MORNSUN®

5G Telecommunication

One-stop solutions of power supplies

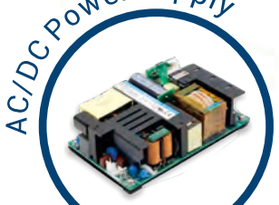




Isolated DC/DC Converter



Non-isolated DC/DC Converter



AC/DC Power supply

mornsun website

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MORNSUN Power

No.8 Nanyun 4th Road, Huangpu District, Guangzhou, China
Tel: 020-38601850 Fax: 020-38601272
Email: info@mornsun.cn
www.mornsun-power.com

Mornsun Power GmbH

Add: Friedrich-Bach-Straße 1 31675 Bückeburg
Tel: +49 (0) 89/693 350 20
Email: info@mornsunpower.de
www.mornsunpower.de

About MORNSUN

Dedicated R&D
1400+ IPRs & Patents , 650+ R&D engineers

Fast delivery
34+ SMT Production line, 80000+ m^2 Factory area

Timely after-sales service
T+4 hours quick respond from FAE team


Manufacturing Center in Huaihua


R&D Center in Guangzhou

- Established: 1998
- Employees: 3000+
- Certifications: ISO9001, IATF16949, ISO14001, ISO45001
- Company formations: Headquarters in Guangzhou, 4 Subsidiaries, 6 R&D Center



Headquarters in Guangzhou

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Enclosed switching power supplies


DIN rail power supplies


AC/DC converters


DC/DC converters


CAN/485 isolated transceiver modules

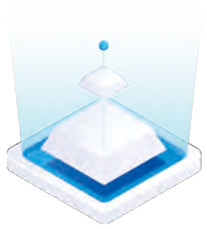
Telecom Industry Overview



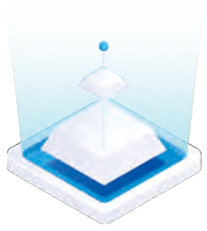
City A



City B



Base Station



Base Station

Bearer Network

Telecom Optical Transmission Equipment



OTN Device





PTN Device

Bearer Network



Telecom Room

Bearer Network





Telecom Room

Bearer Network



Backbone Network

Access Network

Equipment on Base station



PoE Switch



Antenna on Base station



Core Network

Special Communication System



Cloud Server



Data Center



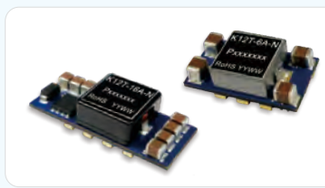
Product recommendation

Isolated DC/DC Converter



VCB/F Series

Non-isolated DC/DC Converter



K12T Series

High power density AC/DC Switching Power Supply



LOF Series

Key Specifications for Telecom Power Supply

01 Meets DOSA standard with brick packages

In the 5G Telecom industry, there are a series of work and costs because of the PCB redesign and recertification led by a change of key materiel. Therefore, products in universal standard always are the selection, specially DOSA standard packages, such as 1/4 brick, 1/8 brick, and 1/16 brick.



1/4 brick power supply
57.9 x 22.9 x 10.4mm



1/8 brick power supply
57.9 x 36.8 x 8.1mm

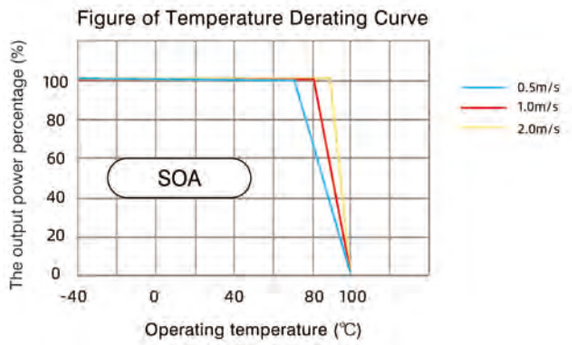


1/16 brick power supply
33.02 x 22.86 x 10.4mm

02 Wide operating temperature range
(to adapt to the harsh working environment)

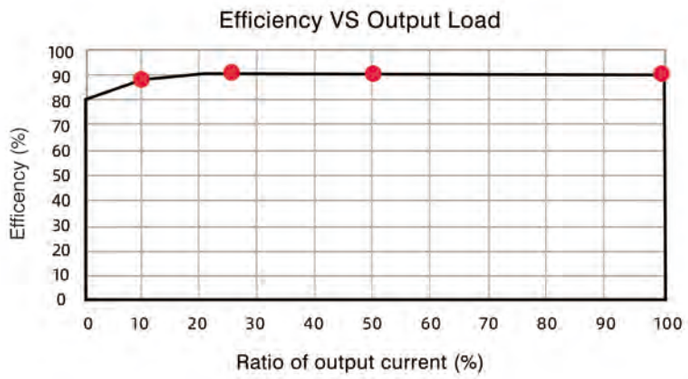
In practice, the environment temperature generally ranges from -40℃ to +70℃ and is higher in internal of devices because of the power supplies and some components would heat up. In this case, only a power supply with a wider temperature range can meet the actual requirements. Mornsun's telecom power supplies meet the operating temperature requirements up to 100℃.

Operating temperature
-40℃ to +85℃/-40℃ to +100℃



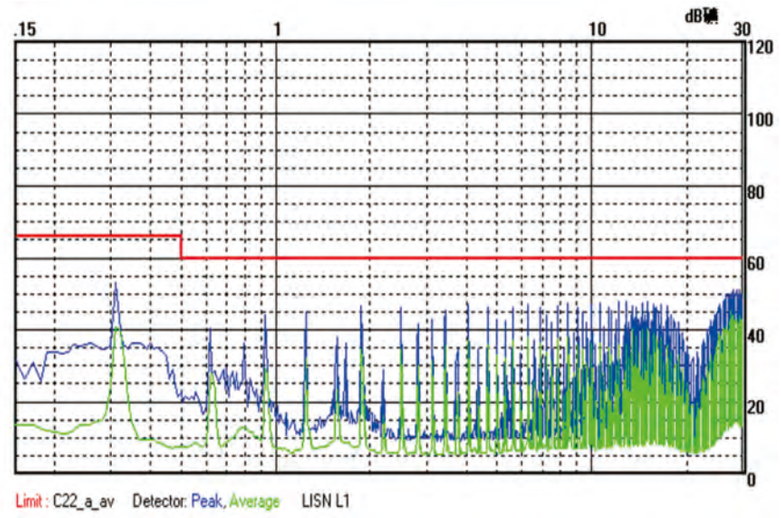
03 Higher efficiency requirement

The uneven 5G data flow and the use time varies requires the actual loads of telecom power supplies must be used from light load to full load so that improving efficiency is not only on full load but also on light load. Mornsun's telecom power supplies adopt frequency conversion and active clamp technology, effectively improving the conversion efficiency under each load, the average efficiency is greater than 90% in the POL of 10%/25%/50%/100%.



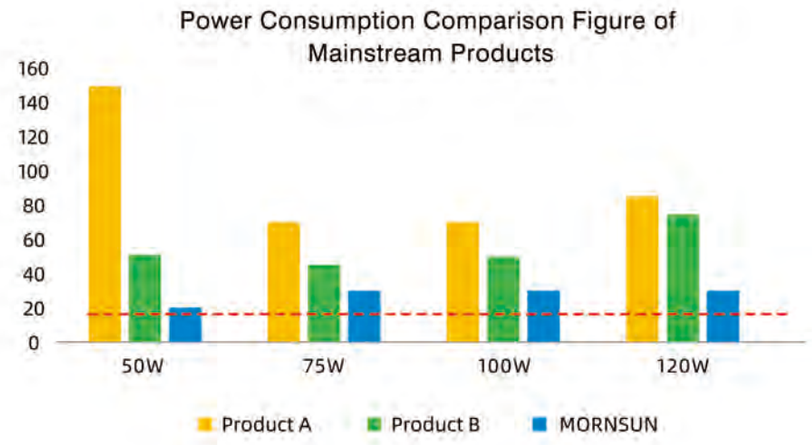
04 Outstanding EMC performance

Good EMC performance is the pursuit of all walks of life equipment, it is very important to choose a power supply with outstanding EMC performance.Mornsun has a professional EMC design team and a complete test platform, making EMC design runs through the whole product development and design process and has strict control procedures to ensure that each batch of products has compliant EMC performance.



05 Low standby power consumption to save energy

The standby energy consumption is a kind of energy waste, and its reduction should be considered in the system design. Mornsun adopts FM technology for its products, making it under no-load conditions turn to "green mode" and the switching frequency low down to realize the energy saving.

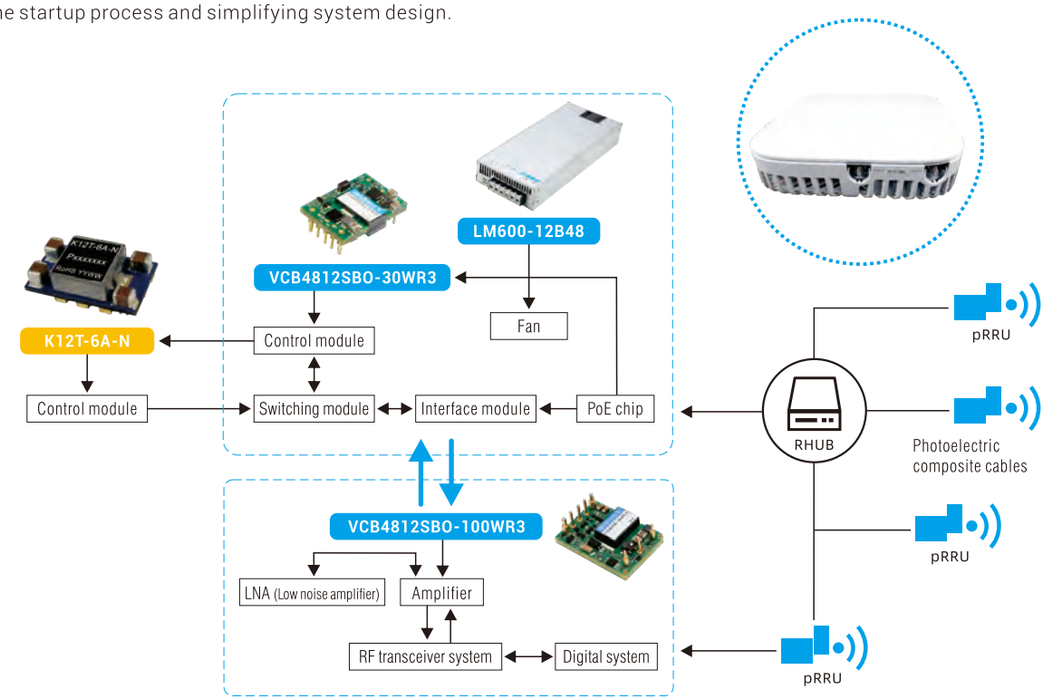


Access Network

Typical application and advantages for Telecom power supply

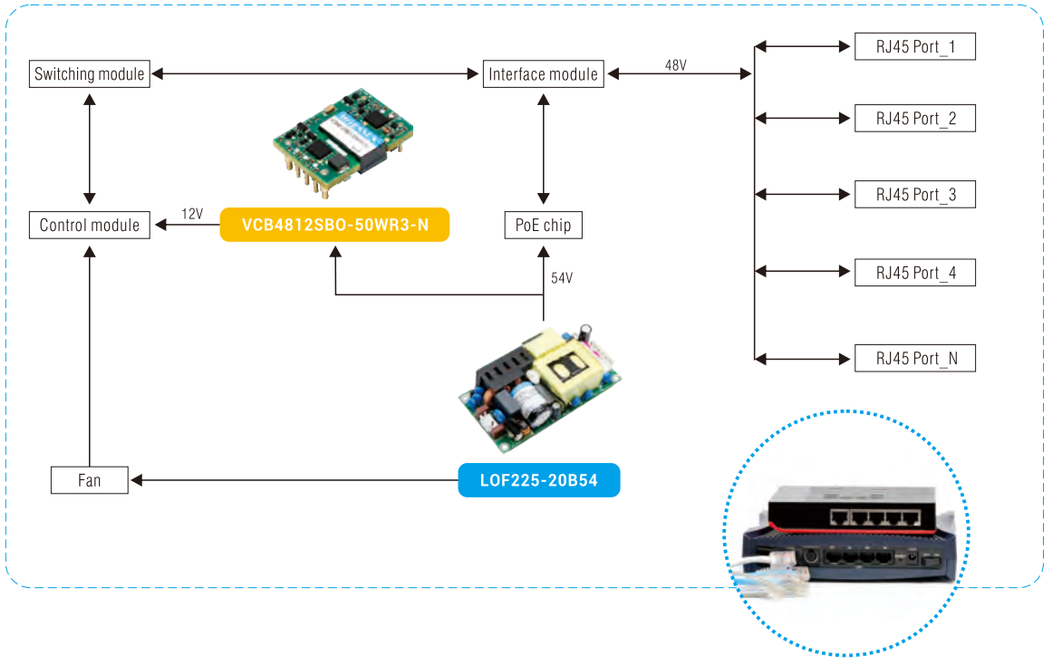
Access Network---**5G Small Base station**

Small base stations mainly provide wireless signal transceiver functions for the 5G industry. A non-isolated power supply is needed Inside the pRRU to convert the voltage to low voltage and power the CPU. Mornsun's 30-80W DC/DC converter K12T Series provides a fast-transient high current to the high-speed chips, such as FPGA, DSP, ASICS, etc., speeding up the startup process and simplifying system design.



Access Network---**PoE Switch**

PoE switches mainly to achieve the power over Ethernet for the 5G industry, not only switching the data but also powering to Ethernet.
A compact-size high power density DC/DC converter is needed Inside the PoE switch to convert the voltage to 12VDC and power the control and other modules. Mornsun's 30-100W 1/16 brick VCB Series features a compact size and a wide input voltage range of 36-75VDC.



Advantages of K12T-6A-N

- High efficiency up to 94%
- Wide operating temperature range of -40℃ to +85℃
- Input low-voltage, output short-circuit, and over-current protections
- Fast transient response
- Compact SMD package
- EN62368 approved



Advantages of VCB4812SBO-50WR3-N

- Wide input voltage range of 36-75VDC
- High efficiency up to 90%
- Isolation voltage: 1500VDC
- Input low-voltage, output short-circuit, and over-current protections
- Wide operating temperature of -40℃ to +85℃
- Universal 1/16 brick package, comply with DOSA standard



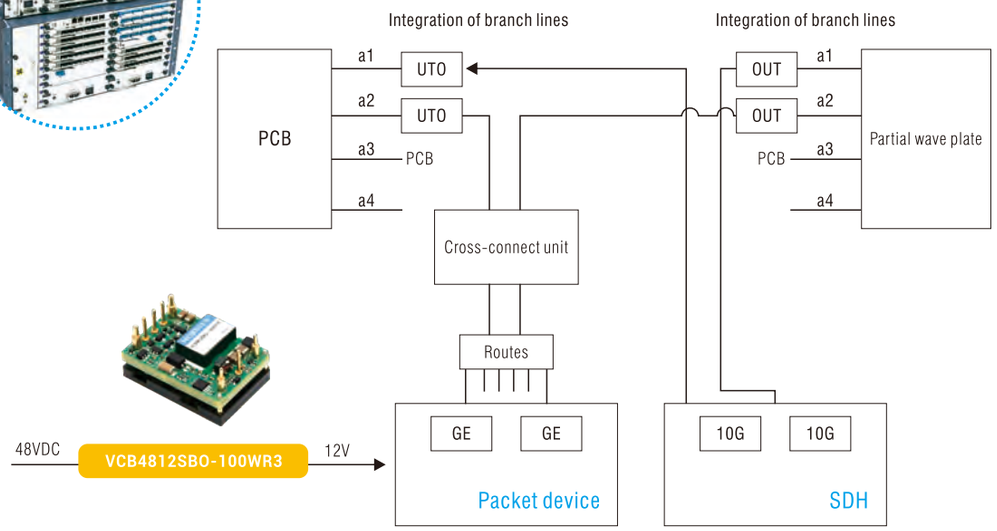
Bearer Network

Typical application and advantages for Telecom power supply

Bearer Network---**OTN Devices**

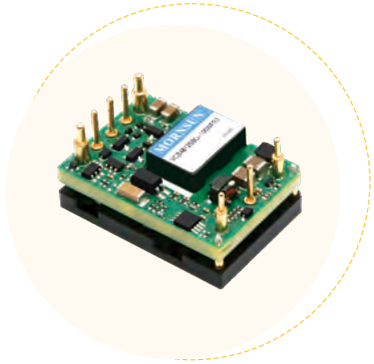
OTN (Optical Transport Network) is a network that realizes signal transmission, multiplexing, routing, monitoring, and ensuring the performance & survivability in the optical domain.Mornsun's 1/16 brick DC/DC converter VCB4812SBO-100WR3 series features a wide operating temperature of -40℃ to +85℃, suitable for the sealed telecom equipment, and a high efficiency of up to 92%, realizing the energy-saving.





Advantages of VCB4812SBO-100WR3

- Wide input voltage range of 36-75VDC
- High efficiency up to 92%
- Isolation voltage: 1500VDC
- Wide operating temperature range of -40℃ to +85℃
- Universal 1/16 brick package

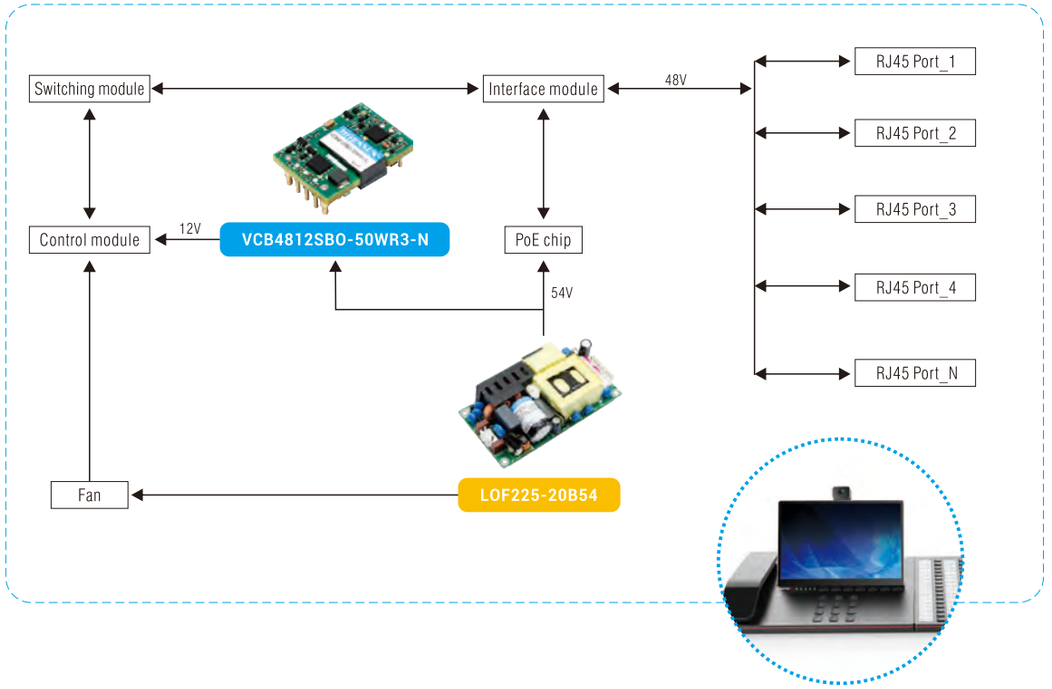


Core Network

Typical application and advantages for Telecom power supply

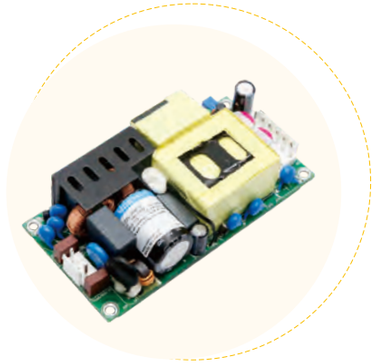
Core Network---**Telecom Equipments**

A variety of terminal devices use switches to implement flexible, convenient, and diversified services, including voice, video, and data. Mornsun's LOF225-20B54 series convert the voltage to 54VDC and power the PoE chip, RJ45 Ports, and PD devices.



Advantages of LOF225-20B54

- Wide input voltage range of 85-264VAC/120-370VDC
- Compact size: 4"x 2"x 1"
- Active PFC Function
- High isolation voltage: 4000VAC
- Leakage current as low as 0.1mA
- Input low-voltage, output short-circuit, and over-current protections



Isolated DC/DC Converter VCB/F Series (3-400W)

Compact Size
Universal package: 1/16 brick, 1/8 brick, 1/4 brick

Industrial-grade Operating Temperature
-40℃ to +100℃

Fast Delivery
Strong production capacity and management



Features:

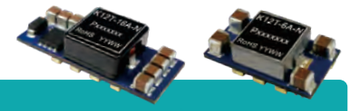
- Operating temperature range of -40℃ to +85℃ / -40℃ to +100℃
- High efficiency up to 93%
- Widely used in communication, medical, industrial control, electric power, instrumentation applications
- Input under-voltage, output short-circuit, over-current protections
- EN62368 approved

Product Parameter

Series	Power	Input voltage range	Isolation voltage	Output voltage (VDC)	EMC performance	Operating temperature range
VCB_SO-3WR3	3W	36-75 (48VDC)	1500VDC	5,12,15,24	CE meets CLASS B RE meets CLASS B ESD meets Contact ±4KV RS meets 10V/m EFT meets ±2KV Surge meets ±2KV CS meets 3 Vr.m.s	-40℃ to +85℃
VCB_SO-6WR3	6W			5,12,15,24		
VCB_SBO-10WR3	10W			5,12,15,24		
VCB_SBO-20WR3	20W			3.3,5,12,24,28		
VCB_SBO-30WR3	30W			5,12,15,24		
VCB_SBO-50WR3(-N)	50W			5.12.28	CE meets CLASS A RE meets CLASS A ESD meets Contact ±4KV	
VCB_SBO-75W(F)R3(-N)	75W			5.12.28	CE meets CLASS A RE meets CLASS A ESD meets Contact ±6KV/Air ±8KV	
VCB_SBO-100W(F)R3(-N)	100W			5.12.28	CE meets CLASS B RE meets CLASS B ESD meets Contact ±6KV/Air ±8KV	
VCB_EBO-100W(F)R3(-N)	100W			5,12,15,24,28	CE meets CLASS A RE meets CLASS A ESD meets Contact ±6KV	-40℃ to +100℃
VCF_EBO-120W(F)R3 VCF_EBO-150WR3	120W 150W		2250VDC	12		
VCB_QBO-200WR3	200W		1500VDC	5,12,15,24		
VCB_EBO-240WR3(-N) VCB_EBO-300WR3(-N)	240W 300W			10.8,12	CE meets CLASS B RE meets CLASS B ESD meets Contact ±6KV	-40℃ to +85℃
VCF_QBO-400W(F/H)R3	400W		2250VDC	12,15,24,28	CE meets CLASS A/B RE meets CLASS A/B ESD meets Contact ±6KV/Air ±8KV CS meets 10 Vr.m.s	

*Marked F is for with a heat sink package, suffix -N is for the Ctrl is negative logic.

Non-isolated DC/DC Converter
K12T Series



Product Parameter

Series	Input voltage (VDC) Rated	Input voltage (VDC) Max	Output voltage (VDC)	Output current (A) max/min	Efficiency (%) (Min/Typ.)	EMC Performance	Dimension (mm)
K12T-6A-P K12T-6A-N	8.3-14	15	0.75-5	6/0	90/94	CE meets CLASS B RE meets CLASS B ESD meets Contact ±6kV	20.30 × 11.40 × 6.60
K12T-10A-P K12T-10A-N				10/0	93/96		33.00 × 13.50 × 8.30
K12T-16A-P K12T-16A-N				16/0	92/95		

120-550W
High power density power supply LOF Series



Product Parameter

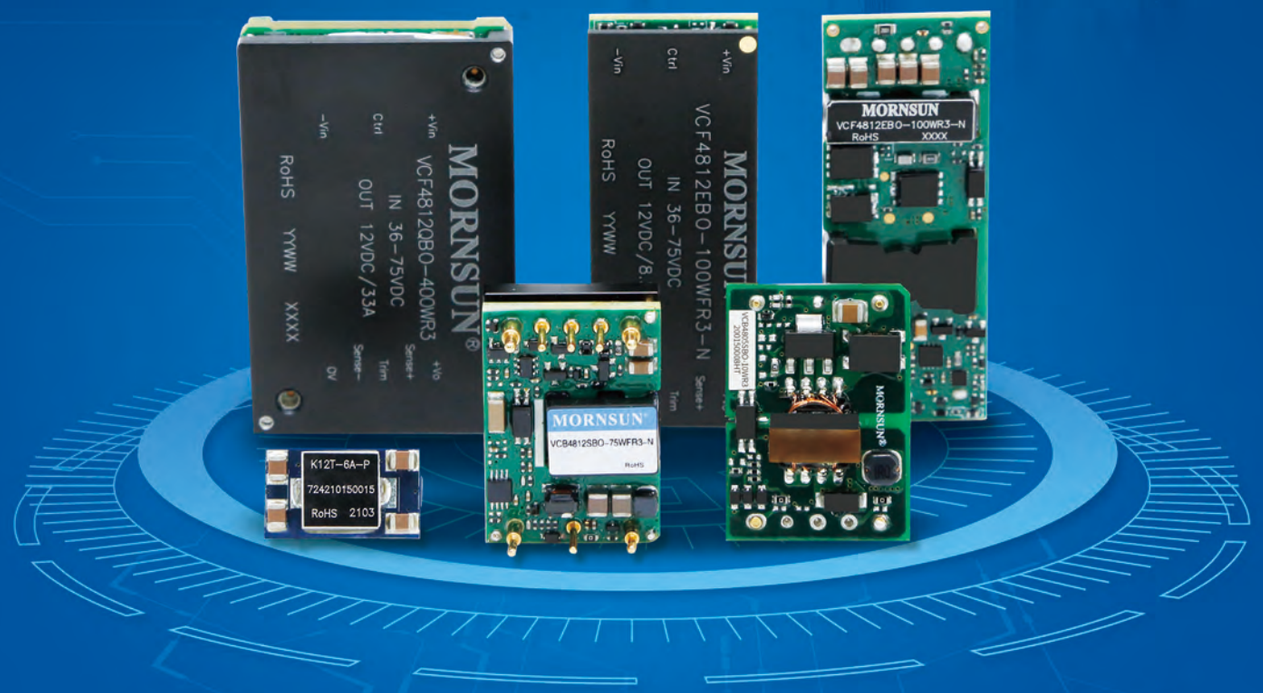
Series	Power (W)	Output voltage (VDC)	Safety parameters	EMC Performance	Markings	Dimension (mm)
LOF120-20Bxx*	120	12,15,19,24, 27,36,48,54	Input-output: 4kVAC Input-enclosure: 1.5kVAC Output-enclosure: 1.5kVAC Input-output: 2 × MOPP Input-PE: 1 × MOPP Output-PE: 1 × MOPP Leakage current: ≤0.1mA	CE meets CLASS B RE meets Category I, CLASS B Category II, CLASS A (LOF120/225/350) RE meets CLASS B (LOF450/550) ESD meets Contact ±8kV/Air ±15kV RS meets 10V/m EFT meets ± 2kV (LOF120/450/550) EFT meets ± 4kV (LOF225/350) Surge meets line to line ±2kV/ line to ground ±4kV CS meets 10Vr.m.s	EN/IEC/UL62368-1, IEC/EN/ES60601-1, EN60335-1, IEC/EN61558-1, GB4943.1, CAN/CSA- C22.2 No.60601- 1:14, En60601-1-2 Edition 4	76.2 × 50.8 × 24
LOF225-20Bxx*	140 (13CFM) 225 (Air cooling)	12,15,18,19, 24,27,36,48, 54	Input-output: 4kVAC Input-enclosure: 2kVAC Output-enclosure: 1.5kVAC Input-output: 2 × MOPP Input-PE: 1 × MOPP Output-PE: 1 × MOPP Leakage current: ≤0.1mA (LOF350) Leakage current: < 0.5mA (LOF450/550)			103.4 × 62 × 37
LOF350-20Bxx*	200.1 (20.5CFM) 350.4 (Air cooling)					130 × 86 × 35
LOF450-20Bxx*	450 (25CFM) 250 (Air cooling)				EN/ES60601-1, IEC/EN62368-1, EN60335-1, GB4943.1	130 × 86 × 43
LOF550-20Bxx*	550.8 (25CFM) 321.6 (Air cooling)					130 × 86 × 43

LOF750-20Bxx is coming soon, for more details please contact our sales team.

* Suffix -C is for Metal enclosure series, suffix -CF is for Built in Fan series.

MORNSUN®

3-400W
Universal Brick DC/DC Converter



High efficiency

Fast delivery

High cost-effective

One-stop solution

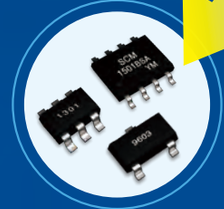
01 
Innovative circuit

02 
Strict quality control

03 
Automated production

04 
Timely after-sales service

05 Advanced and Controllable Development





Upgrade Integrated IC

- Frequency conversion technology
- Frequency hopping technology
- Frequency jittering technology

Loop compensation design

Linear soft-start design

- Output over-current, over-voltage, short-circuit protections
- Input under-voltage protection

Top 9 Advantages

- Ultra-low power consumption
- Ultra-high light-load efficiency
- Outstanding EMC Performance
- Excellent overshoot dynamic performance
  Quick voltage recovery
- Start-up smoothly
- Strong starting ability
- Large Capacitive load
- Complete protections simplified design
- High reliability