

Typical Features

- ◆ Wide input voltage range, non-isolate & regulated single output
- ◆ Conversion Efficiency up to 97%
- ◆ Compact SIP packing
- ◆ Short circuit, overheat protection
- ◆ No external component needed
- ◆ Low ripple & Noise
- ◆ Operating temperature: -40°C ~ +85°C
- ◆ Plastic case, meet UL94 V-0



Test Condition: Unless otherwise specified, data in the datasheet should be tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25°C.

Product Named Method

K78 05 - 1000

① ② ③

① Product Series

② Output Voltage

③ Output Current

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load	--	±2	±3	%
Ripple & Noise *	Nominal input, full load, 20MHz bandwidth	--	25	40	mVp-p
Load Regulation	10% ~ 100% Load	--	±0.4	±0.6	%
Line Regulation	Input voltage range	--	±0.2	±0.4	%
Temperature Coefficient	100% load	--	--	±0.03	%/°C
Overheat Protection	With IC	--	150	--	°C
Output Short Circuit Protection	Continuous, self recovery				

Note: Ripple & Noise is tested by twisted pair method.

General Specifications

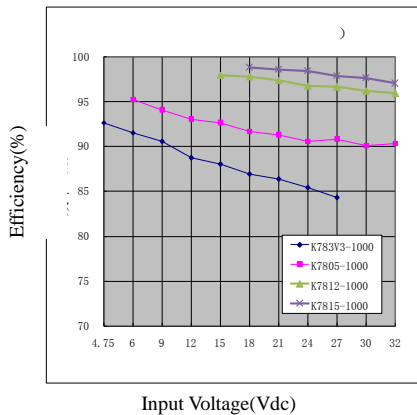
Switching Frequency	typical	350KHz (Typ.)
Operating Temperature	Refer to Temperature Derating Curve	-40°C ~ +85°C
Storage Temperature		-55°C ~ +125°C
Casing Temperature Rise		100°C (MAX.)
Storage Humidity	No condensing	5%~95%
Case Material		Black flame-retardant heat-resistant Plastic(UL94-V0)
Product Weight		4.0g (Typ.)
Pin Withstand Soldering Temp.	The distance between soldering point and edge of case is 1.5mm, 10 seconds	300°C
MTBF	MIL-HDBK-217F @25°C	20X10 ⁵ Hrs

Typical Product List

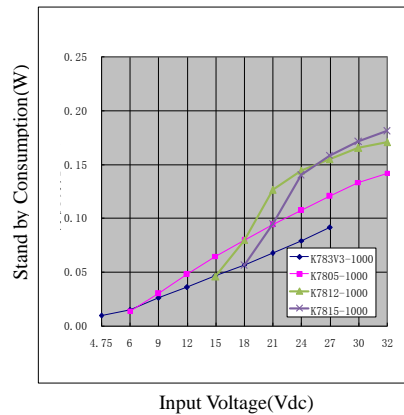
Part No.	Input Voltage Range (VDC)	Output		Quiescent Current (mA)	Capacitive Load (uF)	Ripple & Noise (mVp-p)	Efficiency (%) (Typ.)	
		Voltage(VDC)	Current(mA)	Typ.	Max.	Typ.	Vin(max)	Vin(min)
K783V3-1000	24 (4.75 – 28)	3.3	1000	5	1000	25	90	83
K7805-1000	24 (6.5 – 32)	5	1000	5	1000	25	93	88
K7809-1000	24 (12 – 32)	9	1000	5	1000	25	95	92
K7812-1000	24 (15 – 32)	12	1000	5	1000	25	96	94
K7815-1000	24 (18 – 32)	15	1000	5	1000	25	97	94

Characteristic Curve

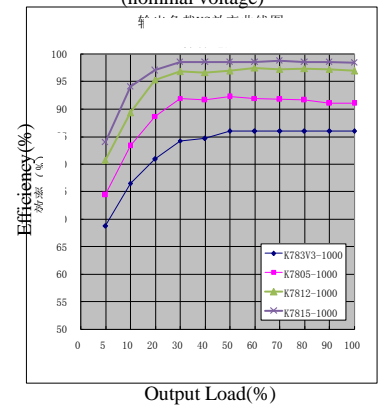
Input Voltage VS Efficiency(full load)



Input Voltage & Standby Power Consumption

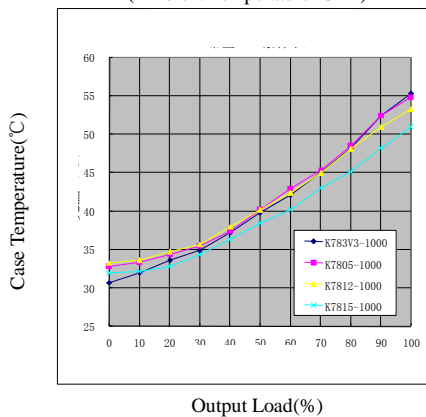


Output Load VS Efficiency (nominal voltage)

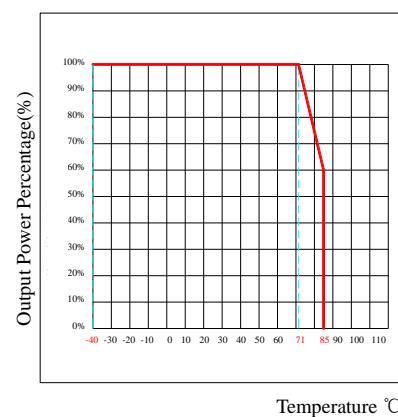


Temperature Curve

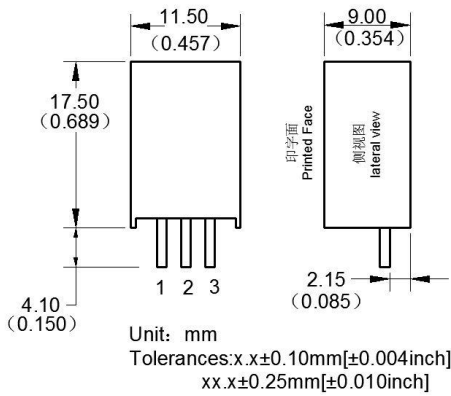
Case Temperature & Output Load (Ambient Temperature 25 °C)



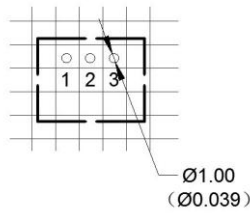
Temperature Derating Curve



Packing Dimension, Pin Function, Recommended PCB layout



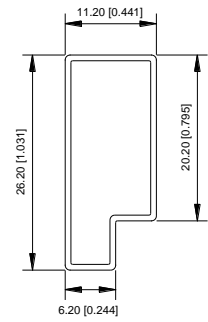
Packing Dimension



Printed board vertical view

Lattice spacing: 2.54mm (0.1inch)

Recommended PCB layout



Unit:mm[inch]
General tolerance: x.x±0.5mm[x.x±0.020inch]
0.x±0.2mm[0.x±0.008inch]

Packing

Pin	Single (S)	1	2	3
		+Vin	GND	+Vout

* Note: if the definition of pin is not in accordance with the manual, please refer to the label on actual item.

Packing Dimension

Packing Code	L x W x H	
K78 - 1000	11.5*9.0*17.5mm	0.453 x 0.354 x 0.689inch

Design and Application Circuit Recommended

1. Output Load Request

- To ensure this module operate efficiently and reliably, the minimum load could not be less than 10% of the nominal load. If the actual power is too small, please parallel a resistor at output terminal, the resistance equal to 10% of nominal load.
- The maximum capacitive load is tested under nominal input voltage with full load, and cannot exceed the maximum capacitive load of output side when using, or it will be difficult to start up and damage the product.

2. Recommended Circuit

In order to ensure that the ripple& noise of input and output be decreased, a capacitor filter net could be connected to input output side, application circuit see photo 1; But a proper filter capacitor should be chosen, start up problem maybe caused by too big capacitance; to make sure each circuit work safely and reliably, recommended capacitive load value see below table 1.(The capacitance of C1,C2 refer to external capacitor table, and could be increased properly, also could use low ESR of tantalum capacitor and electrolytic capacitor)

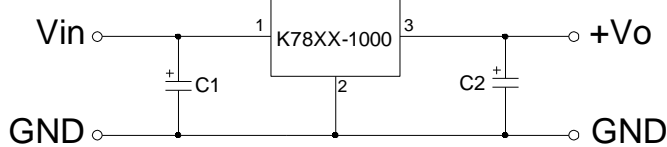


Photo 1

Model	C1	C2
	(ceramic capacitor)	(ceramic capacitor)
型号	C1 (陶瓷电容)	C2 (陶瓷电容)
K783V3-1000	10uF/50V	22uF/6.3V
K7805-1000	10uF/50V	22uF/10V
K7809-1000	10uF/50V	10uF/25V
K7812-1000	10uF/50V	10uF/25V
K7815-1000	10uF/50V	10uF/25V

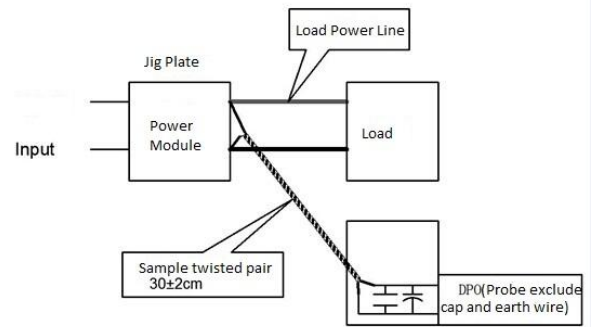
Table 1

3. Ripple & Noise Test: (Twisted Pair Method, 20MHz bandwidth)

Test Method:

a. 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

b. Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



Note:

1. This product cannot be used in parallel, and do not support hot-plugging;
2. All index testing methods in this datasheet are based on our Company's corporate standards
3. The product specification may be changed at any time without prior notice.

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