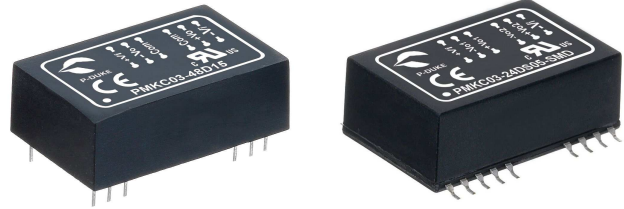


# PMKC03 SERIES

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

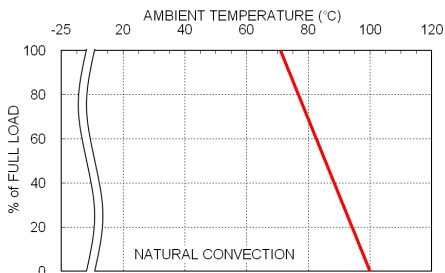
Parameter	Conditions	Level
EMI	EN55022	Class A
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10 V/m	Perf. Criteria A
Fast transient (3)	EN61000-4-4 ± 2kV	Perf. Criteria B
Surge (3)	EN61000-4-5 ± 1kV	Perf. Criteria B
Conducted immunity	EN61000-4-6 10 Vr.m.s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

### Note:

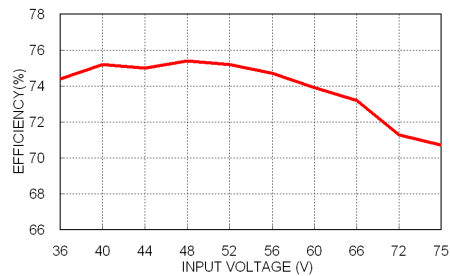
1. The output requires a minimum loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
2. Test by minimum input and constant resistive load.
3. An external input filter capacitor is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

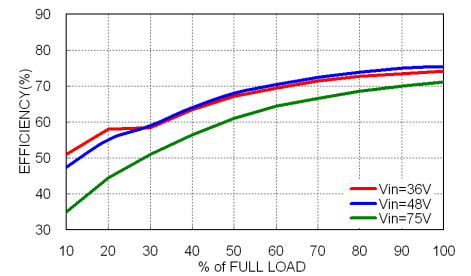
## CHARACTERISTIC CURVE



PMKC03-48S05 Derating Curve



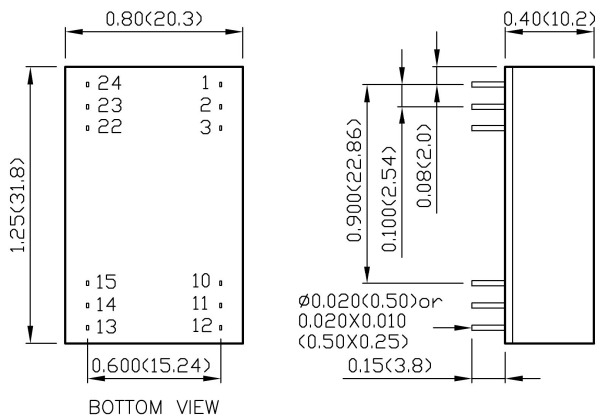
PMKC03-48S05 Efficiency vs. Input Voltage



PMKC03-48S05 Efficiency vs. Output Load

## MECHANICAL DRAWING

### DIP TYPE

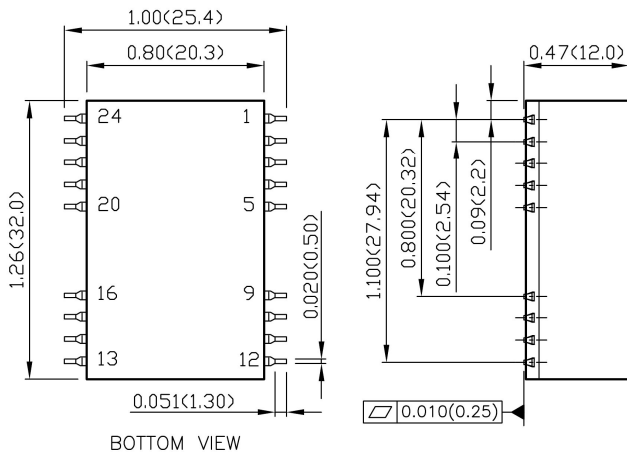


### DIP PIN CONNECTION

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)