

- Working temperature range: -40°C -85°C
- Isolation voltage: 1500VDC
- High efficiency: 88%
- Sustainable short circuit protection
- Complies with ROHS Directive



Table of selections

Model	Input voltage (VDC)	Output			Full load efficiency (%) (Typ)	Maximum capacitive load (μF)
	Nominal value (range value)	Output voltage (VDC)	Minimum current (mA)	Maximum current (mA)		
KS1-03S03	3.3 (2.97-3.63)	3.3	31	303	78/82	2400
KS1-03S05		5	20	200	80/83	2400
KS1-03S09		9	12	111	81/84	1000
KS1-03S12		12	9	84	82/85	560
KS1-05S03	5 (4.5-5.5)	3.3	31	303	80/83	2400
KS1-05S05		5	20	200	84/86	2400
KS1-05S09		9	12	111	84/86	1000
KS1-05S12		12	9	84	85/88	560
KS1-05S15		15	7	67	85/88	560
KS1-05S24		24	4	42	86/89	220
KS1-12S03	12 (10.8-13.2)	3.3	31	303	81/84	2400
KS1-12S05		5	20	200	82/86	2400
KS1-12S09		9	12	111	84/87	1000
KS1-12S12		12	9	84	84/87	560
KS1-12S15		15	7	67	86/88	560
KS1-12S24		24	4	42	86/89	220
KS1-15S05	15 (13.5-16.5)	5	20	200	82/86	2400
KS1-15S09		9	12	111	84/87	1000
KS1-15S12		12	9	84	84/87	560
KS1-15S15		15	7	67	86/88	2400
KS1-24S03	24 (21.6-26.4)	3.3	31	303	82/84	2400
KS1-24S05		5	20	200	85/87	2400
KS1-24S09		9	12	111	85/88	1000
KS1-24S12		12	9	84	85/88	560
KS1-24S15		15	7	67	85/88	560
KS1-24S24		24	4	42	86/89	220

input characteristics

project	going	Min.	Typ.	Max.	unit
	5VDC input	--	235/3	--/15	
	12VDC input	--	99/3	--/15	
	24VDC input	--	51/3	--/15	
Reflected ripple current		--	15	--	mA
	5VDC input	-0.7	--	9	
	12VDC input	-0.7	--	18	
	24VDC input	-0.7	--	30	
Type of input filter		capacitor filtering			
hot plug		nonsupport			

output characteristic

project	going		Min.	Typ.	Max.	unit
Output voltage accuracy			See envelope curve diagram			
Linear adjustment rate	Input voltage variation $\pm 1\%$	3.3VDC output	--	± 1.5	--	%
		Other outputs	--	± 1.2	--	
Load regulation rate	10% to 100% load	3.3DC output	--	10	--	
		5VDC output	--	8	--	
		9VDC output	--	8	--	
		12VDC output	--	7	--	
		15VDC output	--	6	--	
		24VDC output	--	6	--	
Ripple noise	20MHz bandwidth		--	45	100	mVp-p
Temperature drift coefficient	loaded to capacity		--	± 0.03	--	%/°C
short-circuit protection			Sustainable, self-recovering			

Common features

project	going	Min.	Typ.	Max.	unit
Voltage of insulation	Input-output, test time 1 minute, leakage current less than 1mA	1500	--	--	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 3)	-40	--	105	°C
storage temperature		-55	--	125	
The shell heats up when working	Ta=25°C, input nominal, output full load	--	25	--	
Storage humidity	Noncondensation	--	--	95	%RH
welding temperature	The weld point is 1.5mm from the shell, 10 seconds	--	--	300	°C
switching frequency	Full load, nominal input voltage	--	220	--	kHz
Mean Time Between Failures (MTBF)	MIL-HDBK-217F@25°C	3500	--	--	kHours

physical characteristics

sheathing material	Black flame retardant heat resistant plastic (UL94V-0)
Encapsulation size	19.65*6.00*10.16mm
weight	2.4g
cooling-down method	Natural air cooling

EMC characteristic

EMI	Conductive harassment	CISPR32/EN55032 CLASS B (recommended circuit is shown in Figure 5)
	Radiation harassment	CISPR32/EN55032 CLASS B (recommended circuit is shown in Figure 5)
EMS	electrostatic discharge	IEC/EN61000-4-2 Contact ±8KV perf. Criteria B

Product feature curve diagram

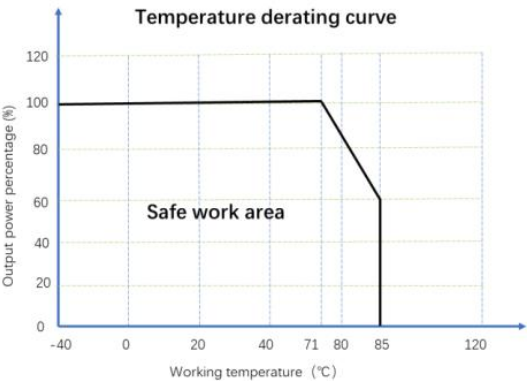
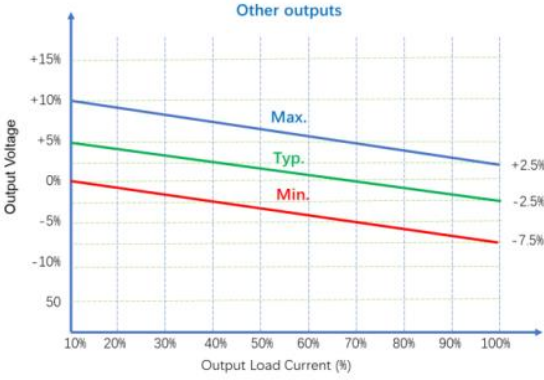
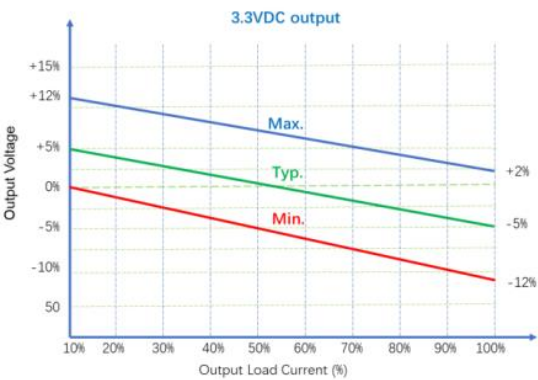


Figure 4: Temperature Derating Curve

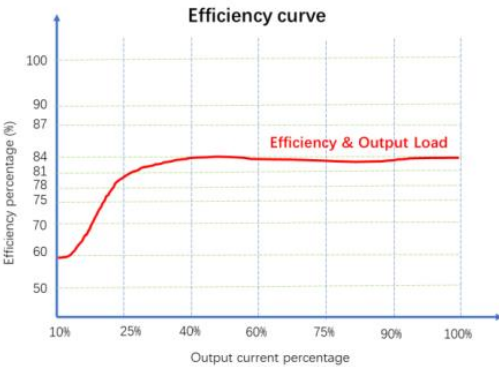


Figure 5: Efficiency VS Output Load (Nominal Voltage Input)

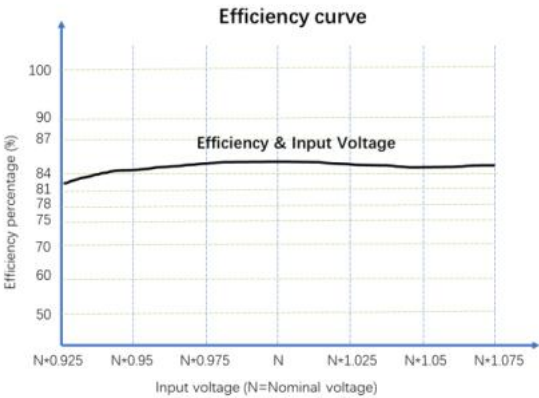
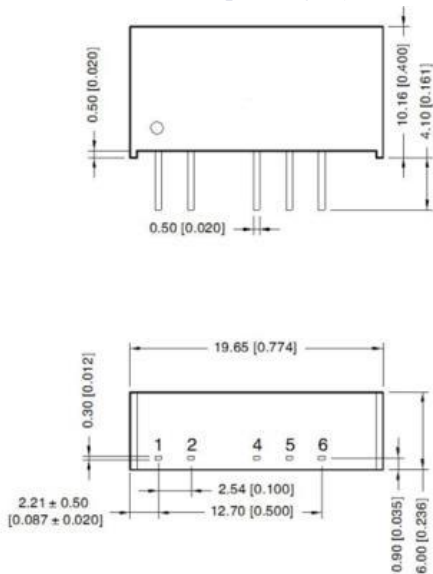


Figure 6: Efficiency VS Input Voltage (100% Load)

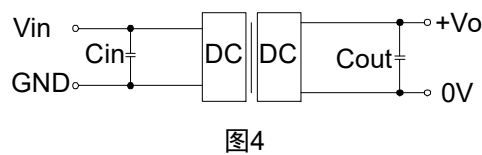
External dimensions/printing layout recommendations



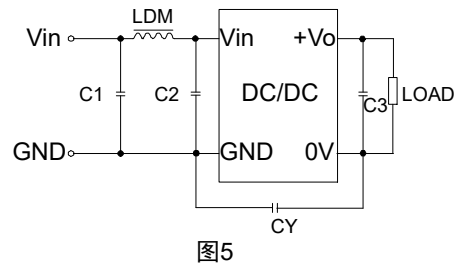
pin	function
1	Vin
2	GND
4	-Vo
5	NO PIN
6	+Vo

Pour :
Size unit: mm[inch]
End diameter tolerance: $\pm 0.10[\pm 0.004]$
Unmarked tolerances: $\pm 0.50[\pm 0.020]$

Circuit design and application



Vin(VDC)	Cin(μ F)	Vo(VDC)	Cout(μ F)
3.3/5	4.7	3.3/5	10
12	2.2	9	4.7
15	2.2	12	2.2
24	1	15	1
--	--	24	0.47



	Input voltage (VDC)	3.3/5/12/15/24
EMI	C1	4.7 μ F /50V
	C2	4.7 μ F /50V
	C3	Refer to the Cout parameter in Figure 4
	CY	270pF/2kV
	LDM	6.8 μ H

1. Typical applications

If you need to further reduce the input and output ripple, you can connect a capacitor filter network at the input and output terminals. The application circuit is shown in Figure 4.

However, it is important to choose the appropriate filter capacitor. If the capacitor is too large, it may cause starting problems. For each output, it is recommended that the capacitive load value is shown in Table 1 under the condition of ensuring safe and reliable operation.

2. EMC typical recommendation circuit

See Figure 5

Labeled :

- ✧ The input voltage should not exceed the specified range, otherwise it may cause permanent irreparable damage;
- ✧ Unless otherwise specified, the parameters in this manual are measured at 25°C, humidity 40%~75%, input nominal voltage and output pure resistance mode under full load;
- ✧ All test methods for indicators are based on our company's standards.

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