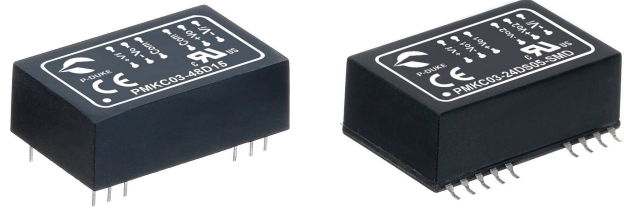


# PMKC03 SERIES

DC-DC CONVERTER

2:1 WIDE INPUT RANGE  
UP TO 3Watts



## FEATURES

- 1600VDC INPUT TO OUTPUT ISOLATION
- STANDARD 1.25 X 0.80 X 0.40 INCH
- STANDARD 24 PIN DIP PACKAGE & SMD TYPE PACKAGE
- UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS
- CE MARKED
- COMPLIANT TO RoHS II & REACH

## APPLICATIONS

- WIRELESS NETWORK
- TELECOM/DATACOM
- INDUSTRY CONTROL SYSTEM
- DISTRIBUTED POWER ARCHITECTURES
- SEMICONDUCTOR EQUIPMENT

## TECHNICAL SPECIFICATION

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

Model Number	Input Range	Output Voltage	Output Current @ Full Load		Input Current @ No Load	Efficiency	Maximum Capacitor Load (2)
	VDC	VDC	Min. Load (1) mA	Full Load mA	mA	%	µF
PMKC03-05S33	4.5 ~ 6	3.3	60	600	15	69	2200
PMKC03-05S05	4.5 ~ 6	5	60	600	15	74	1000
PMKC03-05S12	4.5 ~ 6	12	25	250	30	75	170
PMKC03-05S15	4.5 ~ 6	15	20	200	25	75	110
PMKC03-05D05	4.5 ~ 6	±5	±30	± 300	15	73	± 500
PMKC03-05D12	4.5 ~ 6	±12	±12	± 125	20	75	± 96
PMKC03-05D15	4.5 ~ 6	±15	±10	± 100	50	75	± 47
PMKC03-05DS05	4.5 ~ 6	5 / 5	30 / 30	300 / 300	30	73	500 / 500
PMKC03-05DS12	4.5 ~ 6	12 / 12	12 / 12	125 / 125	40	75	96 / 96
PMKC03-05DS15	4.5 ~ 6	15 / 15	10 / 10	100 / 100	40	73	47 / 47
PMKC03-12S33	9 ~ 18	3.3	60	600	20	70	2200
PMKC03-12S05	9 ~ 18	5	60	600	20	75	1000
PMKC03-12S12	9 ~ 18	12	25	250	20	79	170
PMKC03-12S15	9 ~ 18	15	20	200	30	79	110
PMKC03-12D05	9 ~ 18	±5	±30	± 300	20	74	± 500
PMKC03-12D12	9 ~ 18	±12	±12	± 125	35	79	± 96
PMKC03-12D15	9 ~ 18	±15	±10	± 100	45	79	± 47
PMKC03-12DS05	9 ~ 18	5 / 5	30 / 30	300 / 300	10	74	500 / 500
PMKC03-12DS12	9 ~ 18	12 / 12	12 / 12	125 / 125	15	79	96 / 96
PMKC03-12DS15	9 ~ 18	15 / 15	10 / 10	100 / 100	30	79	47 / 47
PMKC03-24S33	18 ~ 36	3.3	60	600	10	70	2200
PMKC03-24S05	18 ~ 36	5	60	600	10	76	1000
PMKC03-24S12	18 ~ 36	12	25	250	20	80	170
PMKC03-24S15	18 ~ 36	15	20	200	20	80	110
PMKC03-24D05	18 ~ 36	±5	±30	± 300	20	76	± 500
PMKC03-24D12	18 ~ 36	±12	±12	± 125	20	79	± 96
PMKC03-24D15	18 ~ 36	±15	±10	± 100	20	80	± 47
PMKC03-24DS05	18 ~ 36	5 / 5	30 / 30	300 / 300	20	76	500 / 500
PMKC03-24DS12	18 ~ 36	12 / 12	12 / 12	125 / 125	20	79	96 / 96
PMKC03-24DS15	18 ~ 36	15 / 15	10 / 10	100 / 100	20	80	47 / 47
PMKC03-48S33	36 ~ 75	3.3	60	600	10	72	2200
PMKC03-48S05	36 ~ 75	5	60	600	10	75	1000
PMKC03-48S12	36 ~ 75	12	25	250	10	79	170
PMKC03-48S15	36 ~ 75	15	20	200	10	79	110
PMKC03-48D05	36 ~ 75	±5	±30	± 300	10	77	± 500
PMKC03-48D12	36 ~ 75	±12	±12	± 125	10	79	± 96
PMKC03-48D15	36 ~ 75	±15	±10	± 100	10	79	± 47
PMKC03-48DS05	36 ~ 75	5 / 5	30 / 30	300 / 300	10	77	500 / 500
PMKC03-48DS12	36 ~ 75	12 / 12	12 / 12	125 / 125	10	79	96 / 96
PMKC03-48DS15	36 ~ 75	15 / 15	10 / 10	100 / 100	10	79	47 / 47

## PART NUMBER STRUCTURE

PMKC03 - 48 S 05 - SMD

Series Name	Input Voltage (VDC)	Output Quantity	Output Voltage (VDC)	Package
	05: 4.5~6 12: 9~18 24: 18~36 48: 36~75	S: Single	33: 3.3 05: 5 12: 12 15: 15	□: DIP Type SMD: SMD Type
		D: Dual	05: ±5 12: ±12 15: ±15	
		DS: Dual Positive	05: 5 / 5 12: 12 / 12 15: 15 / 15	

## INPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating input voltage range	5Vin(nom)	4.5	5	6	VDC
	12Vin(nom)	9	12	18	
	24Vin(nom)	18	24	36	
	48Vin(nom)	36	48	75	
Input reflected ripple current	Nominal input and Full load	120			mAp-p
Start up time	Constant resistive load	Power up			30 ms
Input surge voltage	100 ms, max.	5Vin(nom)			18
		12Vin(nom)			36
		24Vin(nom)			50
		48Vin(nom)			100
Input filter					Pi type

## OUTPUT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit		
Voltage accuracy		-1.0		+1.0	%		
Line regulation	Low Line to High Line at Full Load	Single / Dual			-0.2		
		Dual Positive			+0.2		
Load regulation	Min. Load to Full Load	Single	3.3Vout			-0.3	
			Others			+0.3	
		Dual / Dual Positive			-0.2	+0.2	%
Cross regulation	Asymmetrical load 25%/100% FL	Dual			-2.0	+2.0	%
Ripple and noise	Measured by 20MHz bandwidth	3.3Vout, 5Vout			-5.0	+5.0	%
		12Vout			75		mVp-p
		15Vout			120	150	
Temperature coefficient		-0.02			+0.02	%/°C	
Transient response recovery time	25% load step change				500	µs	
Short circuit protection						Continuous, automatic recovery	

## GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit	
Isolation voltage	1 minute	Input to Output	1600			
		V1out to V2out(Dual Positive)	500			
Isolation resistance	500VDC				1	GΩ
Isolation capacitance					300	pF
Switching frequency					100	kHz
Safety approvals					UL60950-1 EN60950-1 IEC60950-1	
Case material					Non-conductive black plastic	
Base material					Non-conductive black plastic	
Potting material					Epoxy (UL94 V-0)	
Weight		DIP Type			14g (0.48oz)	
		SMD Type			15g (0.52oz)	
MTBF	MIL-HDBK-217F, Full load				7.942 x 10 <sup>6</sup> hrs	

## ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating ambient temperature	Without derating	-25		+71	°C
Storage temperature range		-55		+125	°C
Thermal shock					MIL-STD-810F
Vibration					MIL-STD-810F
Relative humidity					5% to 95% RH

## EMC SPECIFICATIONS

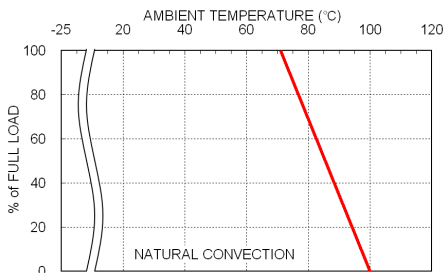
Parameter	Conditions	Level
EMI	EN55022	Class A
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10 V/m	Perf. Criteria A
Fast transient (3)	EN61000-4-4 ± 2kV	Perf. Criteria B
Surge (3)	EN61000-4-5 ± 1kV	Perf. Criteria B
Conducted immunity	EN61000-4-6 10 Vr.m.s	Perf. Criteria A
Power frequency magnetic field	EN61000-4-8 100A/m continuous; 1000A/m 1 second	Perf. Criteria A

### Note:

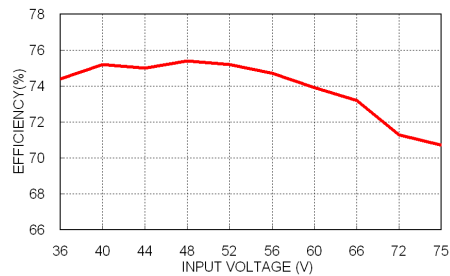
- The output requires a minimum loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
- Test by minimum input and constant resistive load.
- An external input filter capacitor is required 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.

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

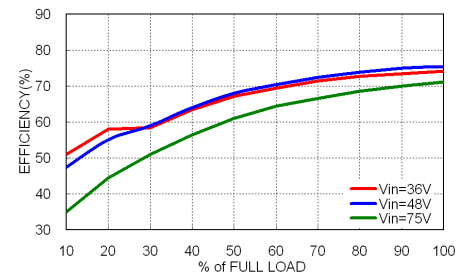
## CHARACTERISTIC CURVE



PMKC03-48S05 Derating Curve



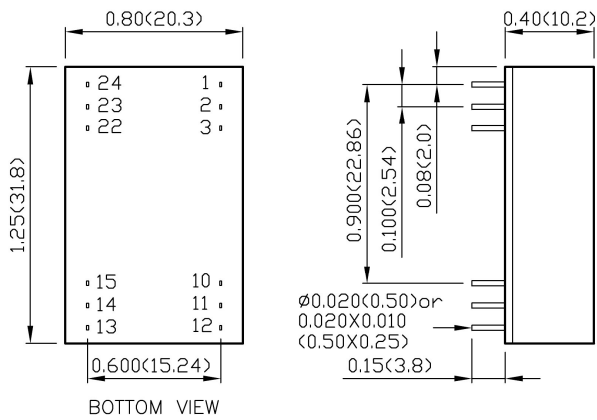
PMKC03-48S05 Efficiency vs. Input Voltage



PMKC03-48S05 Efficiency vs. Output Load

## MECHANICAL DRAWING

### DIP TYPE

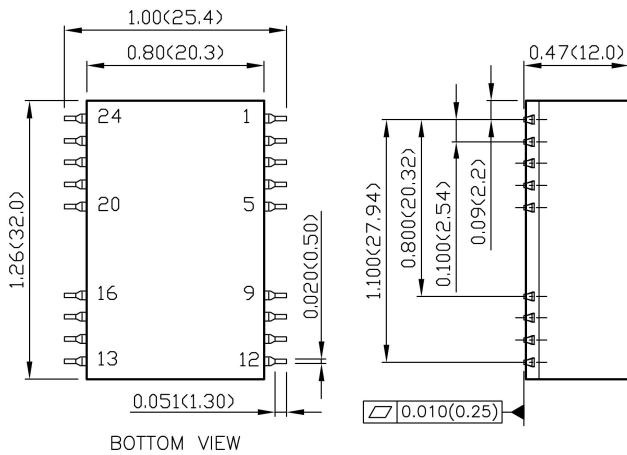


### DIP PIN CONNECTION

PIN	SINGLE	DUAL	DS	PIN	SINGLE	DUAL	DS
1	+Vin	+Vin	+Vin	24	+Vin	+Vin	+Vin
2	NC	-Vout	-V1out	23	NC	-Vout	-V1out
3	NC	Common	+V1out	22	NC	Common	+V1out
10	-Vout	Common	-V2out	15	-Vout	Common	-V2out
11	+Vout	+Vout	+V2out	14	+Vout	+Vout	+V2out
12	-Vin	-Vin	-Vin	13	-Vin	-Vin	-Vin

\* NC : No Connection

### SMD TYPE



### SMD PIN CONNECTION

PIN	SINGLE	DUAL	DS	PIN	SINGLE	DUAL	DS
1	+Vin	+Vin	+Vin	24	+Vin	+Vin	+Vin
2	NC	-Vout	-V1out	23	NC	-Vout	-V1out
3	NC	Common	+V1out	22	NC	Common	+V1out
10	-Vout	Common	-V2out	15	-Vout	Common	-V2out
11	+Vout	+Vout	+V2out	14	+Vout	+Vout	+V2out
12	-Vin	-Vin	-Vin	13	-Vin	-Vin	-Vin
Others	NC	NC	NC				

\* NC : No Connection

1. All dimensions in inch (mm)
2. Tolerance :x.xx±0.02 (x.x±0.5)  
x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)