

specification

Specification/models:	KH2-S
summary :	DC-constant voltage input, output 2W,6000Vdc isolation/non-voltage stabilized/single output/SIP packaging
Product features:	1) Sustainable short circuit protection 2) Wide operating temperature range: -40℃ to +85℃ 3) Efficiency up to 81% 4) International standard pin mode and layout, strong replaceability

Selection table:

product model	Input voltage (nominal value/range)	output voltage VDC	Output current mA(Max./Min.)	Full load efficiency% (Min./Typ.)	Maximum capacitive load μ F
KH2-03S03	3.3VDC (2.97-3.63)	3.3	400/40	69/73	1000
KH2-03S05		5	400/40	74/78	1000
KH2-03S09		9	222/22	72/76	470
KH2-03S12		12	167/17	72/76	470
KH2-03S15		15	133/13	72/76	470
KH2-03S24		24	83/8	72/76	220
KH2-05S03	5VDC (4.5-5.5)	3.3	400/40	69/73	1000
KH2-05S05		5	400/40	74/78	1000
KH2-05S09		9	222/22	72/76	470
KH2-05S12		12	167/17	72/76	470
KH2-05S15		15	133/13	72/76	470
KH2-05S24		24	83/8	72/76	220
KH2-09S03	9VDC (8.1-9.9)	3.3	400/40	69/73	1000
KH2-09S05		5	400/40	74/78	1000
KH2-09S09		9	222/22	72/76	470
KH2-09S12		12	167/17	72/76	470
KH2-09S15		15	133/13	72/76	470
KH2-09S24		24	83/8	72/76	220
KH2-12S03	12VDC (10.8-13.2)	3.3	400/40	74/78	1000
KH2-12S05		5	400/40	74/78	1000
KH2-12S09		9	222/22	72/76	470
KH2-12S12		12	167/17	72/81	470
KH2-12S15		15	133/13	72/81	470
KH2-12S24		24	83/8	72/81	220
KH2-15S03	15VDC (13.5-16.5)	3.3	400/40	74/78	1000
KH2-15S05		5	400/40	74/78	1000
KH2-15S09		9	222/22	72/76	470
KH2-15S12		12	167/17	72/81	470
KH2-15S15		15	133/13	72/81	470
KH2-15S24		24	83/8	72/81	220
KH2-24S03	24VDC (21.6-26.4)	3.3	400/40	74/78	1000
KH2-24S05		5	400/40	74/78	1000
KH2-24S09		9	222/22	72/76	470
KH2-24S12		12	167/17	72/81	470
KH2-24S15		15	133/13	72/81	470
KH2-24S24		24	83/8	72/81	220

1. Input characteristics:

project	going		least value	standard value	crest value	unit
Input current (full load)	Nominal voltage input	3.3VDC output	--	520	--	mA
		5VDC/7.2VDC output	--	500	--	
		9VDC/12VDC output	--	278	--	
		15VDC/24VDC output	--	167	--	
Input current (no load)	Nominal voltage output		--	10	35	mA
Reflected ripple current			--	15	--	mA
Input impact voltage	3.3VDC/5VDC input		-0.7	--	9	VDC
	9VDC input		-0.7	--	12	
	12VDC input		-0.7	--	18	
	15VDC input		-0.7	--	21	
	24VDC input		-0.7	--	30	
input filter	capacitor filtering					
Note: This product does not support hot plug-in						

2. Output characteristics:

project	going		least value	standard value	crest value	unit
Output voltage accuracy			See Figure 1 (envelope curve)			
Linear adjustment rate	Input voltage variation +/-1%	3.3VDC output	--	--	+/-1.5	%
		Other outputs	--	--	+/-1.1	
Load regulation rate (10% to 100% load)	3.3VDC output		--	20	--	%
	5VDC output		--	20	--	
	9VDC output		--	15	--	
	12VDC output		--	15	--	
	15VDC output		--	15	--	
	24VDC output		--	14	--	
Waveforms/noise	20MHz bandwidth		--	100	150	mVp-p
Temperature drift coefficient	100% load		--	+/-0.03	--	%/°C
short-circuit protection	Sustainable, self-recovering					

3. General characteristics:

project	going	least value	standard value	crest value	unit
Isolation voltage	Input-output, test time 1 minute, leakage current less than 1mA	6000	--	--	VDC
insulation resistance	Input-output, insulation voltage 500VDC	1000	--	--	MΩ
Isolation capacitance	Input-output,100KHz/0.1V	--	20	--	pF
working temperature	Temperature is reduced to 85°C (see Figure 2)	-40	--	85	°C
storage temperature		-55	--	125	°C
Storage humidity	Noncondensation	--	--	95	%RH
External shell temperature rise during operation	Ta=25°C, input nominal, output full load	--	25	--	°C
Pin soldering temperature	Welding point is 1.5mm from the shell, 10 seconds	--	--	300	°C
switching frequency	Full load, nominal input voltage	--	260	--	kHz
Mean Time Between Failures (MTBF)	MIL-HDBK-217F@25°C	3500	--	--	kHours

4. Physical properties:

project	content
sheathing material	Black flame retardant heat resistant plastic (UL94V-0)
Encapsulation size	19.50*9.80*12.50 mm
weight	4.2g (standard value)
cooling-down method	Natural air cooling

5. EMC characteristics:

project	class	content
EMI	Conductive harassment	CISPR32/EN55032 CLASS B (recommended circuit is shown in Figure 6)
	Radiation harassment	CISPR32/EN55032 CLASS B (recommended circuit is shown in Figure 6)
EMS	electrostatic discharge	IEC/EN61000-4-2 Contact ±8KV perf. Criteria B

6. Product characteristic curve:

Figure 1: Error envelope curve

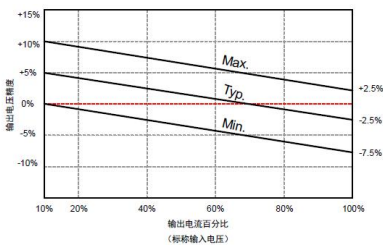


Figure 2: Temperature derating curve

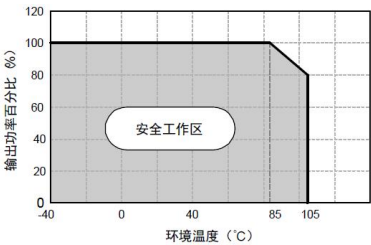
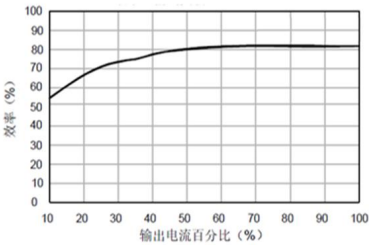
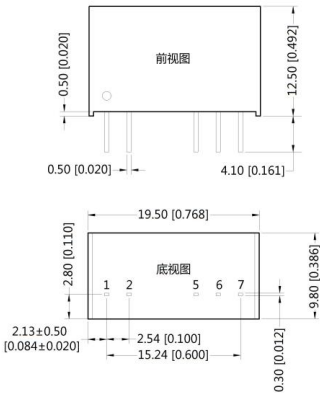


Figure 3: Efficiency VS output load (nominal voltage input)



7. 外形尺寸&pin function:

Figure 4: External dimensions



Note: Size unit: mm [inch]
End diameter tolerance: +/-0.10 [+/-0.004]
Unmarked tolerance: +/-0.50 [+/-0.020]

Table 1: Pin function table

pin	function
1	Vin
2	GND
5	0V
6	No pin
7	+Vo

8. Circuit design and application:

Figure 5: Application circuit

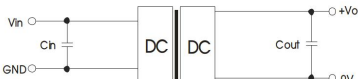


Figure 6: EMC typical recommendation circuit

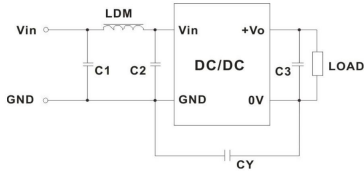


Table 2: Recommended capacitive load values

Vin(VDC)	Cin(μ F)	Vo(VDC)	Cout(μ F)
nominal voltage	10	nominal voltage	1-10

Table 3: Recommended circuit parameter values

project	element	price
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	C3	Refer to the Cout parameter in Figure 5
	CY	270pF/2kV
	LDM	6.8μ H

1) Typical Application: To further reduce input/output ripple, a capacitor filter network can be connected to the input/output terminals. The application circuit is shown in Figure 5. However, its crucial to select appropriate filter capacitors. Using excessively large capacitors may cause startup issues. For each output channel, we recommend capacitive load values that ensure safe and reliable operation. Refer to Table 2 "Recommended Capacitive Load Values" for specific recommendations.
2) The typical EMC recommendation circuit is shown in Figure 6.

9. Remarks/Explanation:

- 1) The input voltage should not exceed the specified range, otherwise it may cause permanent and irreparable damage;
- 2) Unless otherwise specified, the parameters in this manual are measured under 25°C, humidity 40%~75%, input nominal voltage and output pure resistance mode under full load;
- 3) All indicators are tested according to the companys enterprise standards.
- 4) The final interpretation of the copyright and the product belongs to the product provider.