SK78xxJT-500R4

Features:

- Package: Ultra-thin SMD, thickness ⩽ 3.5mm
- Operating temperature: -40°C - +85°C
- Maximum efficiency up to 95%
- Output short-circuit protection
- Applications: industry, electric power, instrumentation, communications, rail transit, etc

Selection Guide

Model No.	Input Voltage (VDC)	Output		Full Load Efficiency % (Typ.) (Min.Vin/Max.Vin)	Maximum Capacitive Load (μF)
	Nominal value (Range Value)	Output voltage (VDC)	Output Current(mA) Max.		
SK-7803JT-500R4	24(4.75-36)	3.3	500	92/81	680
SK-7805JT-500R4	24(6.5-36)	5	500	93/84	680
SK-7809JT-500R4	24(12-36)	9	500	93/90	680
SK-7812JT-500R4	24(15-36)	12	500	94/91	680
SK-7815JT-500R4	24(19-36)	15	500	95/92	680

Input Specifications

Item	Operating Conditions	Min.	Type.	Max.	Unit
No-load input current		--	0.2	1.5	mA
Reverse Polarity at input		Forbidden			
Input Filter		Capacitive filtering			
Ctrl (Remote ON/OFF) *	Module on	Ctrl pin open or pulled high (TTL3.2-8VDC)			
	Module off	Ctril pin connect to GND or pulled low (0-0.8VDC)			
	Input current when off	--	30	100	uA
Note: *The Ctrl pin voltage is referenced to input GND.					

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Output Specifications

Item	Operating Conditions		Min.	Type.	Max.	Unit
Voltage Accuracy	Full load, input voltage range	3.3VDC output	--	±2	±4	%
		Other models	--	±2	±3	
Linear Regulation	Full load, input voltage range		--	±0.2	±0.4	%
Load Regulation	Nominal input voltage, 10%-100% load	3.3/5VDC output	--	±0.6	--	%
		Other models	--	±0.3	--	
Ripple & Noise	20MHz bandwidth, nominal input voltage	3.3VDC output, 20%-100% load	--	50	100	mVp-p
		Other models, 10%-100% load	--	60	120	mVp-p
Transient recovery time	25% load step change, nominal input voltage		--	0.2	1	ms
Transient response deviation			--	±50	±200	mv
Temperature drift coefficient	Operating temperature -40 - +85 ° C		--	--	±0.03	%/°C
Short-circuit protection	Nominal input voltage		Continuous, self-recovery			

General Specifications

Item	Operating Conditions	Min.	Type.	Max.	Unit
Operating temperature	See Figure 1	-40	--	+85	℃
Storage temperature		-55	--	+125	℃
Store humidity	Non-condensing	5	--	95	%RH
Reflow Soldering temperature	Peak temperature Tc≤245°C, maximum 60s above 217°C,				
Switching Frequency		--	500	--	kHz
Mean Time Between Failures	MIL-HDBK-217F@25°C	2000	--	--	K Hours
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D.1	Level 1			

Mechanical Specifications

Dimensions	12.50 x 13.50 x 3.50 mm
Weight	0.92g (Typ.)
Cooling Method	Natural air cooling

EMC Specifications

EMI	CE	CISPR32/EN55032 CLASS B (See Figure 3-② for recommended circuit)	
	RE	CISPR32/EN55032 CLASS B (See Figure 3-②for recommended circuit)	
EMS	ESD	IEC/EN61000-4-2 Contact±4KV	Perf.Criteria B
	RS	IEC/EN61000-4-3 10V/m	Perf.Criteria A
	EFT	IEC/EN61000-4-4 ±1KV (See Figure 3-① for recommended circuit)	Perf.Criteria B
	Surge	IEC/EN61000-4-5 line to line±1KV (See Figure 3-① for recommended circuit)	Perf.Criteria B
	CS	IEC/EN61000-4-6 3 Vr.m.s	Perf.Criteria A

Typical Characteristic Curves

Temperature derating curve (Fig. 1)

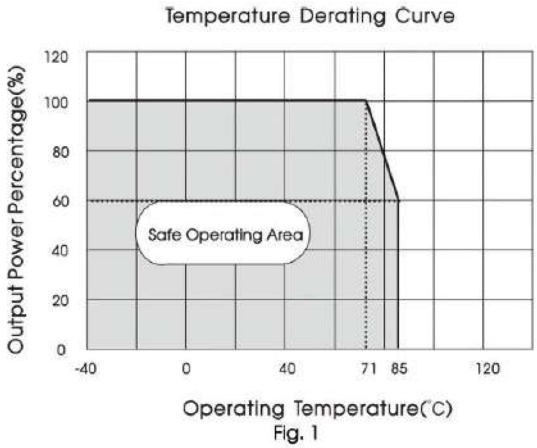
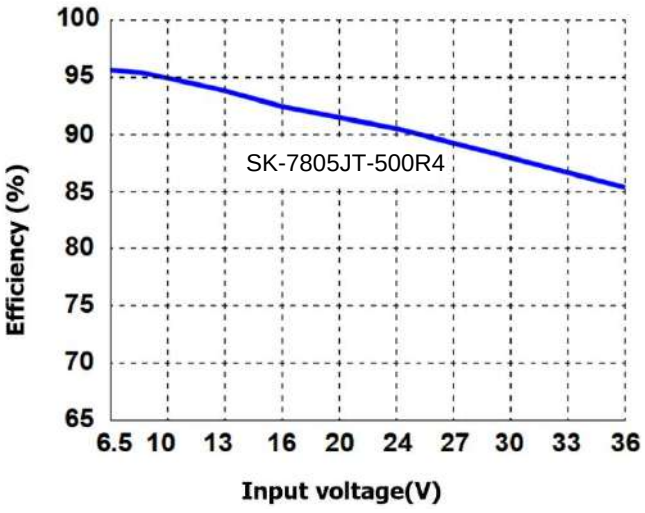
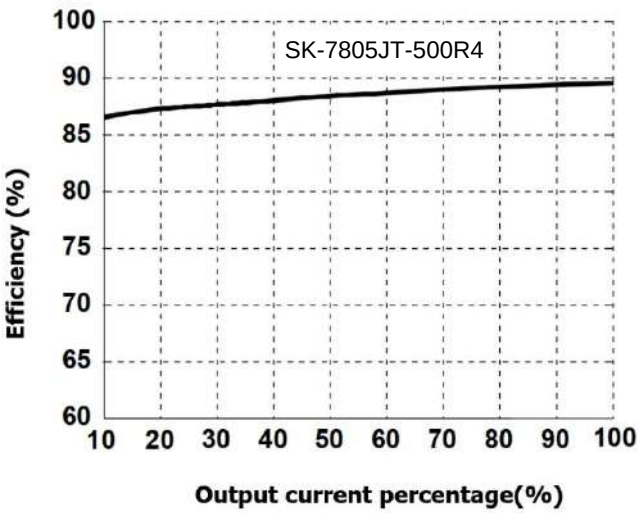


Fig. 1

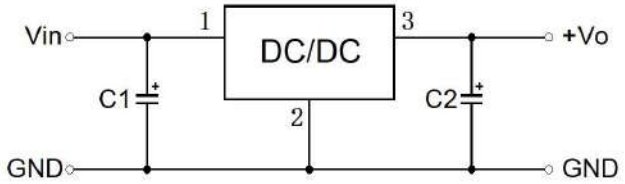
Efficiency vs. Input Voltage Graph (Full Load)

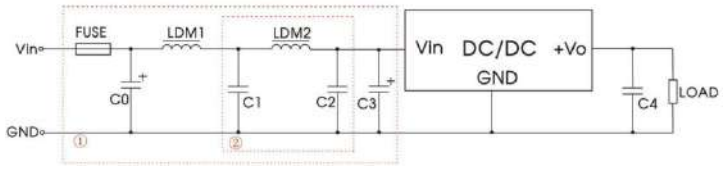


Efficiency vs. Output Load



Typical circuit design and application

Application circuit (Figure 2)	A capacitive load value table is recommended		
	Vout(VDC)	Cin(uF)	Cost(uF)
	3.3	10uF/50V	22uF/10V
	5		22uF/16V
	9/12/15		22uF/25V

Application circuit (Figure 3)	EMI Recommended Parameter Table	
	Model	Vin: 24V
	FUSE	It is selected according to the customer's actual input current
	C0/C3	330μF/50V
	LDM1	82uH
	C4	Refer to the C2 parameters in the preceding table
	C1/C2	10μF/50V
	LDM2	22μH

Note: Part (1) in Figure 3 is for EMS testing; Part (2) is for EMI filtering, which can be selected according to your needs

Application Circuit Description:

1. In general, depending on the use environment of the product, the external capacitors C1 and C2 should be connected, and the capacitors should be located close to the pin end of the product;
2. The capacitance values of C1 and C2 refer to Table 1 and can be increased as needed, and tantalum capacitors and electrolytic capacitors with low ESR can also be used;
3. This product does not support hot swapping, and the output terminal cannot be used in parallel;
4. If the output ripple needs to be further reduced, an "LC" filter network can be connected to the output, and the L recommended value is 10μH-47μH

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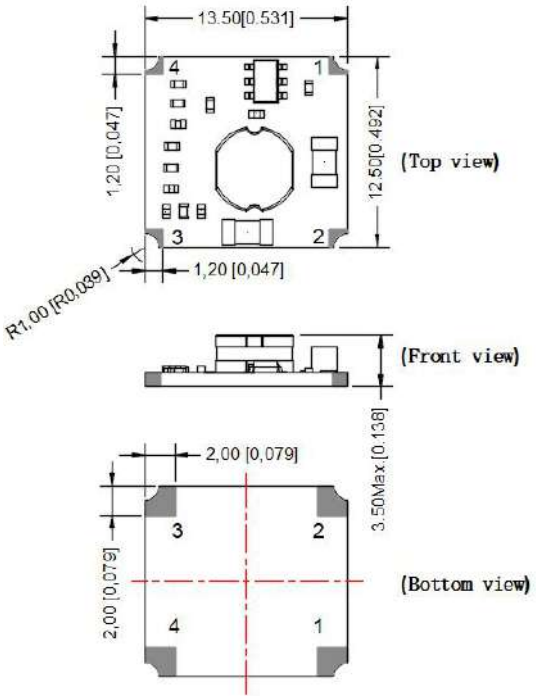
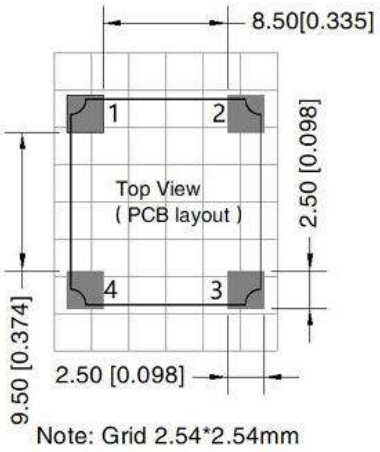
Appearance size, recommended PCB printing layout

Dimensions and Recommended Layout	PCB Printing Layout





Noted:

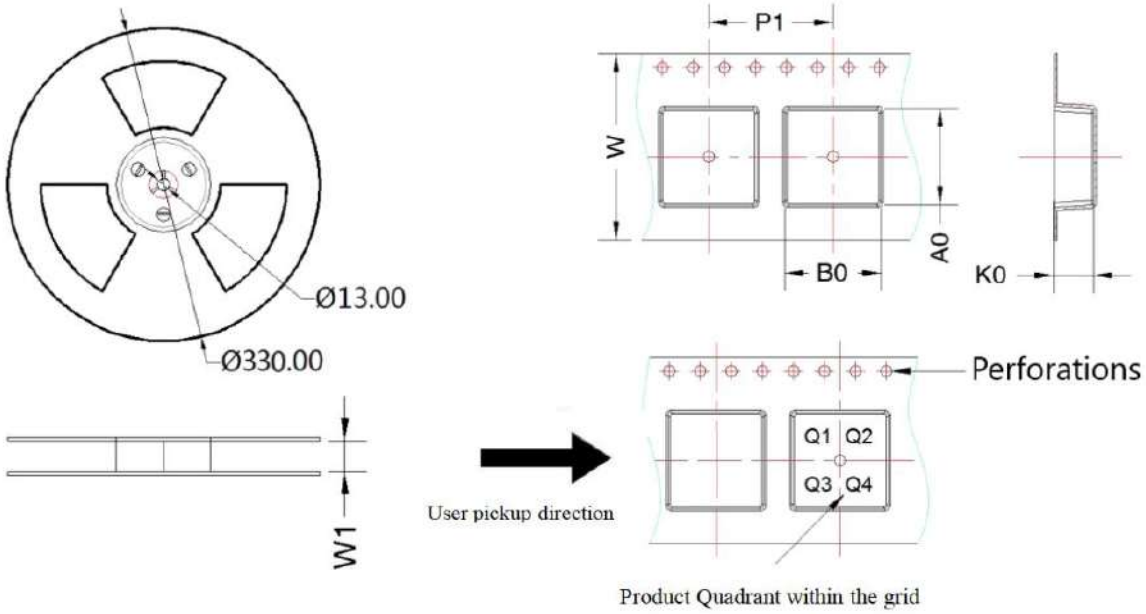
Unit: mm[inch]
General tolerance: ±0.3[±0.012]

Pin Definition Table

Pins	Single output
1	+Vin
2	GND
3	+Vo
4	Remote On/Off

Packing diagram

Carrier tape packaging diagram



Part number	package type	Pin	MPQ	Reel outer diameter(mm)	Reel width W1(mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 quadrant
SK-78xxT-500R4	SMD	4	900	330.0	24.5	13.25	14.05	7.45	20.0	24.0	Q1

Remark:

- The maximum capacitive load is tested in the input voltage range and under full load conditions;
- Unless otherwise specified, all indicators in this manual are measured at Ta=25°C, humidity <75%RH, nominal input voltage and output rated load;
- All index test methods in this manual are based on the company's corporate standards;
- Product specifications are subject to change without notice.