

EMC Filter



This product is suitable for analog circuits and other noisy sensitive occasions, EMC auxiliary module installed in the input end of the DC/DC power module can significantly improve the EN55032 EN50155, GJB151B standards of EMC performance. The maximum input voltage of the mornsun power supply should not be greater than the maximum operating voltage of the filter, and the maximum input current should be less than the maximum operating current of the filter.

FEATURES

- Ultra wide input voltage range: 9 - 80VDC
- Compact size: 25*25*5mm³
- Operating ambient temperature range: -40℃ to +105℃
- EMC standards compliance : IEC/EN61000-4、
- CISPR32/EN55032 、 EN50155 、 EN50121-3-2 、 GJB151B
- Meet with safety standards: IEC62368

Selection Guide

Certification	Model	Operating Voltage(VDC)		Operating Current(A)			Surge Performance
		Typ. (Range)	Max*	Typ.	Max	Transient**	
CE/UKCA	FI-B10T-R2	24/48 (9-80)	80	-	10	14	Line - Line ±2kV Line - PE ±2kV

Note: 1.* The input voltage must not exceed this value, otherwise permanent and unrecoverable damage may be caused;
2.** Transient current operating conditions: Temperature 55℃, wind speed 3m/s, duration 10s
3.Filter can not be used with air switch.

General Specifications

Item		Test Conditions	Min.	Typ.	Max.	Unit
Operating Temperature			-40	--	+105	℃
Storage Temperature			-55	--	+125	
Reflow Temperature			--	--	+250	
Welding Temperature		Wave soldering welding,10 seconds MAX	+ 255	+ 260	+ 265	
Storage Humidity		Non-condensing	5	--	95	%RH
Isolation Voltage	+Vin-PE	Electric strength test for 1min., leakage current <0.5mA	1500	--	--	VDC
	-Vin-PE					
surge voltage(1sec.max)					100	
MTBF		MIL-HDBK-217F@25℃	1000	--	--	K hours

Reflow Soldering Temperature*		Peak temp.≤245℃, maximum duration time≤60s over 217℃			
Shock and Vibration Test		IEC 61373 Car 1 B Class			
Altitude*	50-106kPa	5000m			
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D.1	Level 3			
Insertion loss (CM/DM)	150kHz~1MHz	--	20	-	dB
	1MHz~10MHz	--	20	--	dB
	10MHz~30MHz	--	15	--	dB

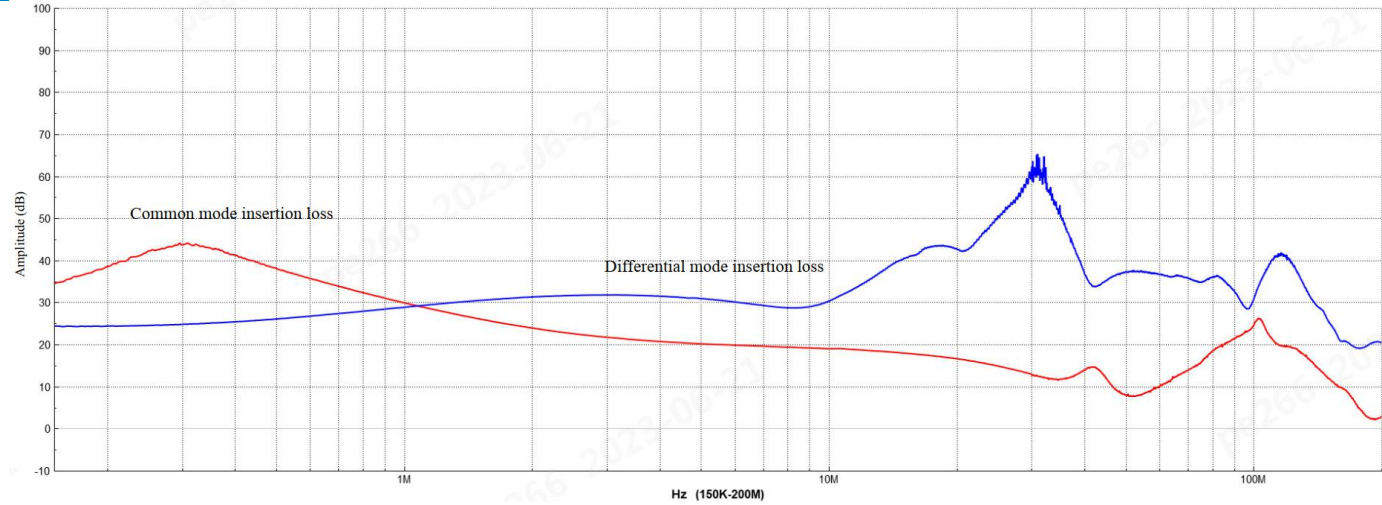
*Note: * The product is used above the altitude of 2000m, to ensure that the surface temperature of the product is below 95℃

Physical Characteristics

Case Material	Potting product: Black plastic; flame-retardant and heat-resistant (PM-9630)
Dimension	25.00 mm x 25.00mm x 5.00mm
Weight	6.4g(Typ.)
Cooling Method	Free air convection

Note: * The product can only be reflow welded twice in actual use

Insertion Loss Specifications



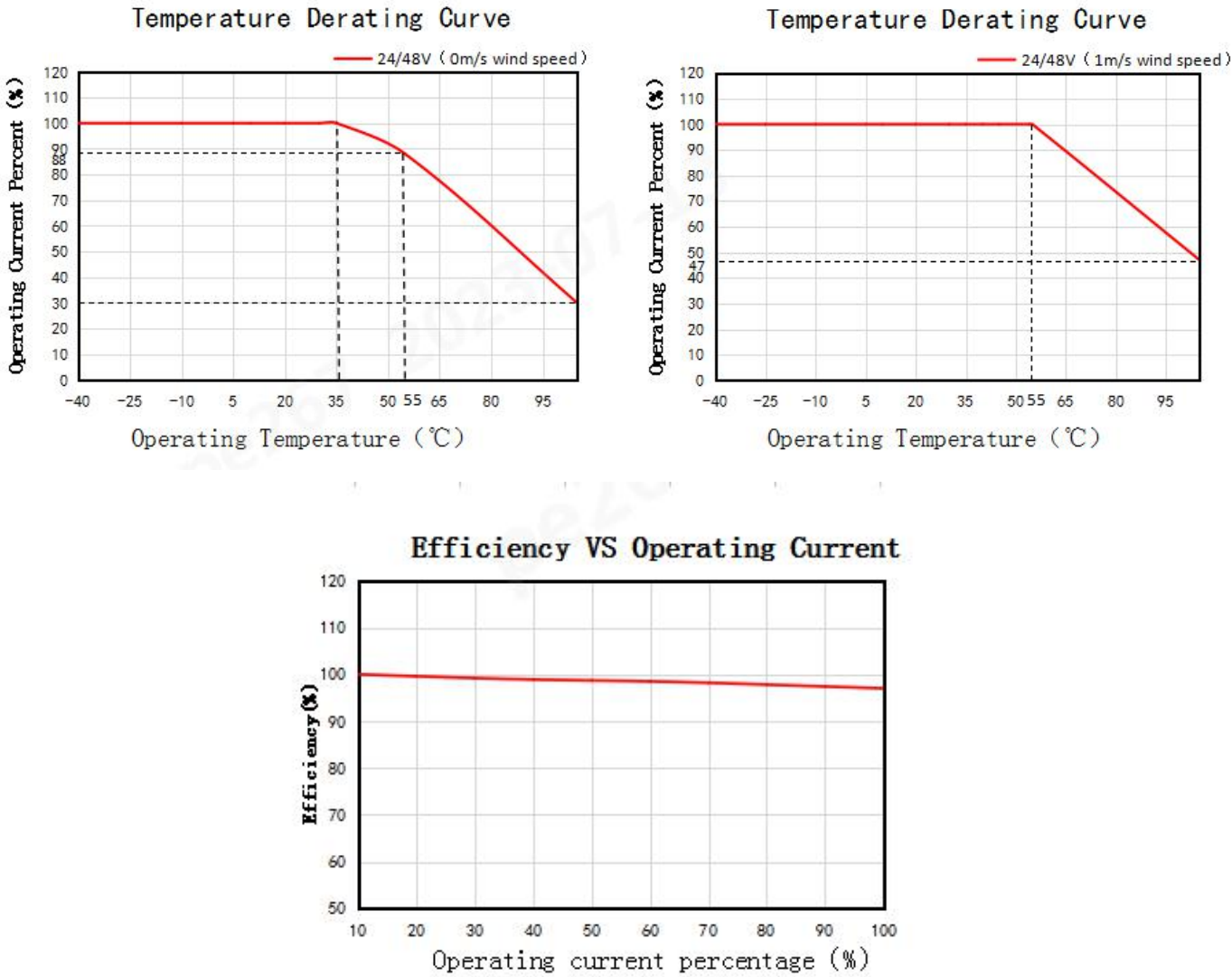
EMC Characteristics

EMI	CE	GJB151B	CE102	Matching JVRF24_DD-50WR4 (See figure 1-①)
		CISPR32/EN55032	Class B	Matching URB24_LD-60WR3 (See figure 2-①)
EMS	ESD	IEC/EN61000-4-2	Contact ±6kV	perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV 100KHz	perf. Criteria B
				Matching JVRF24_DD-50WR4 (See figure 1-②)
	Surge	IEC/EN61000-4-5	Line - Line ±2kV Line - PE ±2kV	perf. Criteria A
				Matching URB24_LD-60WR3 (See figure 2-②)
	CS	IEC/EN61000-4-6	0.15MHz-80MHz 10V r.m.s	perf. Criteria B
				Matching JVRF24_DD-50WR4 (See figure 1-②)
				perf. Criteria A
				Matching URB24_LD-60WR3 (See figure 2-②)

				Matching URB24_LD-60WR3 (See figure 2-②)
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
				Matching URB24_LD-60WR3 (See figure 2-②)

Note: Matching FI-B10T-R2 to the front end of the URB24_LD-60WR3、JVRF24_DD-50WR4 DC/DC power supply can make the power module meet above EMC characteristics.

Product Typical Curve



Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.

Design Reference

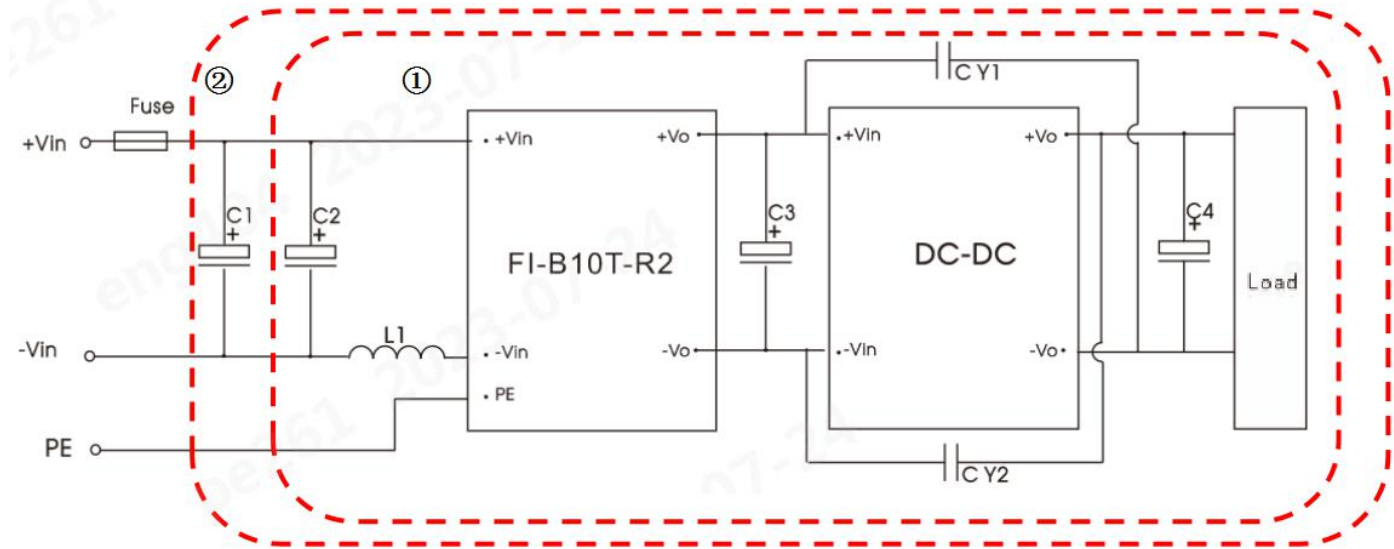


Fig.1

Components	Value
Fuse	Required.The Fuse must be selected in accordance with the specified input current of the corresponding power converter
DC-DC	Power supply module
C1、 C2	680uF/100V
L1	22uH (chip inductor)
C3	330uF/100V
C4	220uF/50V
CY1、 CY2	Y2/222M

Notes: 1.Matching Mornsun JVRF24_DD-50WR4 series.
2.The PE lines connect or not connect.
3.Figure 1-① is used for CE test , Figure 1-② is used for EMS test , choose according to demand.

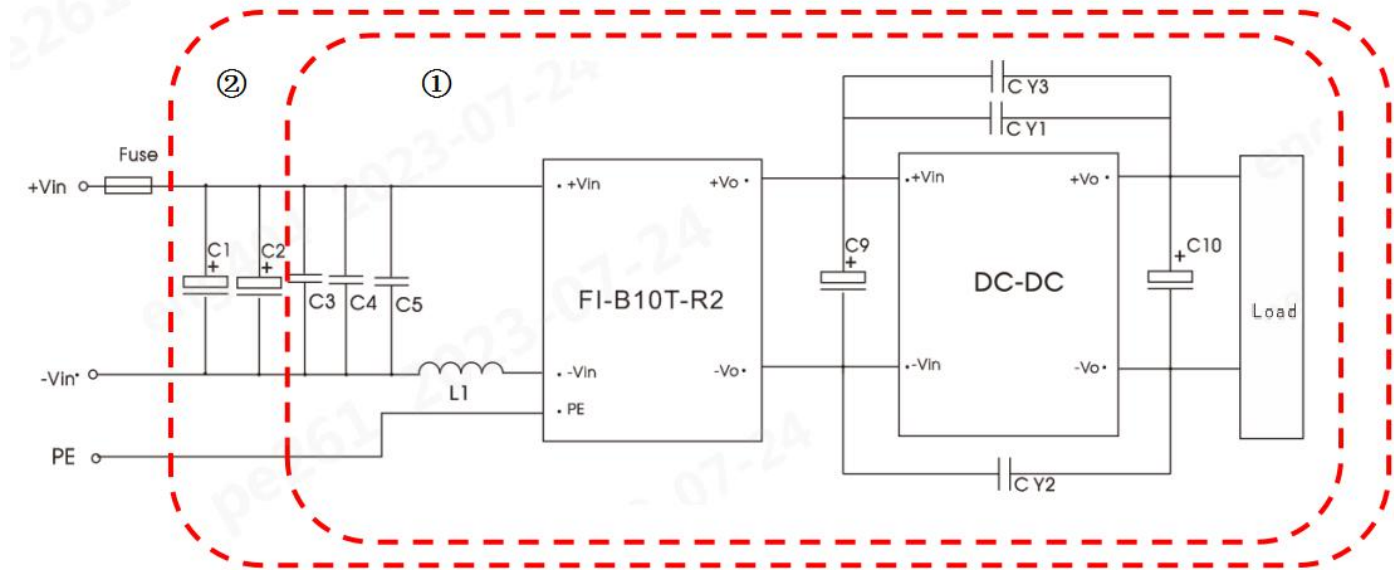


Fig.2

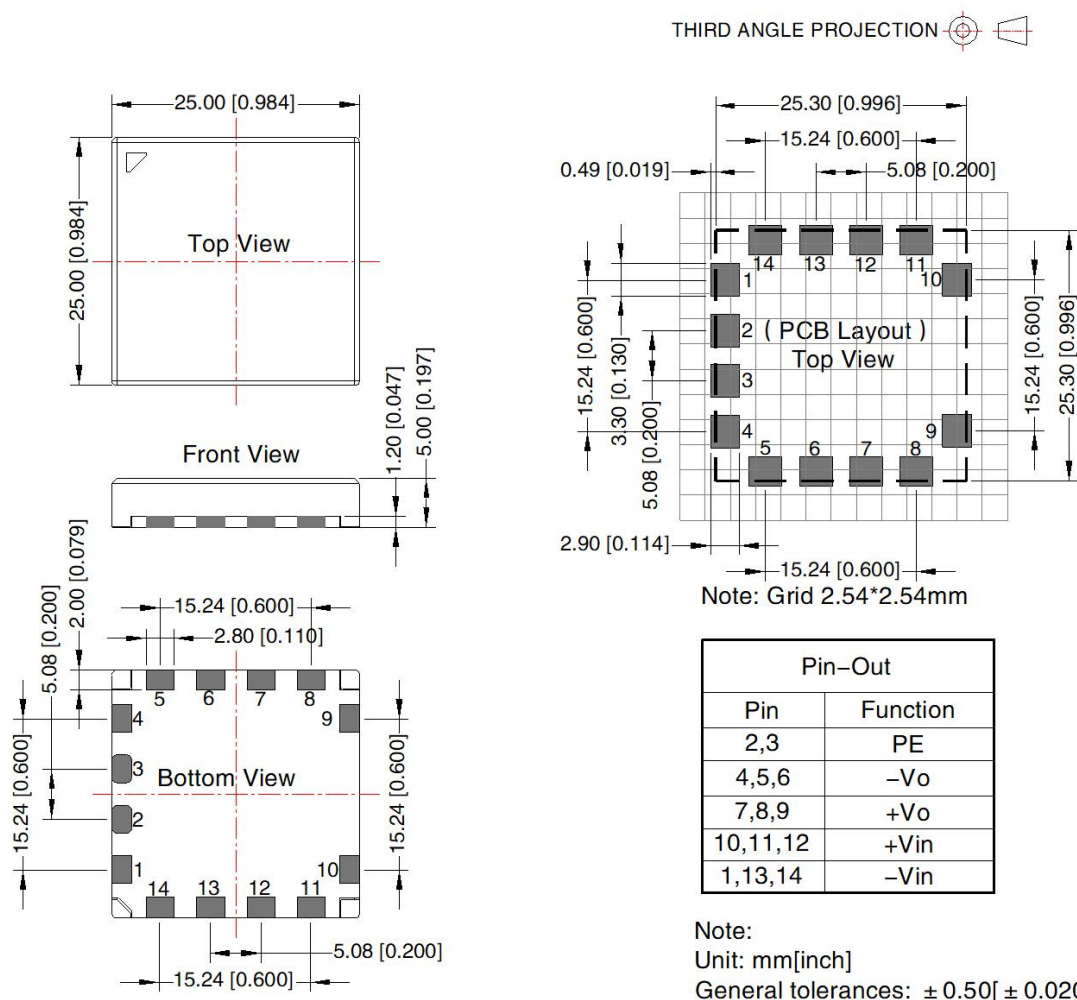
Components	Value
Fuse	Required.The Fuse must be selected in accordance with the specified input current of the corresponding power converter
C1、C2	680uF/100V
C3、C4、C5	475k/100V
L1	2.2uH (chip inductor)
C9	330uF/100V
CY1、CY2、CY3	Y1/102M
C10	100uF/50V

Notes: 1.Matching Mornsun URB24_LD-60WR3 series.

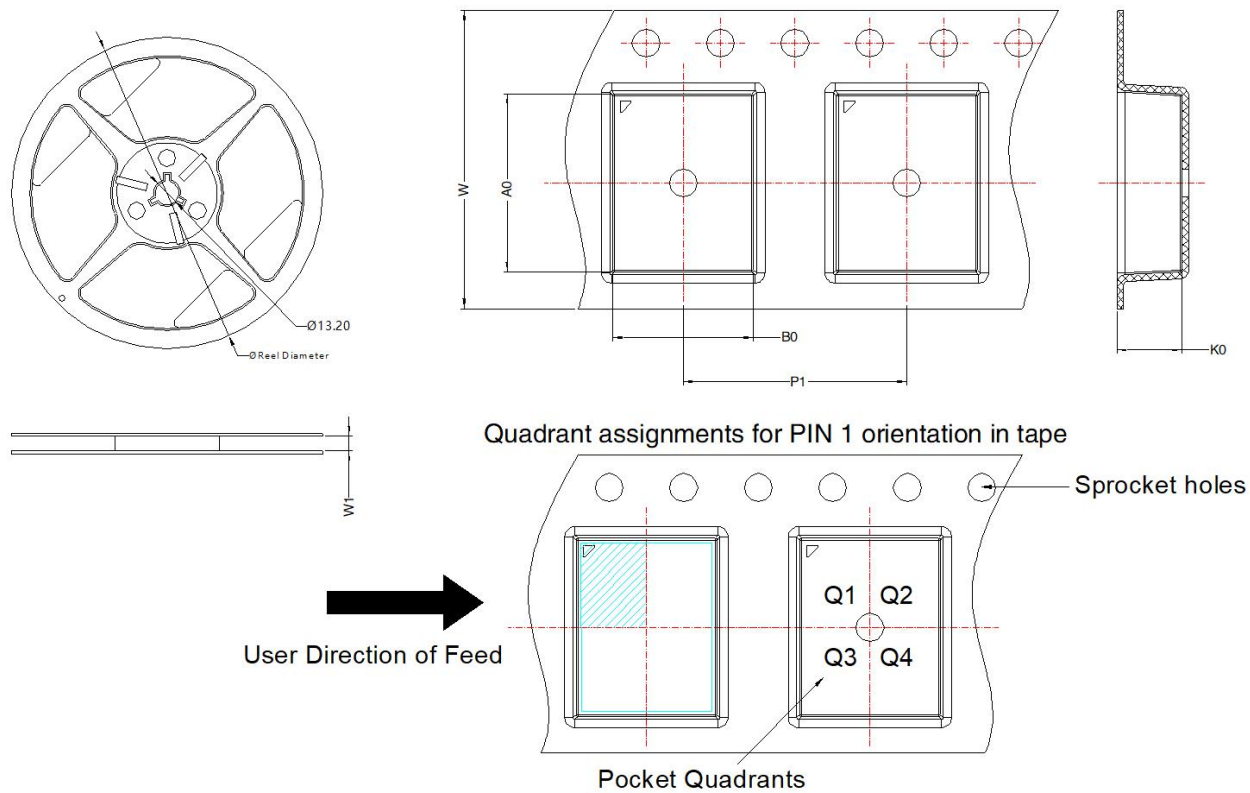
2.The PE lines connect or not connect.

3.Figure 2-① is used for CE test , Figure 2-② is used for EMS test , choose according to demand.

Dimensions and Recommended Layout



Package diagram



Device	Package Type	Pin	MPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
FI-B10T-R2	25x25	14	270	180.0	44.4	26.08	26.08	6	36	44	Q1

- Note:
- 1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220631;
 - 2. Unless otherwise specified, data in this datasheet should be tested under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75%RH with nominal input voltage and rated load;
 - 3. All index testing methods in this datasheet are based on our company corporate standards;
 - 4. We can provide product customization service, please contact our technicians directly for specific information;
 - 5. Products are related to laws and regulations: see "Features" and "EMC";
 - 6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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