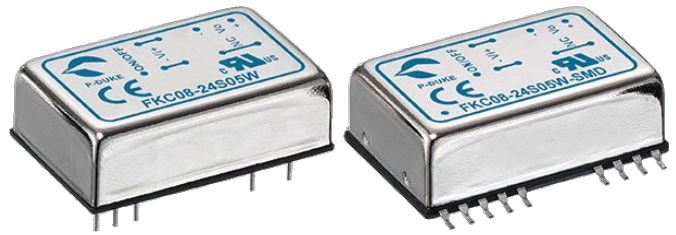


Features

- 4:1 Wide Input Range
- Operating Temperature Range: -40~105°C
- Approved to UKCA, CE, RoHS & REACH
- Approved to IEC/UL/EN62368-1 & EN50155
- Efficiency up to 88%
- EMC Class A & B
- Single & Dual 8W Output Models
- OCP, SCP & UVP



Ideal Power's 43FKC08-xSzW 8W Series SMD, DIP DC/DC Converters are certified to cURus, UKCA, CE, RoHS, REACH & IEC/UL/EN 62368-1, EN 50155 Standards and comply with the relevant Efficiency Regulations. These are primarily used in ITE, Video & Audio, Railway Industries and customised solutions are available upon request.

Part Number Structure

43FKC08	-	48	S	05	W	-	M3	SMD
Series Name		Output Power (VDC)	Output Quantity	Output Voltage (VDC)	Input Range		Operating Temp Options	Package
		24: 9 ~ 36 48: 18 ~ 75 110: 43 ~ 160	S: Single D: Dual	3P3: 3.3 05: 5 12: 12 15: 15 05: ±5 12: ±12 15: ±15	4 : 1		□ : Standard -40~+105°C With derating M3: M3 Version -55~+105°C With derating	□ : DIP Type SMD: SMD Type

Models

Model Number	Input Range VDC	Output Voltage VDC	Output Current @ Full Load mA	Input Current @ No Load %	Efficiency %	Maximum Capacitor Load μ F
43FKC08-24S3P3W	9 ~ 36	3.3	2400	40	85	1330
43FKC08-24S05W	9 ~ 36	5	1600	40	87	1330
43FKC08-24S12W	9 ~ 36	12	666	25	86	288
43FKC08-24S15W	9 ~ 36	15	533	25	86	200
43FKC08-24D05W	9 ~ 36	\pm 5	\pm 800	20	84	\pm 900
43FKC08-24D12W	9 ~ 36	\pm 12	\pm 333	25	86	\pm 133
43FKC08-24D15W	9 ~ 36	\pm 15	\pm 267	25	86	\pm 90
43FKC08-48S3P3W	18 ~ 75	3.3	2400	20	85	1330
43FKC08-48S05W	18 ~ 75	5	1600	20	87	1330
43FKC08-48S12W	18 ~ 75	12	666	13	87	288
43FKC08-48S15W	18 ~ 75	15	533	13	88	200
43FKC08-48D05W	18 ~ 75	\pm 5	\pm 800	10	84	\pm 900
43FKC08-48D12W	18 ~ 75	\pm 12	\pm 333	13	87	\pm 133
43FKC08-48D15W	18 ~ 75	\pm 15	\pm 267	13	87	\pm 90
43FKC08-110S3P3W	43 ~ 160	3.3	2400	8	84	1330
43FKC08-110S05W	43 ~ 160	5	1600	8	85	1330
43FKC08-110S12W	43 ~ 160	12	666	4	86	288
43FKC08-110S15W	43 ~ 160	15	533	4	86	200
43FKC08-110D05W	43 ~ 160	\pm 5	\pm 800	5	82	\pm 900
43FKC08-110D12W	43 ~ 160	\pm 12	\pm 333	5	85	\pm 133
43FKC08-110D15W	43 ~ 160	\pm 15	\pm 267	5	85	\pm 90

Input Specifications

Parameter	Conditions	Min	Typ	Max	Unit	
Operating input voltage range	24Vin(nom)	9	24	36	VDC	
	48Vin(nom)	18	48	75		
	110Vin(nom)	43	110	160		
Start-up voltage	24Vin(nom)	--	--	9	VDC	
	48Vin(nom)	--	--	18		
	110Vin(nom)	--	--	43		
Shutdown voltage	24Vin(nom)	7	8	8.8	VDC	
	48Vin(nom)	15	16	17.5		
	110Vin(nom)	37	40	42		
Start-up time	Constant resistive load	Power up	--	450	--	ms
		Remote ON/OFF	--	5	--	
Input surge voltage	100 ms, max.	24Vin(nom)	--	--	50	VDC
		48Vin(nom)	--	--	100	
		110Vin(nom)	--	--	170	
Input filter		Pi Type				
Remote ON/OFF	Referred to -Vin pin	Positive logic	DC-DC ON	Open or 3.0 ~ 12VDC		mA
			DC-DC OFF	Short or 0 ~ 1.2VDC		
		Input current of Ctrl pin		-0.5	+0.5	
		Remote off input current		2.5		

Output Specifications

Parameter	Conditions		Min	Typ	Max	Unit	
Voltage accuracy			-1.0	--	+1.0		
Line regulation	Low Line to High Line at Full Load		-0.2	--	+0.2		
Load regulation	No Load to Full Load	DIP	Single	-0.5	--	+0.5	%
			Dual	-1.0	--	+1.0	
		SMD	Single	-1.0	--	+1.0	
			Dual	-1.0	--	+1.0	
	10% Load to 90% Load	DIP	Single	-0.3	--	+0.3	
			Dual	-0.8	--	+0.8	
		SMD	Single	-0.8	--	+0.8	
			Dual	-0.8	--	+0.8	
Cross regulation	Asymmetrical load 25%/100% FL	Dual	-5.0	--	+5.0		
Ripple and Noise	Measured by 20MHz bandwidth	24Vin(nom	--	50	--	mVp-p	
		48Vin(nom)	--	50	--		
		110Vin(nom)	--	75	--		
Temperature coefficient			-0.02	--	+0.02	%/°C	
Transient response recovery time	25% Load step change		--	250	--	µs	
Over voltage protection	Single Output	3.3Vout		--	3.9	--	V DC
		5Vout		--	6.2	--	
		12Vout		--	15	--	
		15Vout		--	18	--	
Overload protection	% Of lout rated		--	150	--	%	
Short circuit protection	Continuous, automatic recovery						

General Specifications

Parameter	Conditions		Min	Typ	Max	Unit	
Isolation voltage	1 minute	DIP	Input to Output	1600	--	--	V DC
			Input (Output) to Case	1600	--	--	
		SMD	Input to Output	1600	--	--	
			Input (Output) to Case	1600	--	--	
Isolation resistance	500VDC			1	--	GΩ	
Isolation capacitance			--	--	1500	pF	
Switching frequency			270	300	330	kHz	
Safety approvals	IEC/ EN/ UL62368-1					UL:E193009 CB:UL (Demko)	
Standard approvals	EN50155 EN45545-2						
Case material						Nickel-coated copper	
Base material						Non-conductive black plastic	
Potting material						Epoxy (UL94 V-0)	
Weight						18g (0.62oz)	
MTBF	MIL-HDBK-217F, Full load					2.832 x 10 ⁶ hrs	

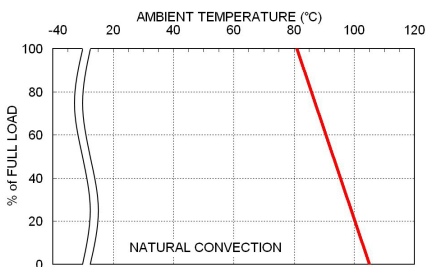
Environmental Specifications

Parameter	Conditions		Min	Typ	Max	Unit
Operating ambient temperature	Standard	With derating	-40	--	+105	°C
	M3 Version	With derating	-55	--	+105	
	*Converter can meet the railway T2 and TX temperature requirement. T2: -40°C~+70°C as all models; TX: -40°C~+85°C as power derating to 55% output power.					
Maximum case temperature			--	--	105	°C
Storage temperature range			-55	--	+125	
Thermal impedance	Natural convection		--	20	--	°C/W
Thermal Shock			MIL-STD-810F			
Shock			EN61373, MIL-STD-810F			
Vibration			EN61373, MIL-STD-810F			
Relative humidity			5% to 95% RH			

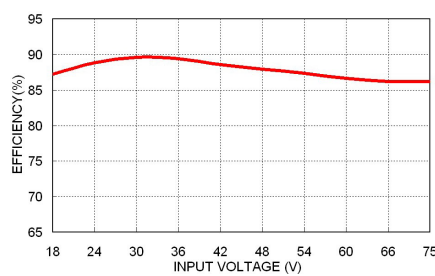
EMC Specifications

Parameter	Conditions		Level
EMI	EN55032, EN50121-3-2	With external components	Class A, Class B
EMS	EN55024, EN50121-3-2		
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV	Perf. Criteria A
Radiated immunity	EN61000-4-3	20 V/m	Perf. Criteria A
Fast transient	EN61000-4-4	± 2kV	Perf. Criteria A
	24Vin, 48Vin	With an external input filter capacitor (Nippon chemi-con KY series, 220µF/100V)	
	110 Vin	With an external input filter capacitor (Nippon chemi-con KXJ series, 150µF/200V)	
Surge	EN61000-4-5	± 2kV	Perf. Criteria A
	24Vin, 48Vin	With an external input filter capacitor (Nippon chemi-con KY series, 220µF/100V)	
	110 Vin	With an external input filter capacitor (Nippon chemi-con KXJ series, 150µF/200V)	
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

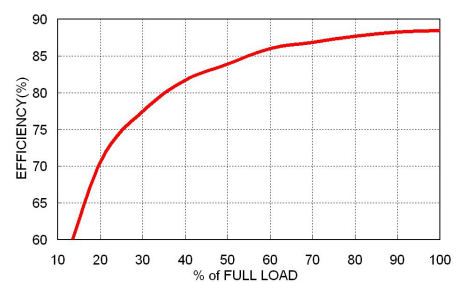
CAUTION: This power module is not internally fused. An input line fuse must always be used.

Characteristic Curve


43FKC08-48S05W Derating Curve



43FKC08-48S05W Efficiency vs. Input Voltage



43FKC08-48S05W Efficiency vs. Output Load

Fuse Consideration

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

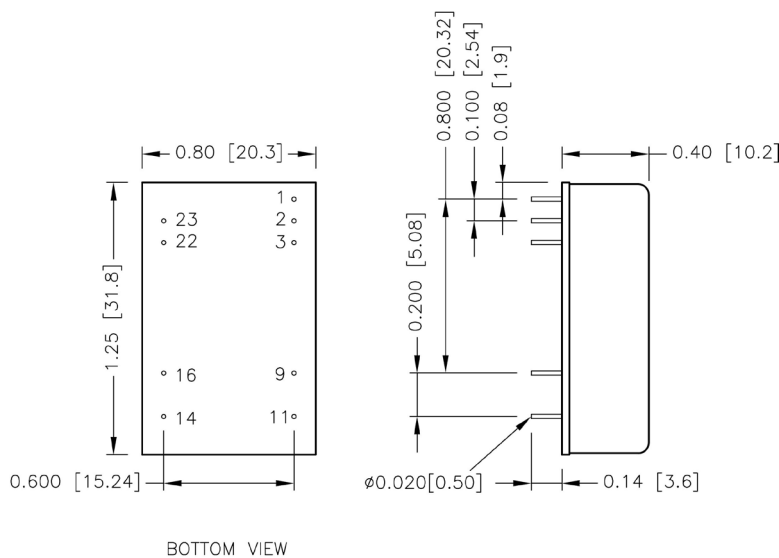
This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture.

To maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse. The input line fuse suggest as below:

Model	Fuse Rating	Fuse Type
43FKC08-24S□□W, 43FKC08-24D□□W	2	Slow-Blow
43FKC08-48S□□W, 43FKC08-48D□□W	1	Slow-Blow
43FKC08-110S□□W, 43FKC08-110D□□W	0.5	Slow-Blow

Mechanical Drawing (DIP)

DIP TYPE



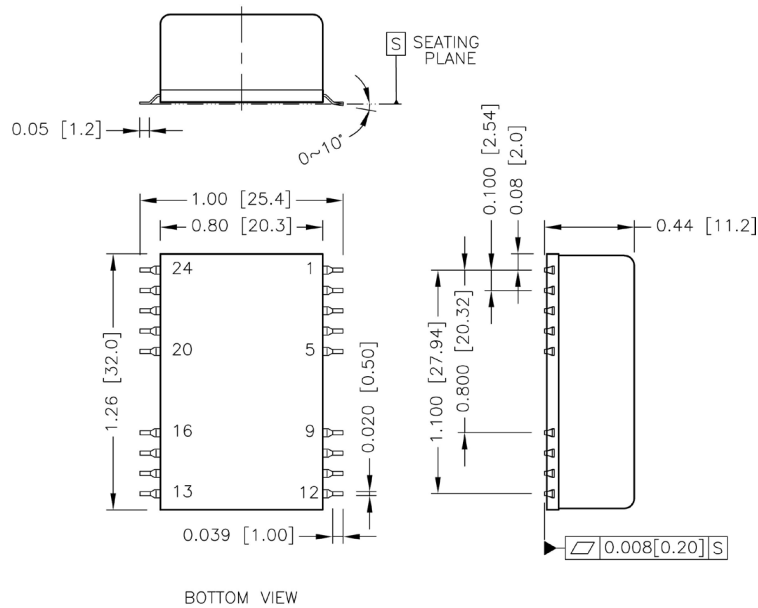
1. All dimensions in inch (mm)
2. Tolerance :x.xx±0.02 (x.x±0.5)
x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)

DIP Pin Connection

Pin	Single	Dual	Pin	Single	Dual
1	Ctrl	Ctrl			
2	-Vin	-Vin	23	+Vin	+Vin
3	-Vin	-Vin	22	+Vin	+Vin
9	NC	Common	16	-Vout	Common
11	NC	-Vout	14	+Vout	+Vout

Mechanical Drawing (SMD)

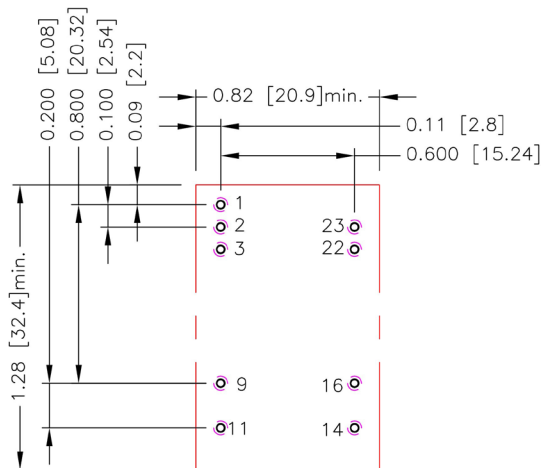
SMD TYPE



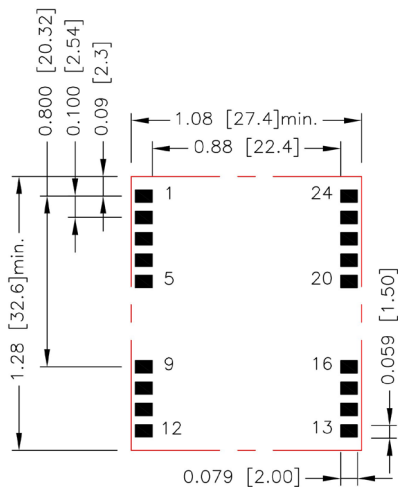
1. All dimensions in inch (mm)
2. Tolerance :x.xx±0.02 (x.x±0.5)
x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)

Pin Connection

Pin	Single	Dual	Pin	Single	Dual
1	Ctrl	Ctrl			
2	-Vin	-Vin	23	+Vin	+Vin
3	-Vin	-Vin	22	+Vin	+Vin
9	NC	Common	16	-Vout	Common
11	NC	-Vout	14	+Vout	+Vout
Others	NC	NC			

Recommended PAD Layout
DIP Type


All dimensions in inch[mm]
 Pad size (lead free recommended)
 Through hole 1.2.3.9.11.14.16.22.23: $\Phi 0.031[0.80]$
 Top view pad 1.2.3.9.11.14.16.22.23: $\Phi 0.039[1.00]$
 Bottom view pad 1.2.3.9.11.14.16.22.23: $\Phi 0.063[1.60]$

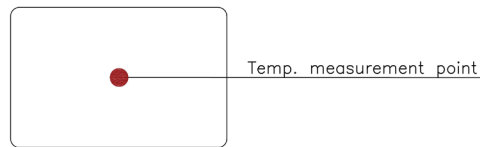
SMD Type


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

Thermal Considerations

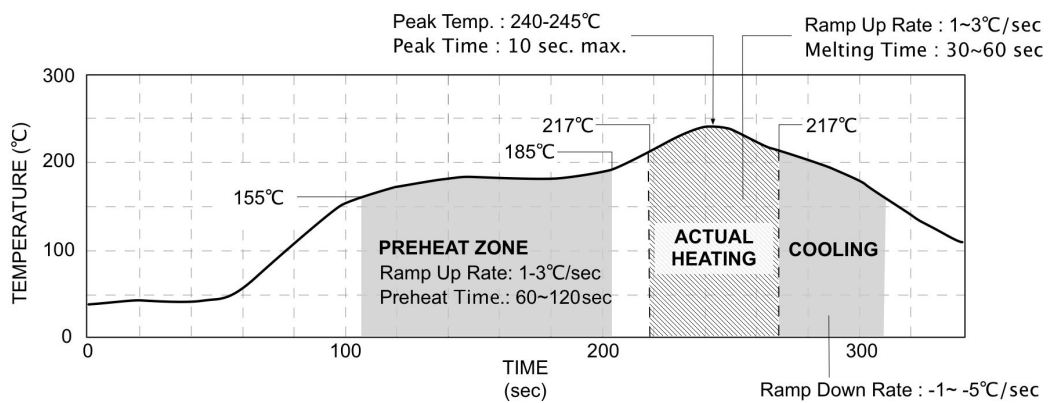
The power module operates in a variety of thermal environments. However, sufficient cooling should be provided to help ensure reliable operation of the unit. Heat is removed by conduction, convection, and radiation to the surrounding Environment. Proper cooling can be verified by measuring the point 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.

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



TOP VIEW

LEAD Free Reflow Profile (for SMD Type)



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