

5G Telecommunication

One-stop solutions of power supplies



mornsun website



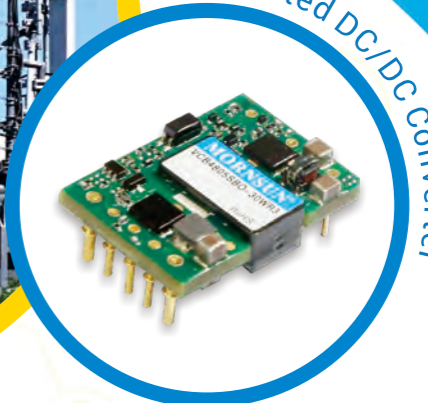
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MORNSUN Power

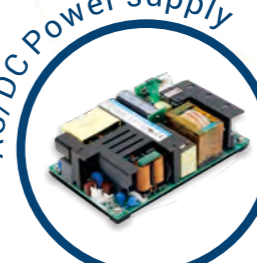
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Mornsun Power GmbH

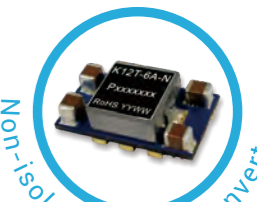
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Isolated DC/DC Converter



AC/DC Power supply



Non-isolated DC/DC Converter



Dedicated R&D

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



Fast delivery

34+ SMT Production line, 80000+ m² Factory area



Timely after-sales service

T+4 hours quick respond from FAE team



Manufacturing Center in Huaihua



R&D Center in Guangzhou

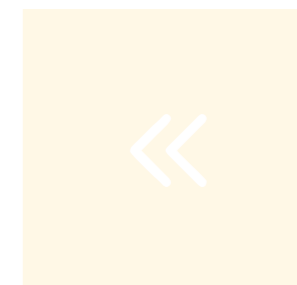
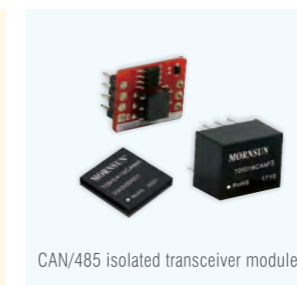
- Established: 1998
- Employees: 3000+
- Certifications: ISO9001, IATF16949, ISO14001, ISO45001
- Company formations: Headquarters in Guangzhou, 4 Subsidiaries, 6 R&D Center

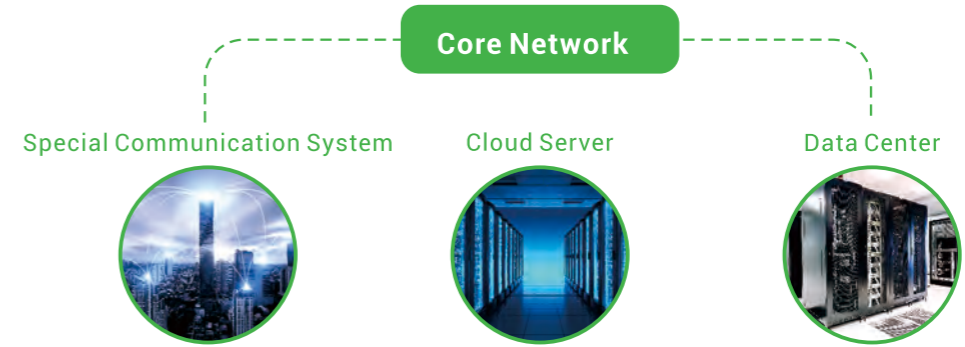
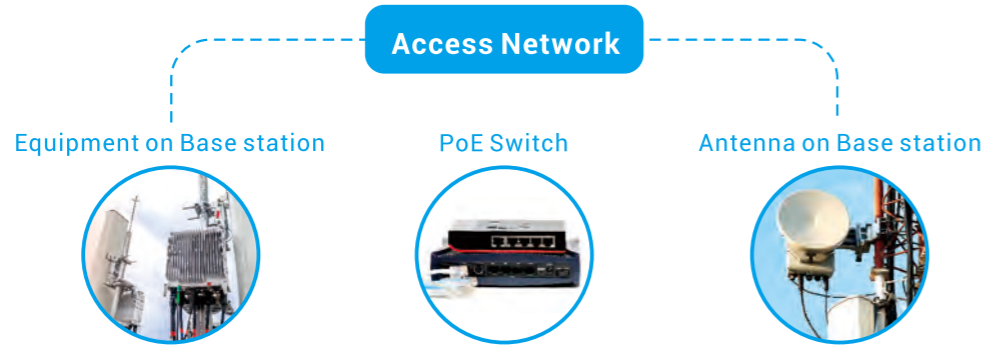
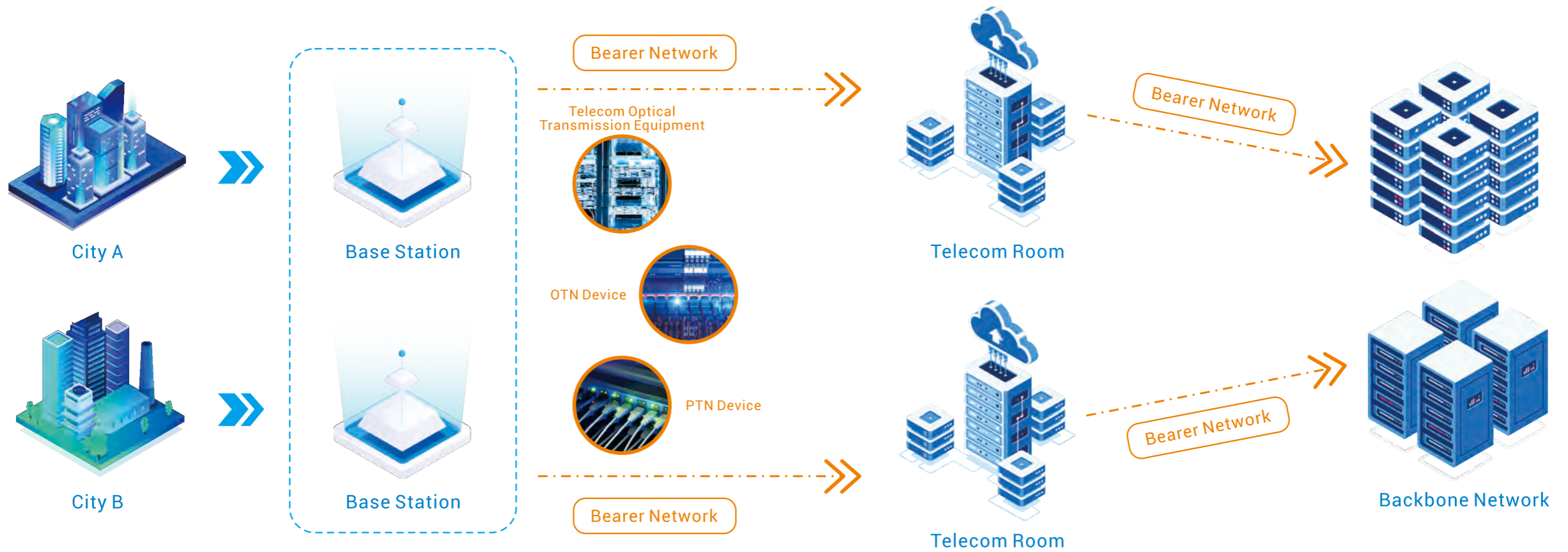


Headquarters in Guangzhou

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Product recommendation



VCB/F Series



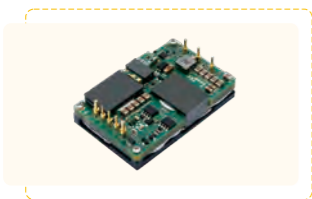
K12T Series



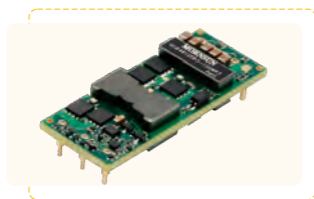
LOF Series

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 material. 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

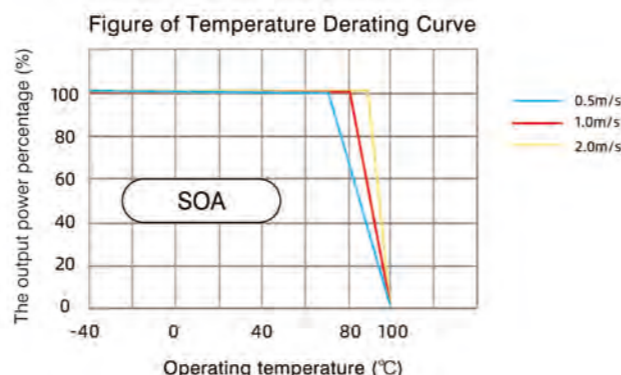


1/16 brick power supply
33.02 x 22.86 x 10.4mm

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

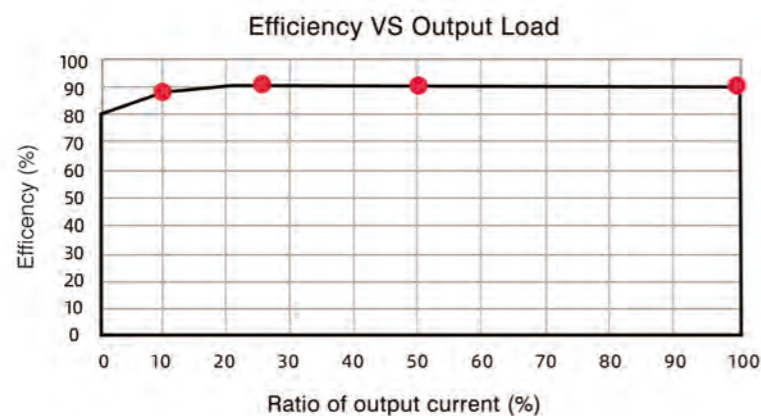
In practice, the environment temperature generally ranges from -40°C to +70°C and is higher in internal of devices because of the power supplies and some components would heat up. In this case, only a power supply with a wider temperature range can meet the actual requirements. Mornsun's telecom power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

Operating temperature
-40°C to +85°C/-40°C to +100°C



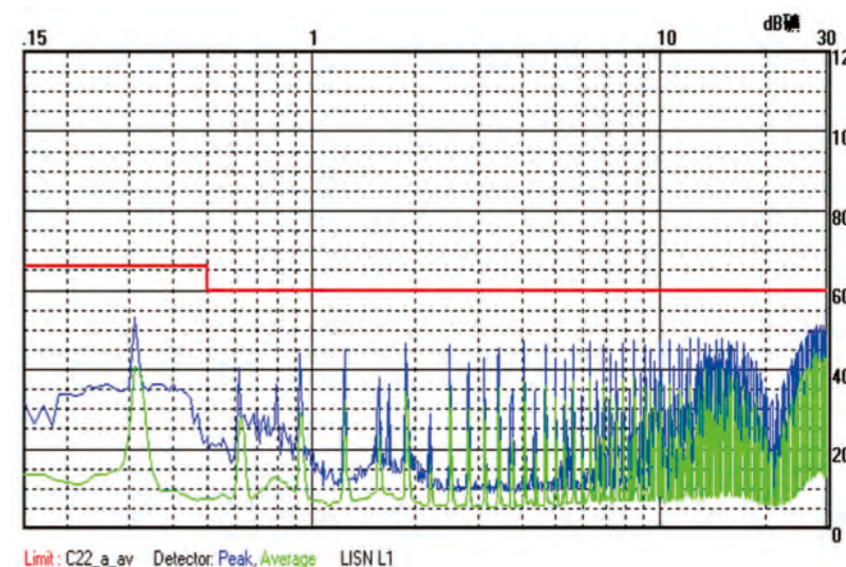
03 Higher efficiency requirement

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%.



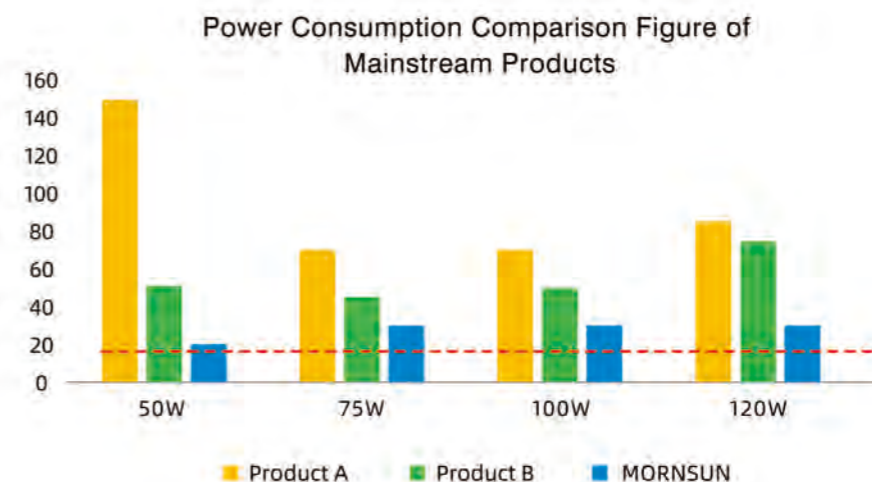
04 Outstanding EMC performance

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.



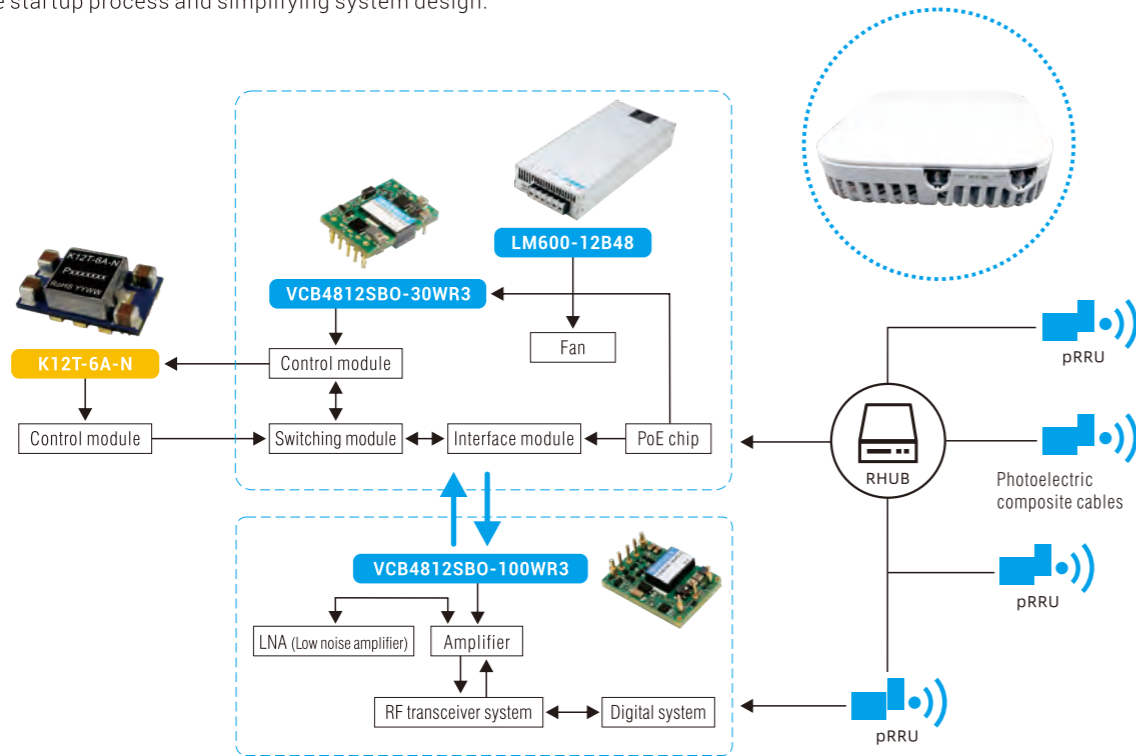
05 Low standby power consumption to save energy

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.



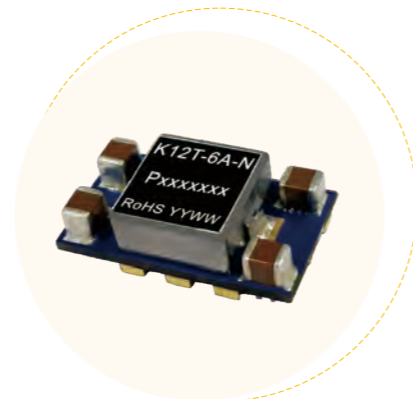
>> Access Network---5G Small Base station

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.



Advantages of K12T-6A-N

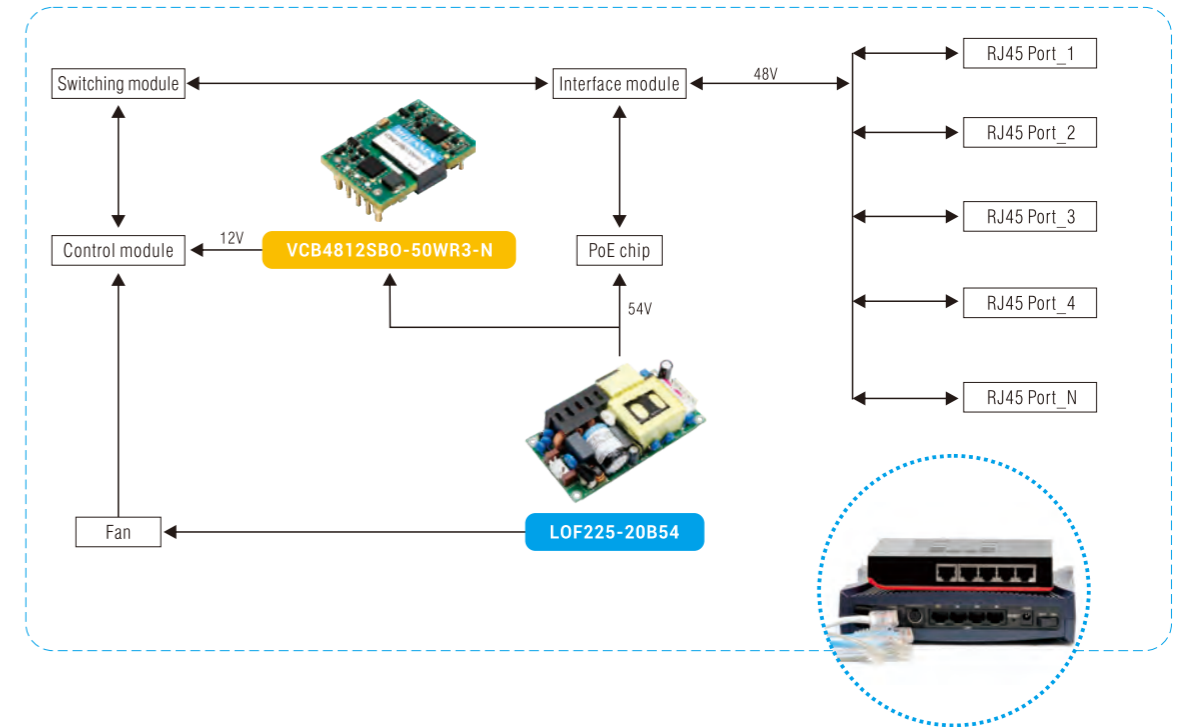
- High efficiency up to 94%
- Wide operating temperature range of -40°C to +85°C
- Input low-voltage, output short-circuit, and over-current protections
- Fast transient response
- Compact SMD package
- EN62368 approved



>> 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 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°C to +85°C
- Universal 1/16 brick package, comply with DOSA standard

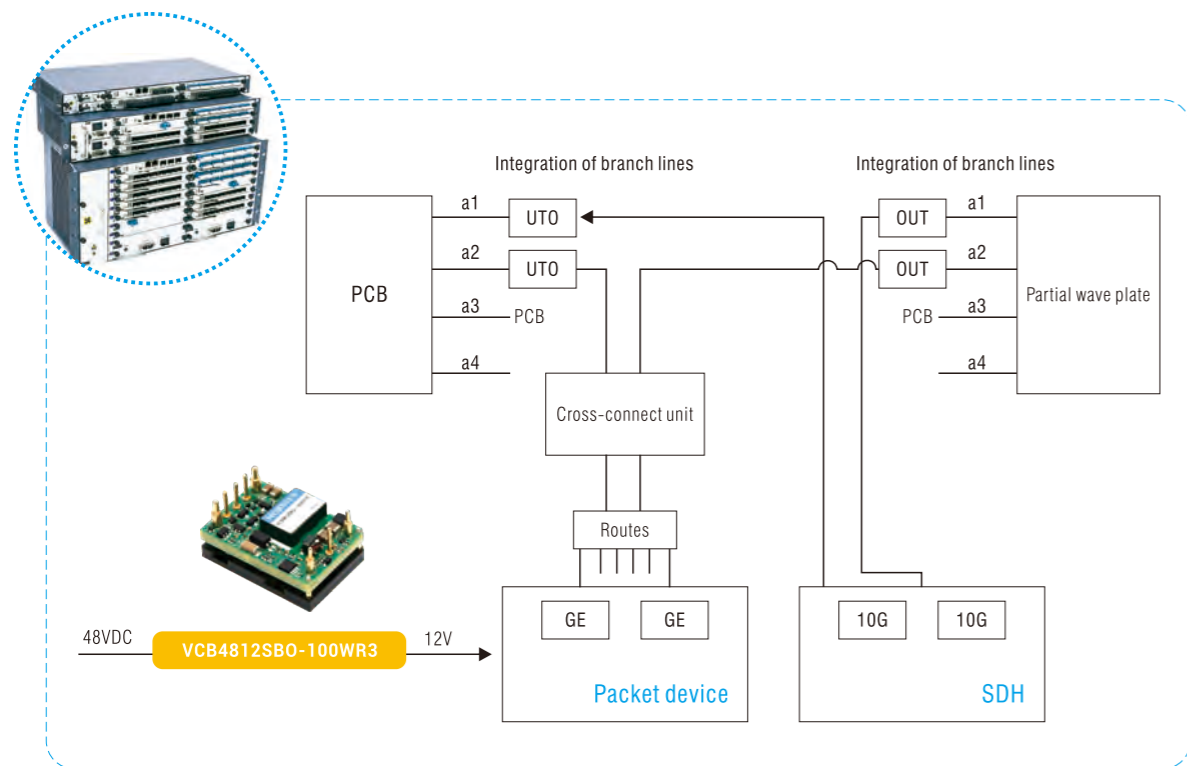


Bearer Network

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°C to +85°C, 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°C to +85°C
- Universal 1/16 brick package

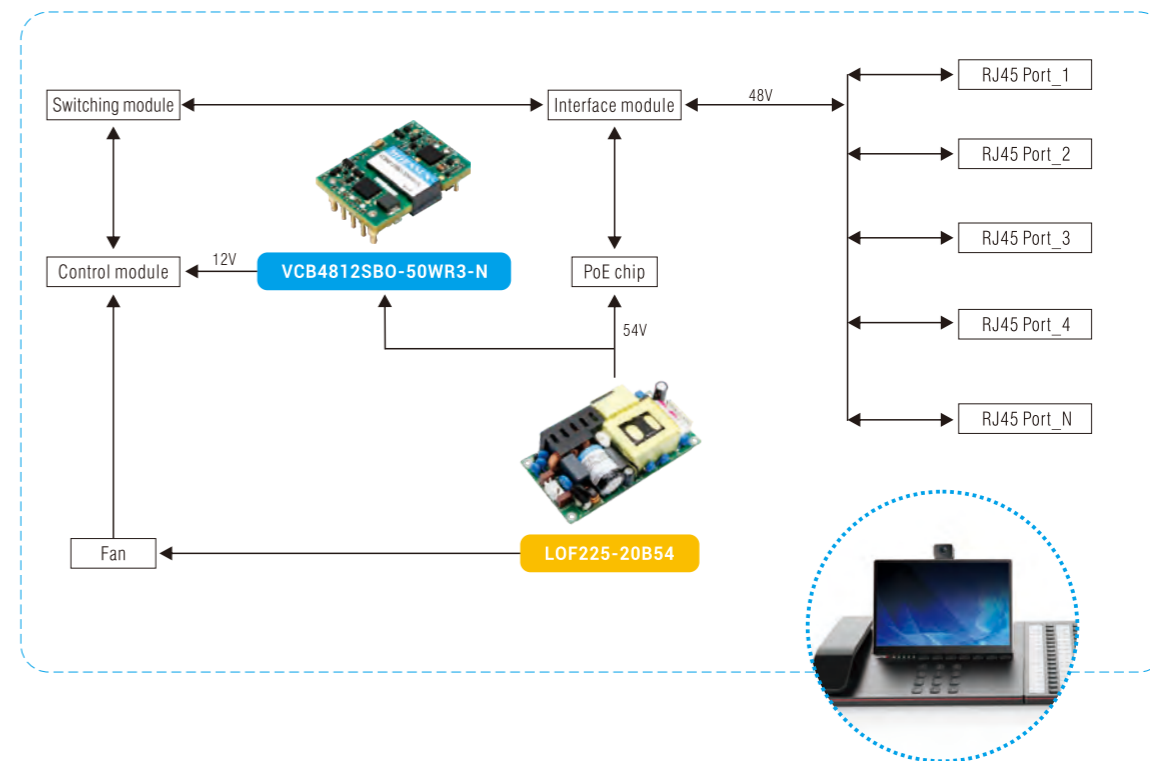


Core Network

Typical application and advantages for Telecom power supply

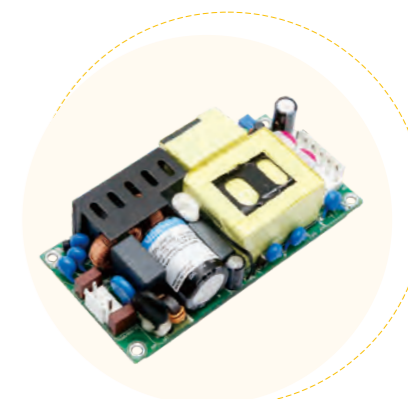
>> Core Network---Telecom Equipments

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°C to +100°C

Fast Delivery
Strong production capacity and management

Features:

- Operating temperature range of -40°C to +85°C / -40°C to +100°C
- 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

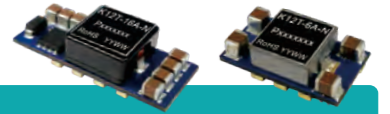


Product Parameter

Series	Power	Input voltage range	Isolation voltage	Output voltage (VDC)	EMC performance	Operating temperature range			
VCB_S0-3WR3 VCB_S0-6WR3 VCB_S0-10WR3 VCB_S0-20WR3 VCB_S0-30WR3	3W 6W 10W 20W 30W	36-75 (48VDC)	1500VDC	5,12,15,24	CE meets CLASS B RE meets CLASS B ESD meets Contact ±4KV	-40°C to +85°C			
VCB_S0-50WR3(-N)	50W			5,12,28	CE meets CLASS A RE meets CLASS A ESD meets Contact ±4KV				
VCB_S0-75W(F)R3(-N)	75W			5,12,28	CE meets CLASS A RE meets CLASS A ESD meets Contact ±6KV/Air ±8KV				
VCB_S0-100W(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	RS meets 10V/m EFT meets ±2KV Surge meets ±2KV CS meets 3 Vr.m.s				
VCF_EBO-120W(F)R3 VCF_EBO-150WR3	120W 150W			12			CE meets CLASS A RE meets CLASS A ESD meets Contact ±6KV		
VCB_QBO-200WR3	200W			1500VDC	1500VDC		5,12,15,24	RS meets 10V/m EFT meets ±2KV Surge meets ±2KV CS meets 3 Vr.m.s	
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
VCF_QBO-400W(F/H)R3	400W						12,15,24,28		CE meets CLASS A/B RE meets CLASS A/B ESD meets Contact ±6KV/Air ±8KV

*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)		Output voltage (VDC)	Output current (A) max/min	Efficiency (%) (Min/Typ.)	EMC Performance	Dimension (mm)
	Rated	Max					
K12T-6A-P K12T-6A-N				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	8.3-14	15	0.75-5	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	CE meets CLASS B	EN/IEC/UL62368-1, IEC/EN/ES60601-1, EN60335-1,	76.2 × 50.8 × 24
LOF225-20Bxx*	140 (13CFM) 225 (Air cooling)	12,15,18,19, 24,27,36,48, 54	Input-PE: 1 × MOPP Output-PE: 1 × MOPP Leakage current: ≤0.1mA	RE meets Category I, CLASS B Category II, CLASS A (LOF120/225/350) RE meets CLASS B (LOF450/550)	IEC/EN61558-1, GB4943.1, CAN/CSA- C22.2 No.60601- 1:14, En60601-1-2 Edition 4	103.4 × 62 × 37
LOF350-20Bxx*	200.1 (20.5CFM) 350.4 (Air cooling)		ESD meets Contact ±8KV/Air ±15kV	RS meets 10V/m		130 × 86 × 35
LOF450-20Bxx*	450 (25CFM) 250 (Air cooling)		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)	EFT meets ±2KV (LOF120/450/550) EFT meets ±4KV (LOF225/350)	EN/ES60601-1, IEC/EN62368-1, EN60335-1, GB4943.1	130 × 86 × 43
LOF550-20Bxx*	550.8 (25CFM) 321.6 (Air cooling)		Surge meets line to line ±2KV/ line to ground ±4KV	CS meets 10Vr.m.s		130 × 86 × 43

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

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

MORNSUN®

3-400W

Universal Brick DC/DC Converter



High efficiency

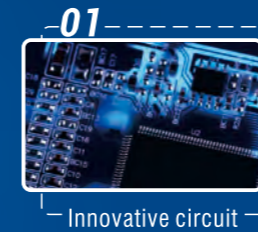


Fast delivery



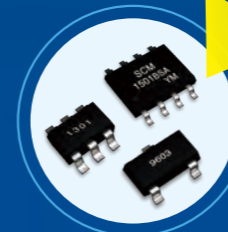
High cost-effective

One-stop solution



05

Advanced and Controllable Development



Upgrade Integrated IC



Top 9 Advantages

- 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

- ✓ 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