ZIM·TEC® Electronics

CE

continuous short circuit protection

FEATURES

- Efficiency up to 91%
- Low ripple & noise
- Without heatsink
- Short circuit protection and overheat protection
- Pin-out compatible with LM78XX series
- Operating temperature range: -40 ℃ to +85℃
- Subminiature SIP package, meeting requirements of UL94-V0
- Low cost
- Industry standard pin-out

DKLZ-78XX-1000P Series
WIDE INPUT NON-ISOLATED & REGULATED SINGLE OUTPUT

DKLZ78xx-1000P series are high efficiency switching regulators and ideal substitutes of LM78XX series three-terminal linear regulators. The product is featured with high efficiency, low loss, low radiation and no heat sink requirement. They are widely used in industrial control, instrumentation, and electric power applications.

Selection Guide

Part No.	Input Voltage (VDC) Nominal (Range)	Output		Efficiency (%/Typ.) (Min. Vin)/ (Max. Vin)	Max. Capacitive Load(µF)
		Output Voltage (VDC)	Output Current (mA)		
DKLZ-7801-1000P	12 (4.75-18)	1.5	1000	75/71	1000
DKLZ-78X2-1000P		1.8	1000	78/75	
DKLZ-7802-1000P		2.5	1000	84/80	
DKLZ-7803-1000P		3.3	1000	86/83	
DKLZ-7805-1000P	12 (6.5-18)	5.0	1000	91/88	

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
No-load Power Consumption	Input voltage range	--	--	0.27	W
Reverse Polarity Input		Forbidden			
Input Filter		Capacitor filter			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	100% load, input voltage range	–	±2	±3	%
Line Regulation	Input voltage range	–	±0.4	±0.75	
Load Regulation	10%-100% load	–	±0.5	±1.0	
Ripple & Noise*	20MHz bandwidth (refer to Fig. 2)	–	20	35	mVp-p
Temperature Drift Coefficient	-40℃ to +85℃	–	–	±0.025	% /℃
Over temperature Protection	IC built-in	–	–	160	℃
Output short circuit protection		Continuous, self-recovery			
Transient response deviation	Nominal input, 25% load step change	--	55	250	mV
Transient recovery time		--	0.5	3	mS
Thermal impedance		--	85	--	℃/ W

Note: * Ripple and noise tested with "parallel cable" method, please see *DC-DC Converter Application Notes* for specific operation methods.

General Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Operating Temperature	Derating if the temperature ≥71℃ (see Fig. 1)	-40	--	85	℃
Storage Temperature		-55	--	125	
Max. Operating Temperature for casing	Within the operating temperature curve	--	--	100	
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	--	--	300	
Storage Humidity	Non-condensing	--	--	95	%RH
Switching Frequency	100% load, input voltage range	350	400	450	KHz
MTBF	MIL-HDBK-217F@25℃	1000	--	--	K hours

Physical Specifications

Casing Material	Black flame-retardant and heat-resistant plastic (UL94-V0)
Package Dimensions	11.60*7.55*10.16 mm
Weight	2.00g (Typ.)
Cooling Method	Free air convection

EMC Specifications

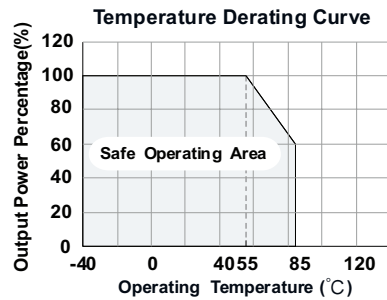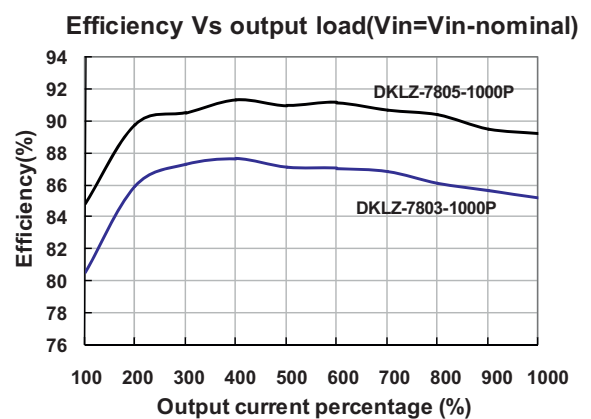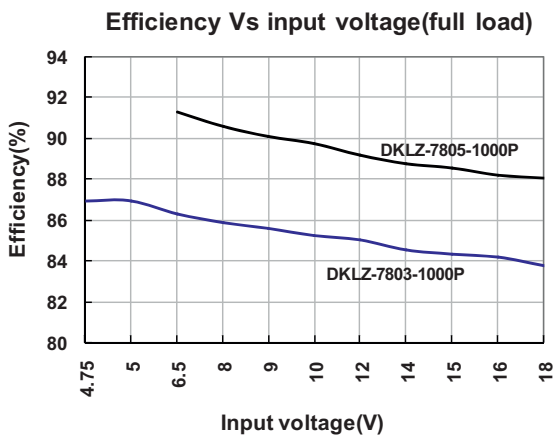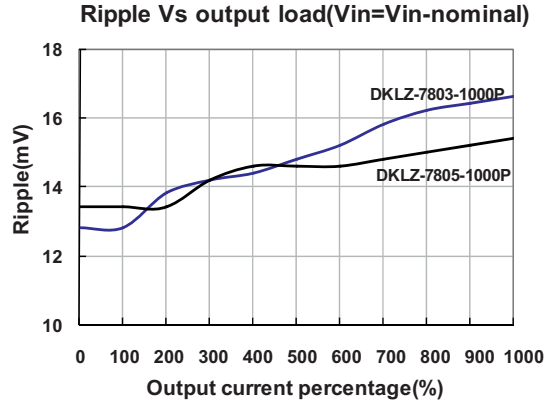|				
EMI	Conducted Disturbance	CISPR22/EN55022	CLASS B (see Fig. 4-② for recommended circuit)	
	Radiated Emission	CISPR22/EN55022	CLASS B (see Fig. 4-② for recommended circuit)	
EMS	Electrostatic Discharge	IEC/EN 61000-4-2	Contact ±4KV	perf. Criteria B
	Radiation Immunity	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±1KV (see Fig. 4-① for recommended circuit)	perf. Criteria B
	Surge Immunity	IEC/EN 61000-4-5	±1KV (see Fig. 4-① for recommended circuit)	perf. Criteria B
	Conducted Disturbance Immunity	IEC/EN 61000-4-6	3Vr.m.s	perf. Criteria A
	Voltage dip, drop and short interruption	IEC/EN 61000-4-29	0%-70%	perf. Criteria B

Product Characteristic Curve

Temperature Derating Curve

Fig. 1

Efficiency Vs input voltage(full load)

DKLZ-7805-1000P

DKLZ-7803-1000P

Efficiency Vs output load(Vin=Vin-nominal)

DKLZ-7805-1000P

DKLZ-7803-1000P

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : info@zimtec-electronics.de

Ripple Vs input voltage(full load)

Ripple(mV) vs Input voltage(V)

DKLZ-7805-1000P

DKLZ-7803-1000P

Ripple Vs output load(Vin=Vin-nominal)

Ripple(mV) vs Output current percentage(%)

DKLZ-7803-1000P

DKLZ-7805-1000P

Design Reference

1. Typical application circuit

Fig. 2 Typical application circuit
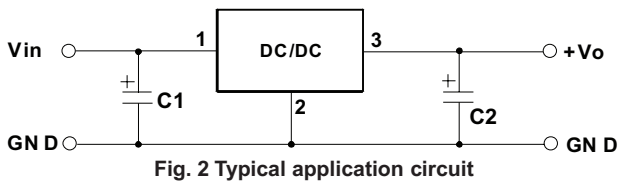
Part No.	C1 (ceramic capacitor)	C2 (ceramic capacitor)
DKLZ-7801-1000P		
DKLZ-78X2-1000P		10μF/6.3V
DKLZ-7802-1000P	10μF/25V	
DKLZ-7803-1000P		
DKLZ-7805-1000P		10μF/10V

Notes:

① C1 and C2 are required and should be connected close to the pin terminal of the module.

② capacitance of C1 and C2 refers to the table, which may be increased appropriately based on actual requirement, and a tantalum capacitor or a low ESR electrolytic capacitor may also be used.

③ No parallel connection and plug and play

To reduce the output ripple furtherly, it is suggested to connect a "LC" filter at the output terminal, and recommended value of L is 10μH-47μH.

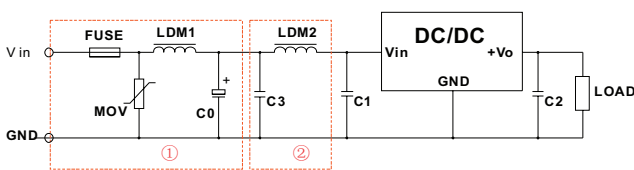**Fig. 3**
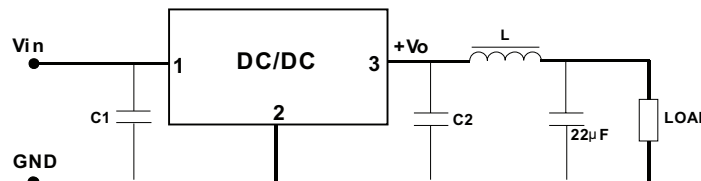
2. EMC solution-recommended circuit
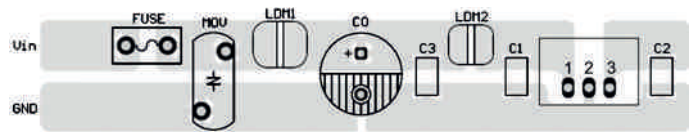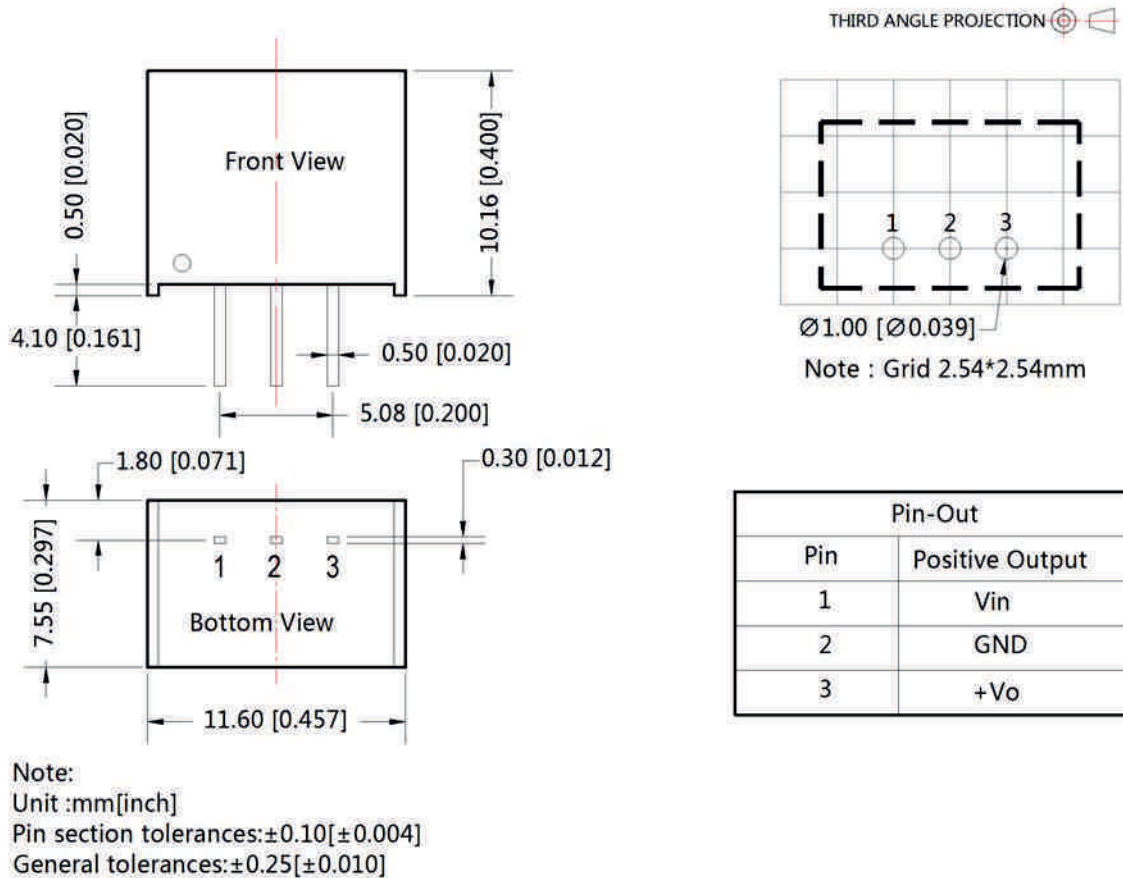
Fig. 4 Recommended EMC circuit

Fig.5 Recommended EMC circuit-PCB layout

FUSE	MOV	LDM1	C0	C1/C2	C3	LDM2
Selected based on the actual input current from the customer	S10K35	82μH	680μF /50V	Refer to Fig.2	4.7μF /50V	12μH

Note: Part ① in the Fig. 1 is for EMS test, part ② is for EMI filtering; parts ① and ② can be added based on actual requirement.

3. For more information please find the application notes on www.zimtec-electronics.de

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Dimensions and Recommended Layout

THIRD ANGLE PROJECTION

Front View

0.50 [0.020]

10.16 [0.400]

4.10 [0.161]

0.50 [0.020]

5.08 [0.200]

1.80 [0.071]

0.30 [0.012]

7.55 [0.297]

1   2   3

Bottom View

11.60 [0.457]

Note:
Unit :mm[inch]
Pin section tolerances:±0.10[±0.004]
General tolerances:±0.25[±0.010]

Ø1.00 [Ø0.039]
Note : Grid 2.54*2.54mm

1   2   3

Pin-Out	
Pin	Positive Output
1	Vin
2	GND
3	+Vo

Notes:

1.   The max. capacitive load should be tested within the input voltage range and under full load conditions;
2.   Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25°C, humidity<75% when inputting nominal voltage and outputting rated load;
3.   All index testing methods in this datasheet are based on our Company's corporate standards;
4.   The performance indexes of the product models listed inthis manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact with our technician for specific information;
5.   We can provide product customization service;
6.   Specifications of this product are subject to changes without prior notice.