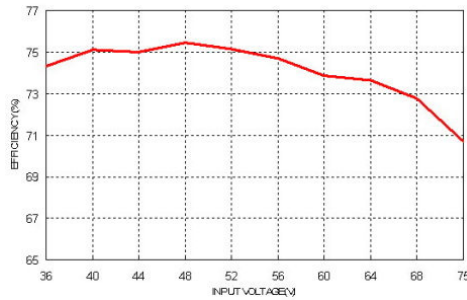
- MIL-HDBK-217F @Ta=25 °C, Full load.
- Typical value at nominal input and full load. (20MHz BW.)
- Typical value at nominal input and no load.
- Typical value at nominal input and full load.
- Test by minimum input and constant resistive load.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220μF/100V.
- The output requires a minimum 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.

CAUTION: This power module is not internally fused. An input line fuse must always be used.

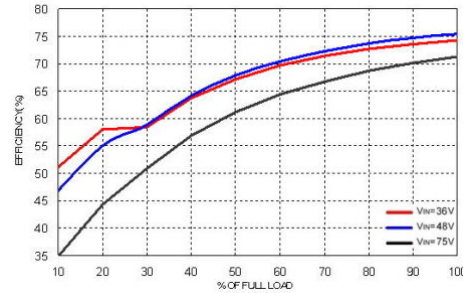
PMKC03-48S05 Derating Curve



PMKC03-48S05 Efficiency VS Input Voltage



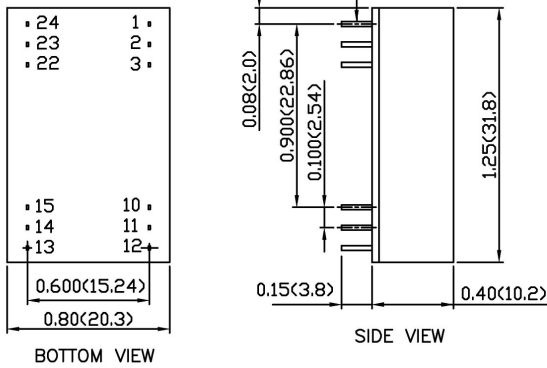
PMKC03-48S05 Efficiency VS Output Current



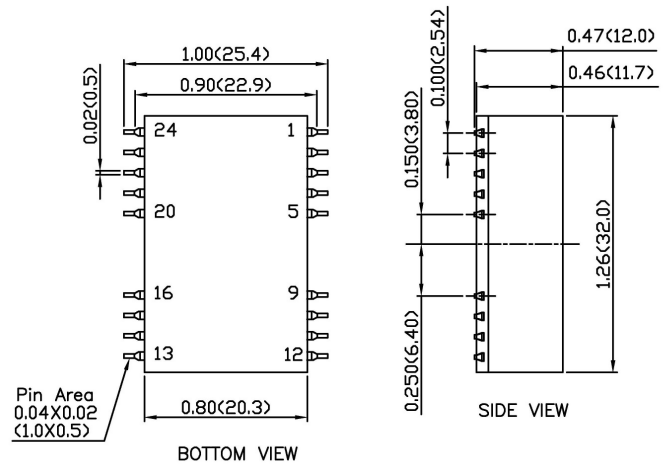
MECHANICAL DRAWING :

DIP TYPE

Pin size is 0.020(0.50) Dia or 0.010X0.020(0.25X0.50) Rectangular Pin



SMD TYPE



- All dimensions in Inch (mm)
- Tolerance: X.XX±0.02 (X.X±0.5)
X.XXX±0.01 (X.XX±0.25)
- Pin pitch tolerance ±0.01 (0.25)
- Pin dimension tolerance ±0.004 (0.1)

DIP PIN CONNECTION

| PIN | SINGLE | DUAL | DS | PIN | SINGLE | DUAL | DS |
|-----|---------|---------|----------|-----|---------|---------|----------|
| 1 | +INPUT | +INPUT | +INPUT | 24 | +INPUT | +INPUT | +INPUT |
| 2 | NC | -OUTPUT | - V1 out | 23 | NC | -OUTPUT | - V1 out |
| 3 | NC | COMMON | + V1 out | 22 | NC | COMMON | + V1 out |
| 10 | -OUTPUT | COMMON | - V2 out | 15 | -OUTPUT | COMMON | - V2 out |
| 11 | +OUTPUT | +OUTPUT | + V2 out | 14 | +OUTPUT | +OUTPUT | + V2 out |
| 12 | -INPUT | -INPUT | -INPUT | 13 | -INPUT | -INPUT | -INPUT |

SMD PIN CONNECTION

| PIN | SINGLE | DUAL | DS | PIN | SINGLE | DUAL | DS |
|--------|---------|---------|----------|-----|---------|---------|----------|
| 1 | +INPUT | +INPUT | +INPUT | 24 | +INPUT | +INPUT | +INPUT |
| 2 | NC | -OUTPUT | - V1 out | 23 | NC | -OUTPUT | - V1 out |
| 3 | NC | COMMON | + V1 out | 22 | NC | COMMON | + V1 out |
| 10 | -OUTPUT | COMMON | - V2 out | 15 | -OUTPUT | COMMON | - V2 out |
| 11 | +OUTPUT | +OUTPUT | + V2 out | 14 | +OUTPUT | +OUTPUT | + V2 out |
| 12 | -INPUT | -INPUT | -INPUT | 13 | -INPUT | -INPUT | -INPUT |
| Others | NC | NC | NC | | | | |