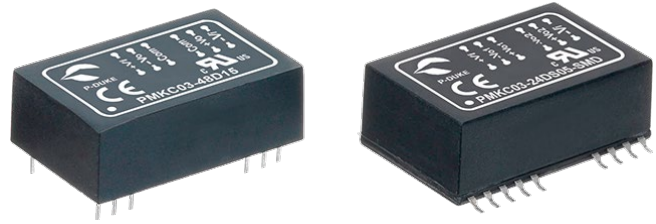


Features

- 2:1 Wide input 4.5-75V DC
- Isolation Voltage: 1600V DC
- Operating Temperature Range: -25~71°C
- Approved to CE, cURus, RoHS & REACH
- Safety Standards to IEC/ EN/ UL60950-1
- Efficiency up to 80%
- EMC Class A & B
- Single & Dual 3W Output Models



Ideal Power's 43PMKC03-xy 3W Series Dip DC/DC Converters are certified to CE, RoHS, REACH & IEC/UL/EN 60950-1 Standards and comply with Efficiency Regulations. These are primarily used in ITE, Video & Audio Industries and customised solutions are available upon request.

Part Number Structure

PMKC03	· 48	S	05	-	SMD
Series Name	Output Power (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		

Models

Model Number	Input Range VDC	Output Voltage VDC	Output current		Input Current @ No Load A	Efficiency %	Maximum Capacitor Load μ F
			Min Load (¹) mA	Full Load mA			
43PMKC03-05S33	4.5~6	3.3	60	600	15	69	2200
43PMKC03-05S05	4.5~6	5	60	600	15	74	1000
43PMKC03-05S12	4.5~6	12	25	250	30	75	170
43PMKC03-05S15	4.5~6	15	20	200	25	75	110
43PMKC03-05D05	4.5~6	\pm 5	\pm 30	\pm 300	15	73	\pm 500
43PMKC03-05D12	4.5~6	\pm 12	\pm 12	\pm 120	20	75	\pm 96
43PMKC03-05D15	4.5~6	\pm 15	\pm 10	\pm 100	50	75	\pm 47
43PMKC03-05DS05	4.5~6	5/5	30/30	300/300	30	73	500/500
43PMKC03-05DS12	4.5~6	12/12	12/12	125/125	40	75	96/96
43PMKC03-05DS15	4.5~6	15/15	10/10	100/100	40	73	47/47
43PMKC03-12S33	9~18	3.3	60	600	20	70	2200
43PMKC03-12S05	9~18	5	60	600	20	75	1000
43PMKC03-12S12	9~18	12	25	250	20	79	170
43PMKC03-12S15	9~18	15	20	200	30	79	110
43PMKC03-12D05	9~18	\pm 5	\pm 30	\pm 300	20	74	\pm 500
43PMKC03-12D12	9~18	\pm 12	\pm 12	\pm 120	35	79	\pm 96
43PMKC03-12D15	9~18	\pm 15	\pm 10	\pm 100	45	79	\pm 47
43PMKC03-12DS05	9~18	5/5	30/30	300/300	10	74	500/500
43PMKC03-12DS12	9~18	12/12	12/12	125/125	15	79	96/96
43PMKC03-12DS15	9~18	15/15	10/10	100/100	30	79	47/47
43PMKC03-24S33	18~36	3.3	60	600	10	70	2200
43PMKC03-24S05	18~36	5	60	600	10	76	1000
43PMKC03-24S12	18~36	12	25	250	20	80	170
43PMKC03-24S15	18~36	15	20	200	20	80	110
43PMKC03-24D05	18~36	\pm 5	\pm 30	\pm 300	20	76	\pm 500
43PMKC03-24D12	18~36	\pm 12	\pm 12	\pm 120	20	79	\pm 96
43PMKC03-24D15	18~36	\pm 15	\pm 10	\pm 100	20	80	\pm 47
43PMKC03-24DS05	18~36	5/5	30/30	300/300	20	76	500/500
43PMKC03-24DS12	18~36	12/12	12/12	125/125	20	79	96/96
43PMKC03-24DS15	18~36	15/15	10/10	100/100	20	80	47/47
43PMKC03-48S33	36~75	3.3	60	600	10	72	2200
43PMKC03-48S05	36~75	5	60	600	10	75	1000
43PMKC03-48S12	36~75	12	25	250	10	79	170
43PMKC03-48S15	36~75	15	20	200	10	79	110
43PMKC03-48D05	36~75	\pm 5	\pm 30	\pm 300	10	77	\pm 500
43PMKC03-48D12	36~75	\pm 12	\pm 12	\pm 120	10	79	\pm 96
43PMKC03-48D15	36~75	\pm 15	\pm 10	\pm 100	10	79	\pm 47
43PMKC03-48DS05	36~75	5/5	30/30	300/300	10	77	500/500
43PMKC03-48DS12	36~75	12/12	12/12	125/125	10	79	96/96
43PMKC03-48DS15	36~75	15/15	10/10	100/100	10	79	47/47

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	
Start-up time	Constant resistive load	Power up	--	--	30	ms
Input surge voltage	100 ms, max.	5Vin(nom)	--	--	18	VDC
		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	--	+0.2	
		Dual Positive	-0.5	--	+0.5	
Load regulation	No Load to Full Load	Single	-0.3	--	+0.3	%
		3.3Vout, Others	-0.2	--	+0.2	
		Dual / Dual Positive All	-2.0	--	+2.0	
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0	--	+5.0	
Ripple and Noise	Measured by 20MHz bandwidth	3.3Vout, 5Vout	--	75	--	mVp-p
		12Vout	--	120	--	
		15Vout	--	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	--	--	VDC
		V1out to V2out(Dual Positive)	500	--	--	
Isolation resistance	500VDC		1	--	--	GΩ
Isolation capacitance			--	--	300	pF
Switching frequency			100	--	--	kHz
Safety approvals	IEC /EN /UL 62368-1					UL:E193009 CB:UL(Demko)
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 ⁶ hrs

Environmental Specifications

Parameter	Conditions	Min	Typ	Max	Unit
Operating ambient temperature	Without derating	-25	--	+71	
Maximum case temperature		--	--	100	°C
Storage temperature range		-55	--	+125	
Thermal Shock					MIL-STD-810F
Vibration					MIL-STD-810F
Relative humidity					5% to 95% RH

EMC Specifications

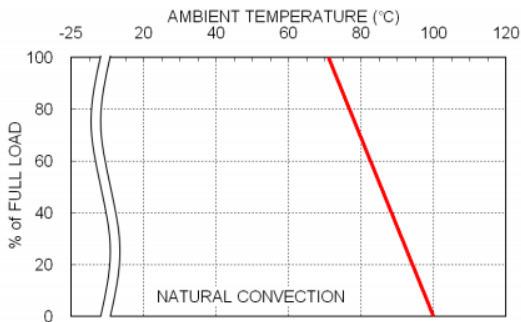
Parameter	Conditions	Level
EMI	EN55022	Class A
ESD	EN61000-4-2 Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3 10 V/m	Perf. Criteria A
Fast transient	EN61000-4-4 ± 2kV With an external input filter capacitor (Nippon chemi-con KY series, 220µF/100V)	Perf. Criteria B
Surge	EN61000-4-5 ± 1kV With an external input filter capacitor (Nippon chemi-con KY series, 220µF/100V)	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:

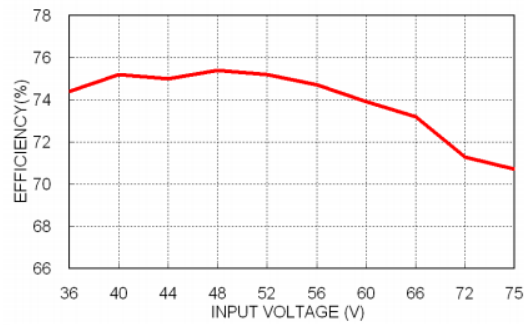
- The output requires a minimum loading on the output to maintain specified regulation.
Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
- Test by minimum input and constant resistive load.
- An external input filter capacitor is required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

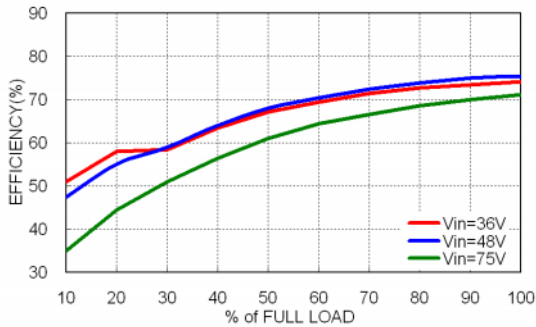
Characteristic Curve



43PMKC03-48S05 Derating Curve



43PMKC03-48S05 Efficiency vs. Input Voltage



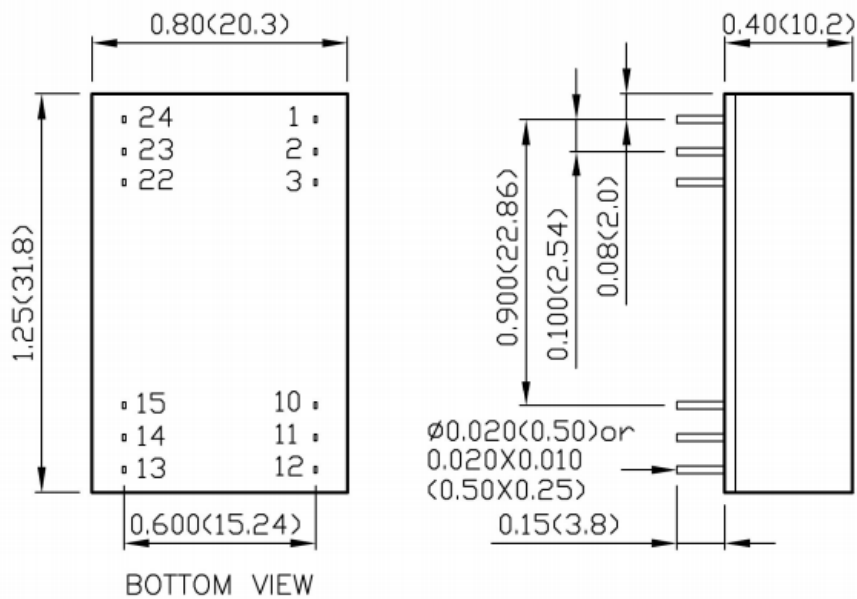
43PMKC03-48S05 Efficiency vs. Output Load

Fuse Consideration

Model	Fuse Rating (A)	Fuse Type
43PMK03-05□□□	1.6	Slow-Blow
43PMK03-12□□□	0.8	Slow-Blow
43PMK03-24□□□	0.5	Slow-Blow
43PMK03-48□□□	0.315	Slow-Blow

Mechanical Drawing

DIP TYPE



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

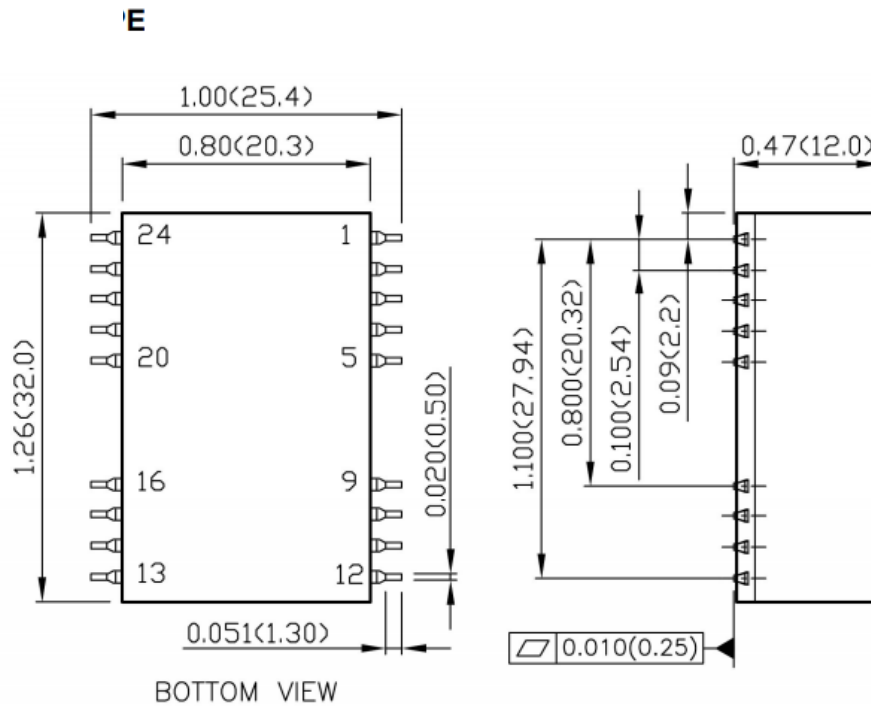
DIP Pin Connection

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

Mechanical Drawing (Continued)

SMD TYPE



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)

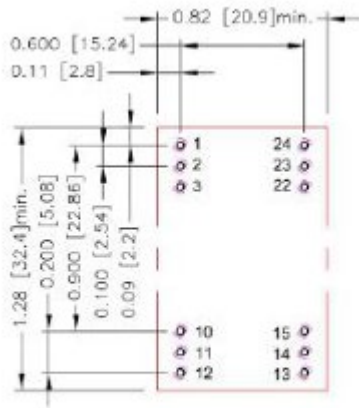
DIP Pin Connection

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
Others	NC	NC	NC				

* NC : No Connection

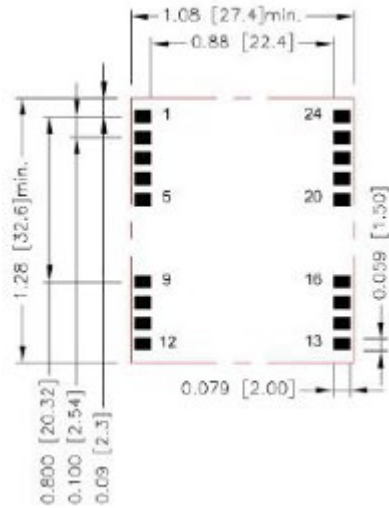
Recommended Pad Layout

DIP TYPE



All dimensions in inch[mm]
 Pad size(lead free recommended)
 Through hole 2.3.9.10.11.14.15.16.22.23: $\Phi 0.031[0.80]$
 Top view pad 2.3.9.10.11.14.15.16.22.23: $\Phi 0.039[1.00]$
 Bottom view pad 2.3.9.10.11.14.15.16.22.23: $\Phi 0.063[1.60]$

SMD TYPE

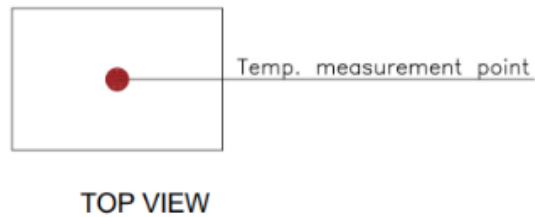


All dimensions in inch[mm]
 Pad size(lead free recommended)
 Top view pad: 0.079x0.059[2.00x1.50]

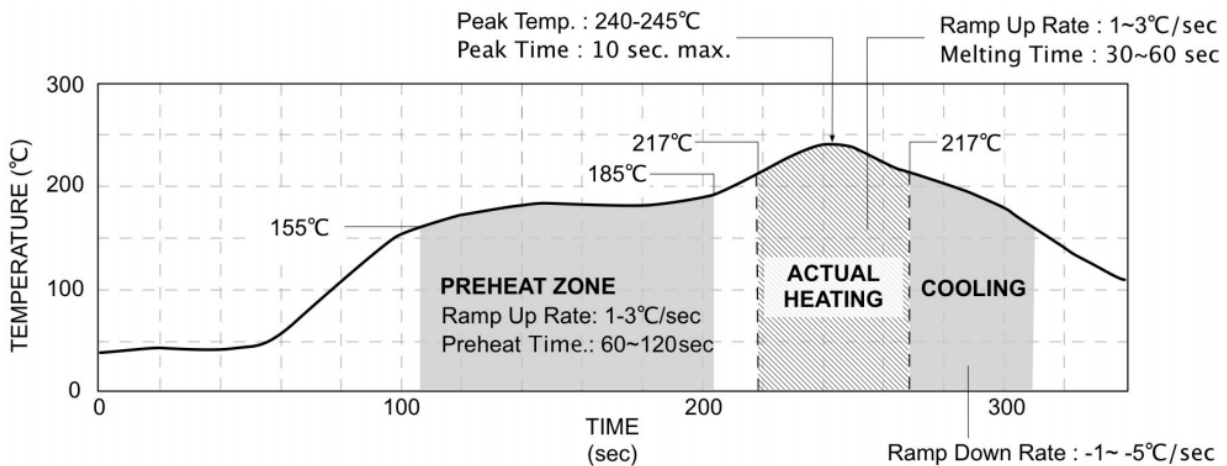
Thermal Considerations

The power module operates in a variety of thermal environments. However, sufficient cooling should be provided to help ensure reliable operation of the unit. Heat is removed by conduction, convection, and radiation to the surrounding Environment. Proper cooling can be verified by measuring the point as the figure below. The temperature at this location should not exceed "Maximum case temperature". When operating, adequate cooling must be provided to maintain the test point temperature at or below "Maximum case temperature". You can limit this Temperature to a lower value for extremely high reliability.

v Thermal test condition with vertical direction by natural convection (20LFM).



Lead Free Reflow Profile (For SMD Type)



*The curves define the maximum peak reflow temperature permissible measured on pin1 or Vin pin.