POWERGOOD

Railway

Power Solution Expert

AC/DC Power Modules, DC/DC Power Modules

About POWERGOOD

Experts born for the power module

POWERGOOD provides AC/DC, DC/DC modules and related products with high reliability, high efficiency and high durability, which can be used in railway, industrial automation, medical, Aviation... In different fields, such as New York City Subway, ALSTOM, DB, SIEMENS... And other well-known companies in various fields around the world.

Quality first, Customer satisfaction

With the spirit of harmony, advancement, integrity and sharing, we insist on continuous improvement in quality and the concept of " There is no best, only better" to create value beyond customers' expectations with our professional ability and provide you with "good performance, ease of use, reliability and affordability" as a one-stop power supply solution.

EN 50155 & EN 45545-2

EN 50155 Railway Vehicle Certification & EN 45545-2 Fire Test Standard for Rail Vehicle Materials

EN 50155 Railway certification provides guidelines for the design, construction, manufacture, and documentation requirements for equipment installed on rail vehicles, and specifies test evaluation methods covering EMC, electrical safety, environmental, reliability, vibration, and other aspects of assessment.

EN 45545-2 is the fire safety code for railway vehicles of the International Union of Railways and European countries. The main purpose is to establish rules related to the selection of materials based on their combustion properties, heat emission, smoke density and smoke toxicity.

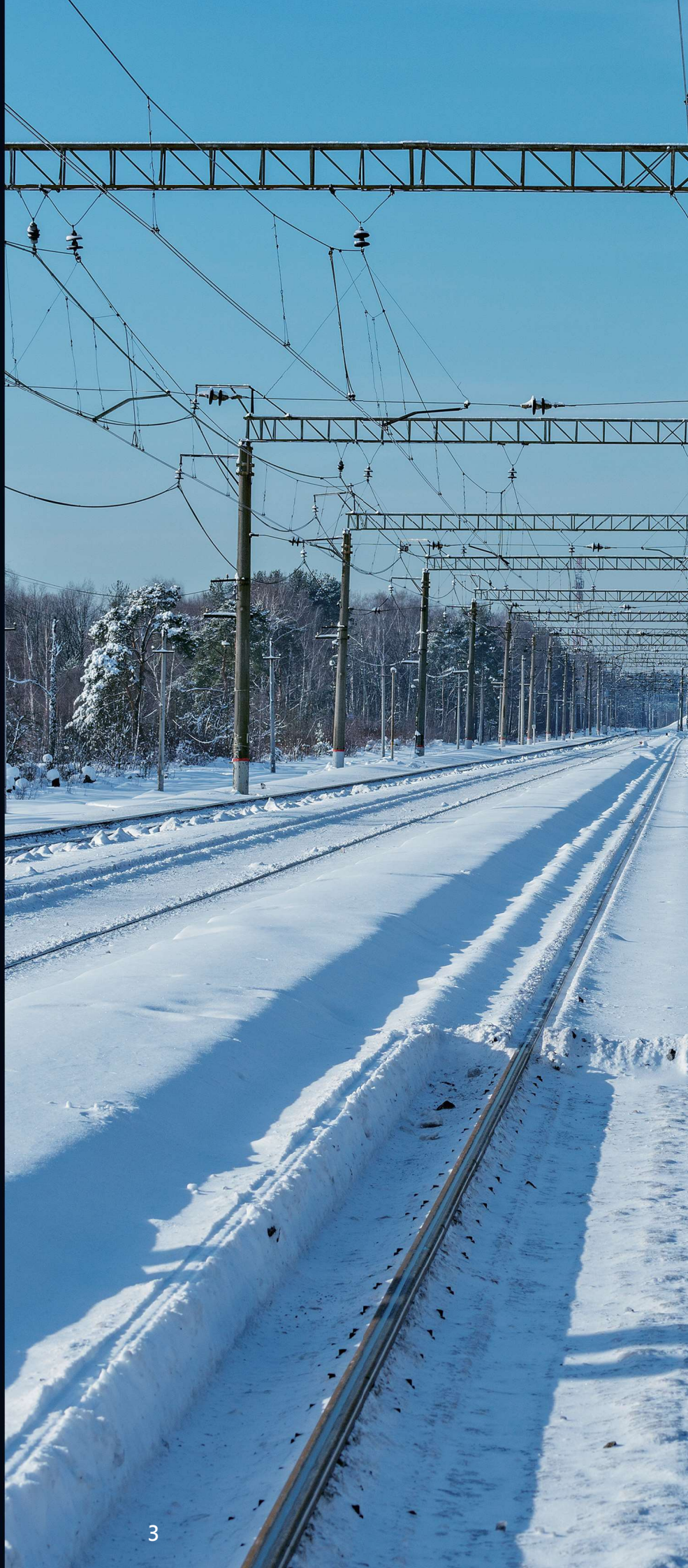
POWERGOOD power converters are tested in real-world conditions under the demanding EN 50155, EN 45545-2 specifications to ensure reliability, stability and optimal performance during operation, making them an excellent choice for on-board, train, railway and fleet management.

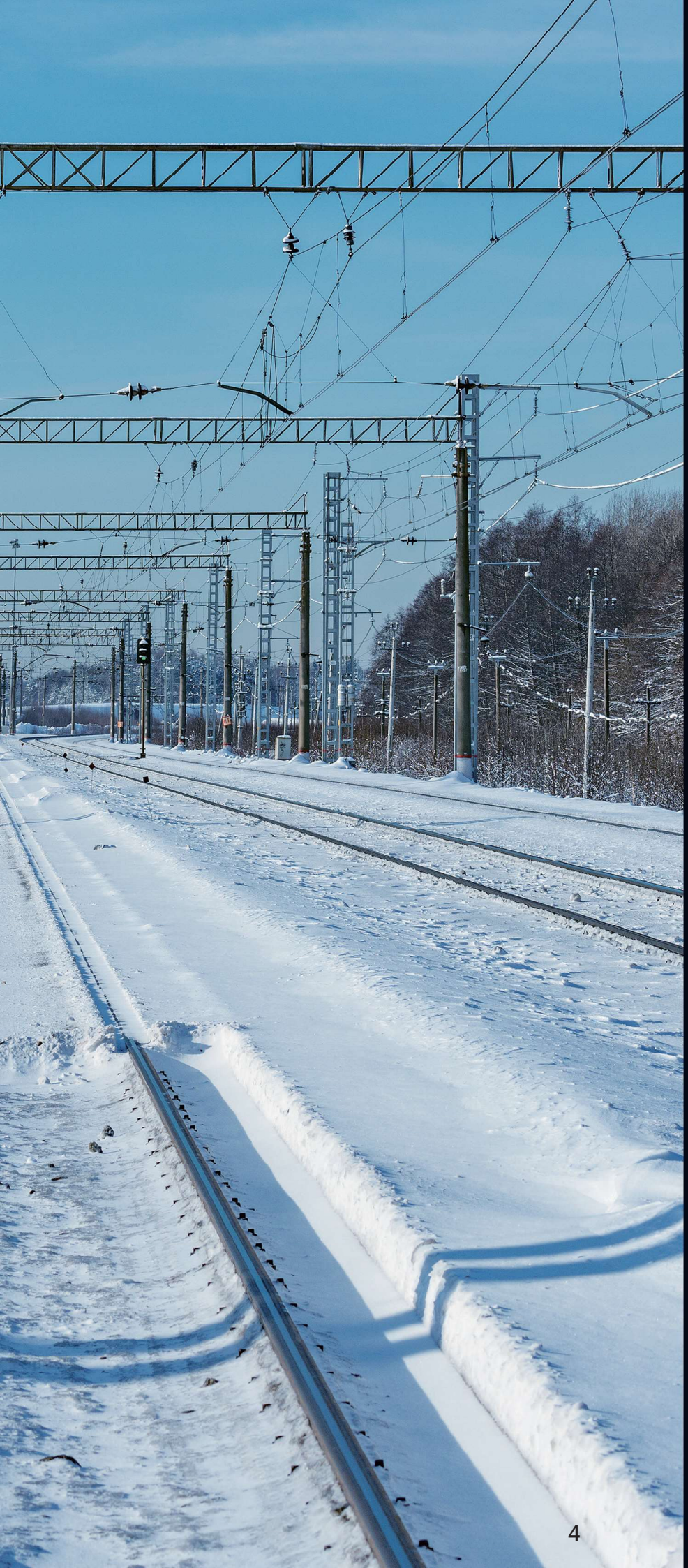
POWERGOOD strictly controls every products we made, from research and development to finished products to carry out various checks, strict quality control and implementation of comprehensive quality assurance, in order to achieve high quality and stability of products, and independent research and development of automatic testing system (ATS) and manufacturing execution system (MES) for the most accurate quality control, with professional ability to create value beyond customer expectations.

Product Advantage

AC/DC Power Converter

- 100W up to 700W output power.
- -40˚C ~ +100 ˚C ultra-wide operating temperature, achieving optimal protection in strict working environment.
- Full size, including 1/4 brick, 1/2 brick and full brick.
- Built-in active power factor correction(Active PFC).
- High density.
- High Reliability: No aluminum and tantalum electrolytic capacitor inside.
- Output voltage trim range of -5% , +5%.
- Fully protected: OCP, OVP, OTP and SCP.
- 3 years warranty.





Product Advantage

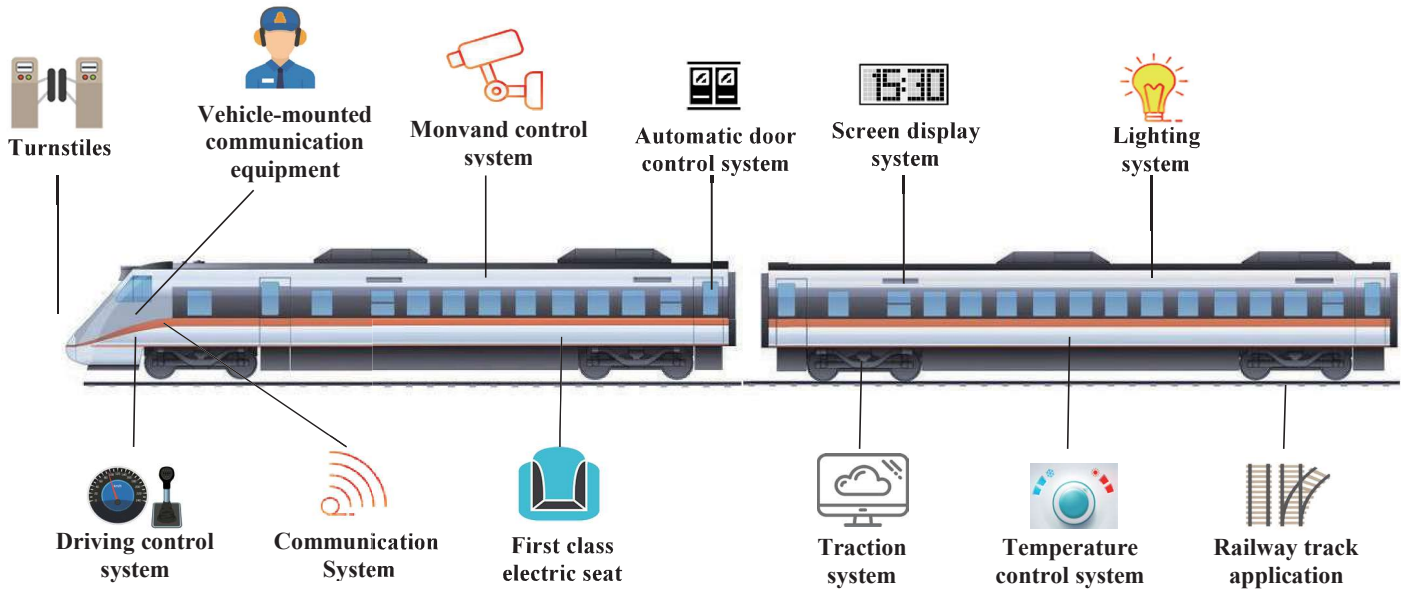
DC/DC Power Converter

- 7W up to 600W output power, output voltage trim range of -10%, +10%.
- -45˚C ~ +115˚C ultra-wide operating temperature, achieving optimal protection in strict working environment.
- Wide range of input voltages from 4:1 , 8:1 to 12:1.
- Metal case design, easy for heat dissipation and EMI.
- No aluminum and tantalum electrolytic capacitor inside for high reliability .
- Remote sense for the output voltage. (Depends on different model)
- Fully protected: OVP, OTP, OCP and UVLO.
- 3 years warranty.

Application

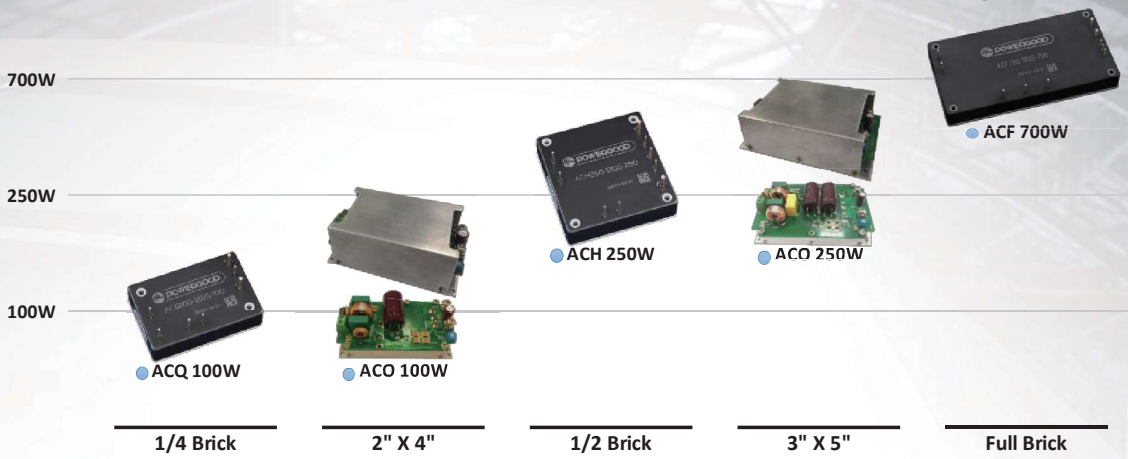
POWERGOOD provides highly reliable and durable power converters with rich experience and success stories in railway applications, such as in: China, India, USA, Germany and Switzerland, among many other countries, passing extremely harsh environmental tests and challenges.

”Customer first” has always been the service spirit that POWERGOOD attaches great importance to, providing our 30 years of experience in rail transportation and the best solutions to our customers, becoming a one-stop power supply brand supplier.

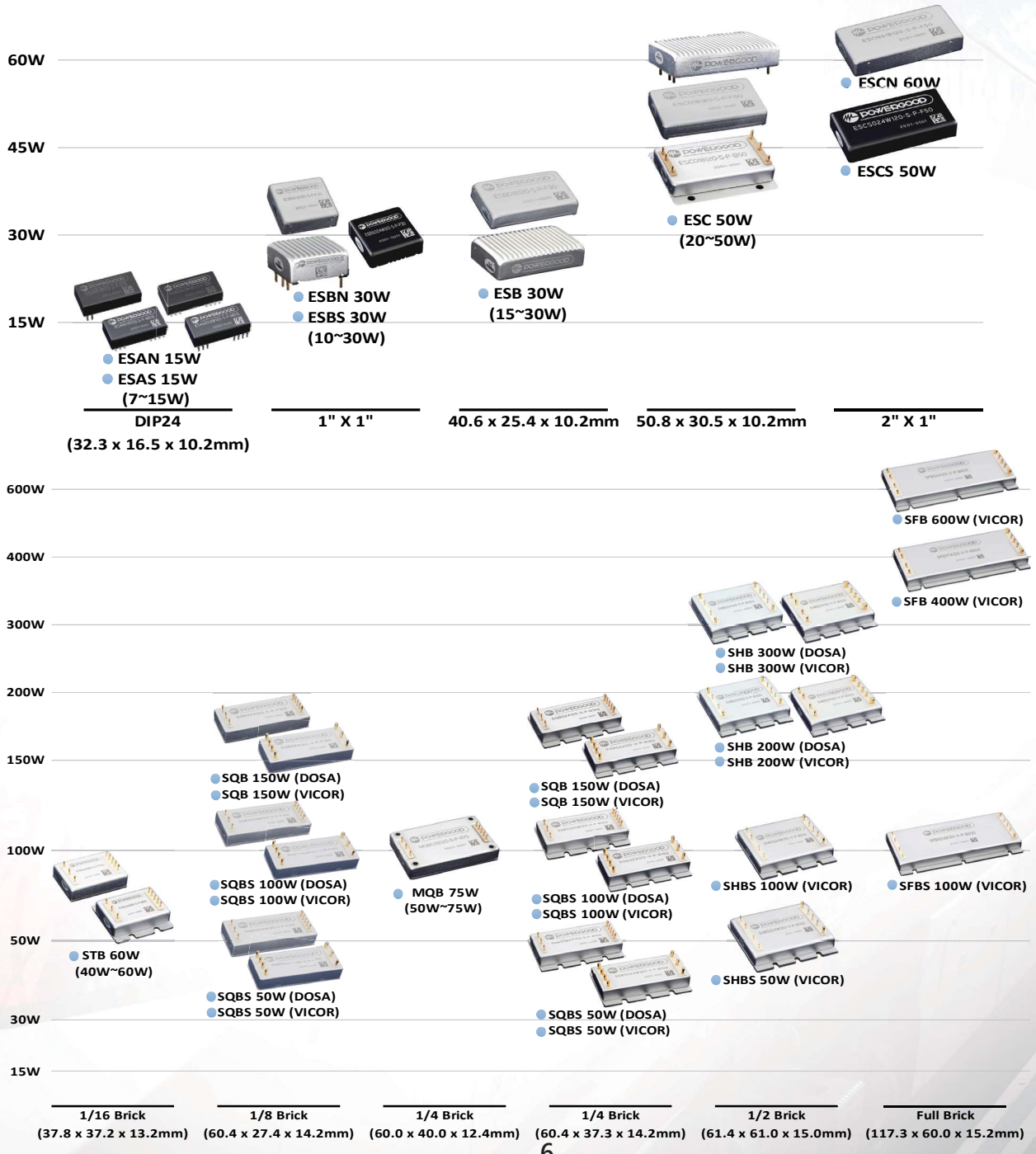


Railway Application Product Line

AC/DC power modules for POWERGOOD Railway Application



DC/DC power modules for POWERGOOD Railway Application



AC/DC Railway Application Product Introduction

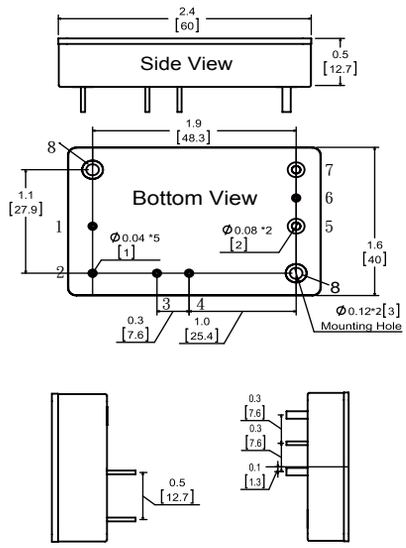
AC/DC Brick Series Product Feature

- Ultra-thin design (0.5 inch) for brick type, with the world's largest power density ratio.
- No life-span constrained Ceramic Capacitor inside
- Isolation voltage up to 3000 VAC
- Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)
- Easy Hold-up time extension
- No aluminum and tantalum electrolytic capacito inside for high reliability

ACQ100 Series

100W / 1/4 Brick

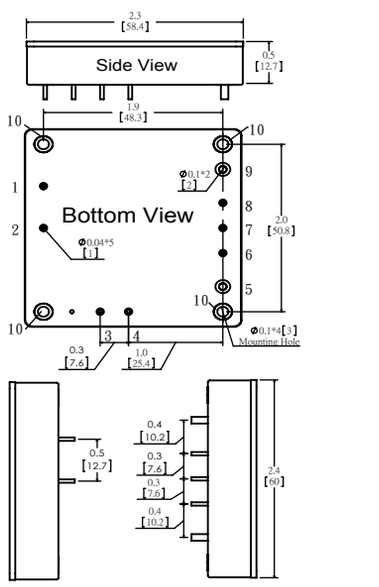
Input Voltage: 90-264 VAC
Output Voltage:
5, 12, 24, 28, 36, 48 VDC
Output Power: 100W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 91%
Package: Aluminum base with plastic case
Size: 2.36” x 1.57” x 0.50”
60.0 x 40.0 x 12.7mm



ACH250 Series

250W / 1/2 Brick

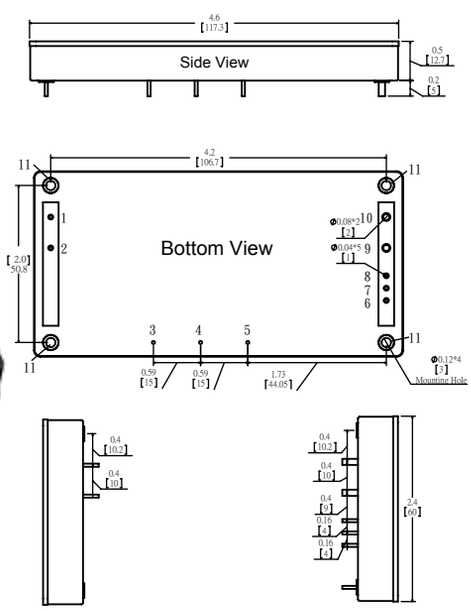
Input Voltage: 90-264 VAC
Output Voltage: 12, 24, 28, 36, 48 VDC
Output Power: 250W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 91%
Provide remote on/off function (Optional)
Package: Aluminum base with plastic case
Size: 2.36” x 2.30” x 0.50”
60.0 x 58.4 x 12.7mm



ACF700 Series

700W / Full Brick

Input Voltage: 90-264 VAC
Output Voltage: 12, 24, 28, 36, 48 VDC
Output Power: 700W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 90%
Package: Aluminum base with plastic case
Provide parallel function (Optional)
Size: 4.62” x 2.40” x 0.50”
117.3 x 60.0 x 12.7mm



AC/DC Railway Application Product Introduction

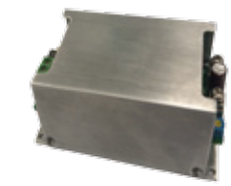
AC/DC PSU Product Feature

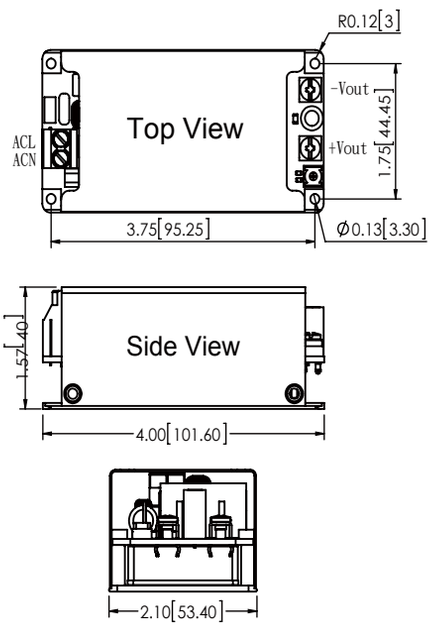
- Built in EMI filter meets EN55032 Class B without external components
- Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)
- Open Frame & Aluminum case is optional
- Isolation voltage up to 3000 VAC
- Built-in heat sink
- Terminal blocks for easy wiring and reliable operation

ACO100 Series

100W / PSU

Input Voltage: 90-264 VAC
Output Voltage:
5, 12, 24, 28, 36, 48 VDC
Output Power: 100W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 91%
Package: Open Frame &
Aluminum case
Size: 4.0 ” x 2.06” x 1.57”
101.6 x 52.4 x 40.0mm

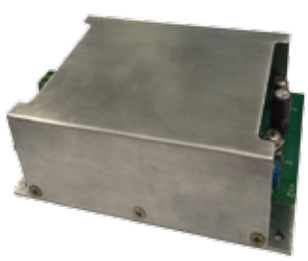


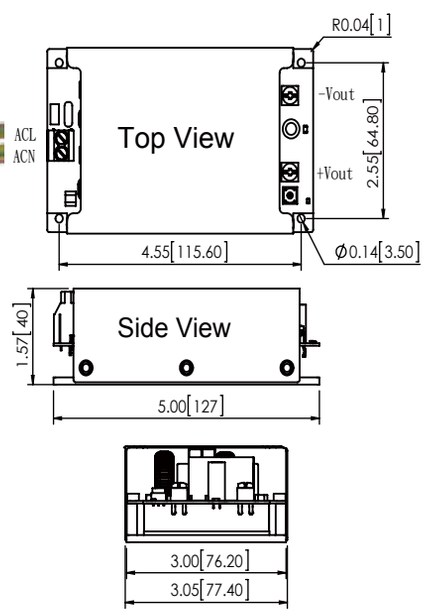


ACO250 Series

250W / PSU

Input Voltage: 90-264 VAC
Output Voltage: 12, 24, 28,
36, 48 VDC
Output Power: 250W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 91%
Package: Open Frame &
Aluminum case
Size: 5.00” x 3.03” x 1.57”
127.0 x 77.0 x 40.0mm



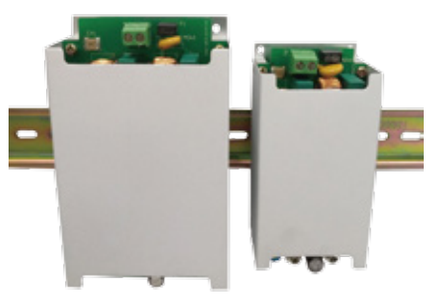


ACO700 Series

700W / PSU

Input Voltage: 90-264 VAC
Output Voltage: 12, 24, 28, 36,
48 VDC
Output Power: 700W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 90%
Package: Open Frame &
Aluminum case

(Coming Soon)



DC/DC Railway Application Product Introduction

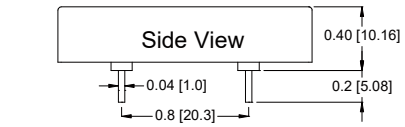
DC/DC Encapsultaed-E Product Feature

- Single / Dual Outputs
- Built in EMI filter meets EN55032 Class A / EN55032 Class B without external components (Optional)
- Saving up to 20% of the circuit board space
- Wide Operating Temperature -45˚C ~+105˚C (Optional:-55˚C ~+125˚C)
- Isolation voltage up to 2000 VDC
- 6-sided metal case design, Industrial standard pin

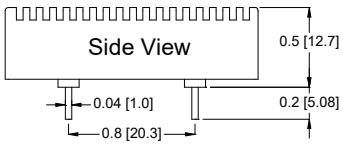
ESB Series

15W~30W / 1.6" x 1"

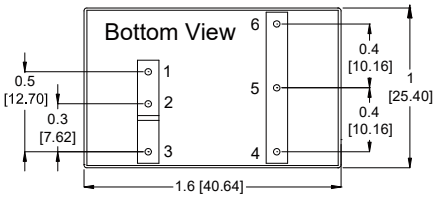
4:1 Wide Input Voltage:
9-36, 18-75 VDC
Output Voltage: 3.3, 5, 12, 15, 24, ±5, ±12, ±15, ±24 VDC
Output Power: 15W～30W
Operating Case Temperature: -45˚C～115˚C
High Efficiency up to 91%
Package: Flat & Heat sink embedded
Size: 1.60" x 1.00" x 0.40"(0.50")
40.6 x 25.4 x 10.2 (12.7)mm



ESB Series Flat



ESB Series Heat Sink Embedded

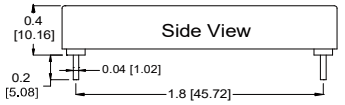


ESB Series Pinout

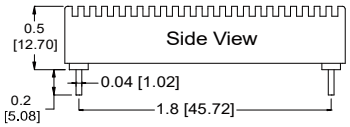
ESC Series

20W~50W / 2" x 1.2"

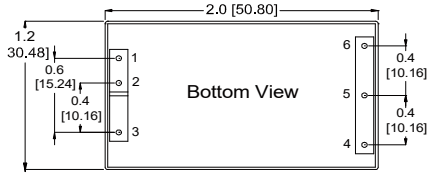
4:1 Wide Input Voltage:
9-36, 18-75, 40-160 VDC
Output Voltage: 3.3, 5, 12, 15, 24, ±12, ±15, ±24 VDC
Output Power: 20W～50W
Operating Case Temperature: -45˚C～115˚C
High Efficiency up to 90%
Package: Flat & Heat sink embedded
Size: 2.00" x 1.20" x 0.40"(0.50")
50.8 x 30.5 x 10.2 (12.7)mm



ESC Series Flat



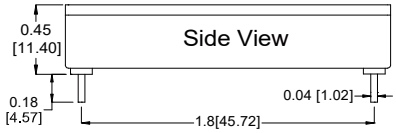
ESC Series Heat Sink Embedded



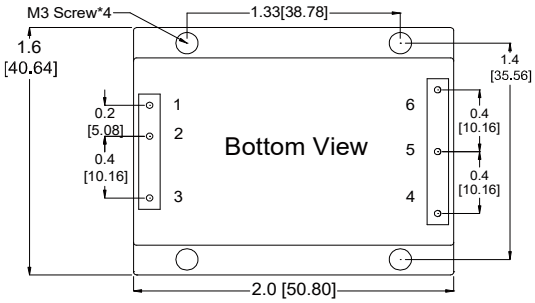
ESC Series Pinout

ESC Series
20W~50W / 2" x 1.6"
6-side Baseplate

4:1 Wide Input Voltage:
9-36, 18-75, 40-160 VDC
Output Voltage: 3.3, 5, 12, 15, 24, ±12, ±15, ±24 VDC
Output Power: 20W～50W
Operating Case Temperature: -45˚C～115˚C
High Efficiency up to 90%
Package: 6 sides aluminum case with flange
Size: 2.00" x 1.60" x 0.45"
50.8 x 40.6 x 11.4 mm



ESC Series Baseplate (with Flange)



ESC Series Pinout

DC/DC Railway Application Product Introduction

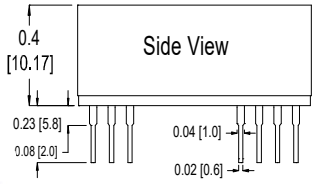
DC/DC Encapsulated - N Product Feature

- Single / Dual Outputs
- Built in EMI filter meets EN55032 Class A without external components (Depends on different model)
- Isolation voltage up to 2000 VDC
- 5-sided metal case design
- Industrial standard pinout
- Maximum power density: up to 60 watts

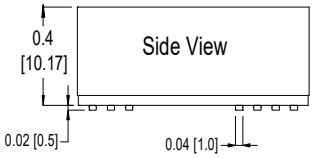
ESAN Series

7W~15W / DIP24、SMD24

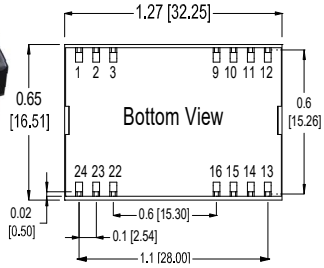
4:1 Wide Input Voltage:
9-36, 18-75, 40-160 VDC
Output Voltage:
3.3, 5, 12, 15, ±5, ±12, ±15 VDC
Output Power: 7W～15W
Operating Case Temperature:
-45˚C～85˚C
High Efficiency up to 89%
Package: Metal Case & Plastic Case
Size: 1.27” x 0.65” x 0.40”
32.3 x 16.5 x 10.2mm



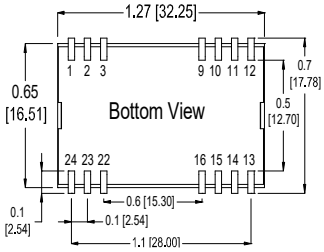
ESAN Series DIP24 Metal Case / Plastic Case



ESAN Series SMD24 Metal Case / Plastic Case



ESAN Series DIP24 Pinout

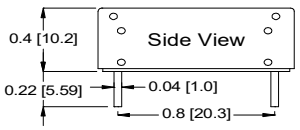


ESAN Series SMD 24 Pinout

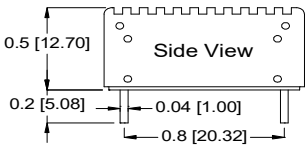
ESBN Series

10W~20W / 1” x 1”

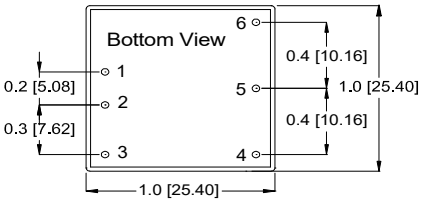
4:1 Wide Input Voltage:
9-36, 18-75, 40-160 VDC
Output Voltage:
3.3, 5, 12, 15, ±5, ±12, ±15 VDC
Output Power: 10W～20W
Operating Case Temperature:
-45˚C～115˚C
High Efficiency up to 90%
Package: Flat & Heat sink embedded
Size: 1.00” x 1.00” x 0.40”(0.50”)
25.4 x 25.4 x 10.2 (12.7)mm



ESBN Series Flat



ESBN Series Heat Sink Embedded

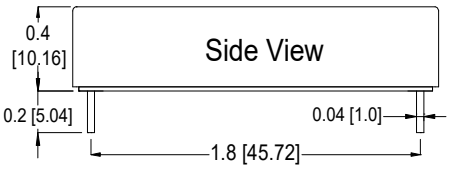


ESBN Series Pinout

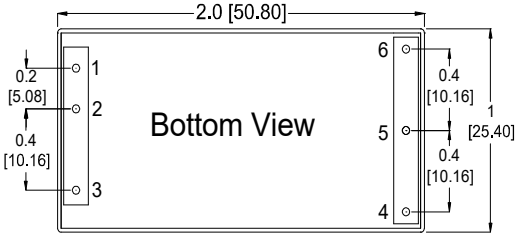
ESCN Series

30W~60W / 2” x 1”

4:1 Wide Input Voltage:
9-36, 18-75, 40-160 VDC
Output Voltage: 3.3, 5, 12, 15, 24, ±12, ±15, ±24 VDC
Output Power: 30W～60W
Operating Case Temperature:
-45˚C～115˚C
High Efficiency up to 90%
Package: Flat & 6-sided metal case is optional
Size: 2.00” x 1.00” x 0.40”
50.8 x 25.4 x 10.2mm



ESCN Series Flat/ 6 Sides Aluminum Case (Optional)



ESCN Series Pinout

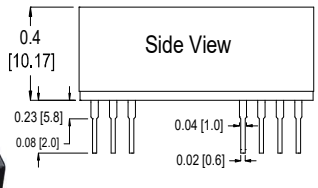
DC/DC Railway Application Product Introduction

DC/DC Encapsulated - S Product Feature

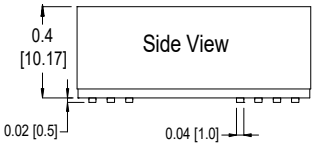
- Single / Dual Outputs
- Built in EMI filter meets EN55032 Class A without external components (Depends on different model)
- Isolation voltage up to 2000 VDC
- Industrial standard pinout
- Fully SMT manufacturing, standard product, with good lead time, cost-effective

ESAS Series
15W / DIP24、SMD24

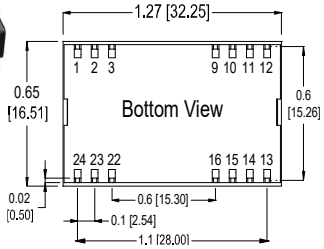
4:1 Wide Input Voltage:
9-36, 18-75, 40-160 VDC
Output Voltage:
5, 12, 15, ±12, ±15 VDC
Output Power: 15W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 88%
Package: Metal Case & Plastic Case
Size: 1.27” x 0.65” x 0.40”
32.3 x 16.5 x 10.2mm



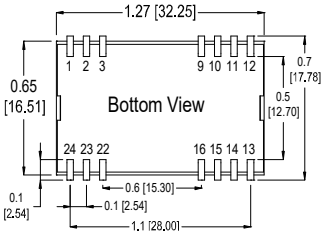
ESAS Series DIP24 Metal Case / Plastic Case



ESAS Series SMD24 Metal Case / Plastic Case



ESAS Series DIP24 Pinout

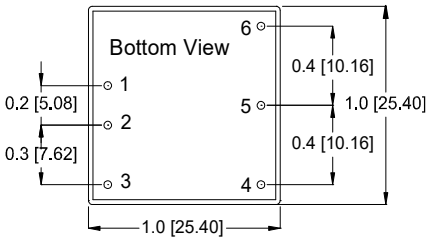


ESAS Series SMD 24 Pinout

ESBS Series
30W / 1” x 1”

4:1 Wide Input Voltage:
9-36, 18-75, 40-160 VDC
Output Voltage:
5, 12, 15, ±12, ±15 VDC
Output Power: 30W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 88%
Package: Flat
Size: 1.00” x 1.00” x 0.40”
25.4 x 25.4 x 10.2mm

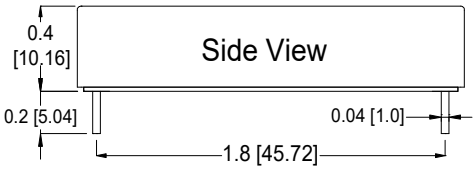
ESBS Series Flat



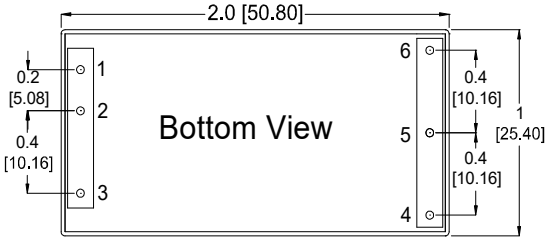
ESBS Series Pinout

ESCS Series
50W / 2” x 1”

4:1 Wide Input Voltage:
9-36, 18-75, 40-180 VDC
Output Voltage:
5, 12, 15, ±12, ±15 VDC
Output Power: 50W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 89%
Package: Flat
Size: 2.00” x 1.00” x 0.40”
50.8 x 25.4 x 10.2mm



ESCS Series Flat



ESCS Series Pinout

DC/DC Railway Application Product Introduction

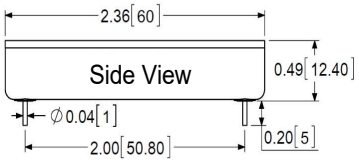
DC/DC Brick Series – B Product Feature

- 4:1 / 8:1 / 12:1 Ultra-Wide Input Voltage
- Single / Dual / Multi Outputs
- Built-in EMI filter
- Wide Operating Temperature -45˚C ~+105˚C (Optional:-55˚C ~+125˚C)
- Isolation voltage up to 2250 VDC
- The DOSA and VICOR pins are optional and can replace directly without any otheradditional components.
- Input voltage range up to 110 (40-180) Vin (continuous), with stronger anti input surge ability and higher reliability.

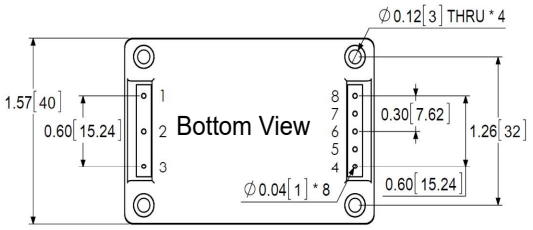
MQB Series

50W, 75W / 1/4 Brick-DOSA pinout
Ultra-Wide Input 、 Multi Output

8:1 / 12:1 Ultra-Wide Input Voltage:
9-75, 14-154 VDC
Output Voltage:
5, 12, 15, 24, ±12, ±15, ±24 VDC
Output Power: 50W 、75W
Operating Case Temperature:
-45˚C～105˚C
High Efficiency up to 90%
Package: Flat
Size: 2.36” x 1.57” x 0.49”
60.0 x 40.0 x 12.4mm



MQB 系列 平壳

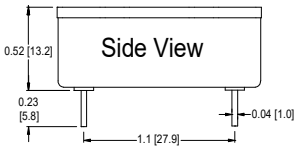


MQB 系列 DOSA 脚位

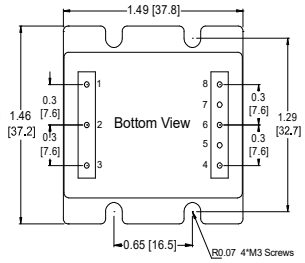
STB Series

50W / 1/16 Brick with DOSA pinout

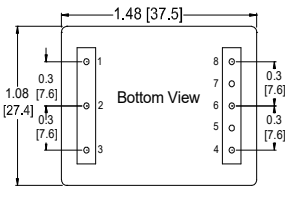
4:1 Wide Input Voltage:
9-36, 18-75 VDC
Output Voltage: 3.3, 5, 12, 15, 24 VDC
Output Power: 50W
Operating Case Temperature:
-45˚C～105˚C
High Efficiency up to 91%
Package: 6 sides aluminum case with flange & Flat
Size: Size: 2.38” x 1.08” x 0.56”
60.4 x 27.4 x 14.2mm



STB 系列 带法兰 6 面铝壳/平壳



STB 系列 带法兰 6 面铝壳 DOSA 脚位



STB 系列 平壳 DOSA 脚位

DC/DC Railway Application Product Introduction

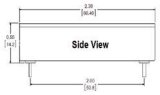
SQB Series
150W / 1/8、1/4 Brick with DOSA、VICOR pinout

4:1 Wide Input Voltage:
9-36, 18-75, 40-180 VDC
Output Voltage: 5, 12, 24, 28, 48 VDC
Output Power: 150W
Operating Case Temperature:
-45˚C～105˚C
High Efficiency up to 92%

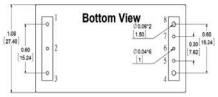
Package:1/8 Brick Flat

1/4 Brick 6 sides aluminum case with flange

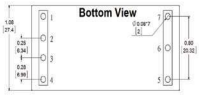
Size: 2.38” x 1.08”(1.47”) x 0.56”
60.4 x 27.4 (37.3) x 14.2 mm



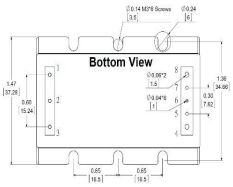
1/8 Brick & 1/4 Brick DOSA & Vicor Pinout



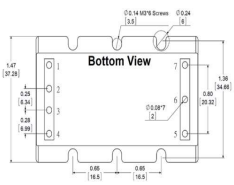
1/8 Brick DOSA Pinout/ 6-sided metal case



1/8 Brick VICOR Pinout/ 6-sided metal case



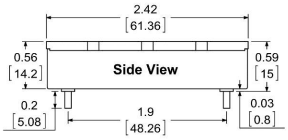
1/4 Brick DOSA Pinout/ 6-sided metal case



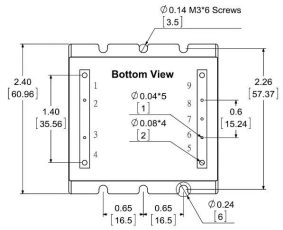
1/4 Brick VICOR Pinout/ 6-sided metal case

SHB Series
200W~300W / 1/2 Brick with DOSA、VICOR pinout

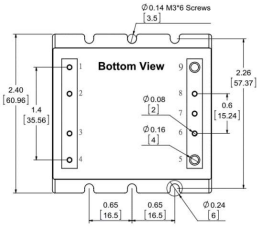
4:1 Wide Input Voltage:
9-36, 18-75, 40-180 VDC
Output Voltage: 5, 12, 24, 28, 48 VDC
Output Power: 200W～300W
Operating Case Temperature:
-45˚C～105˚C
High Efficiency up to 90%
Package: 6 sides aluminum case with flange
Size: 2.42” x 2.40” x 0.59”
61.4 x 61.0 x 15.0mm



1/2 Brick DOSA & Vicor Pinout



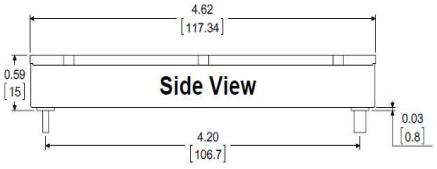
1/2 Brick DOSA Pinout/ 6-sided metal case



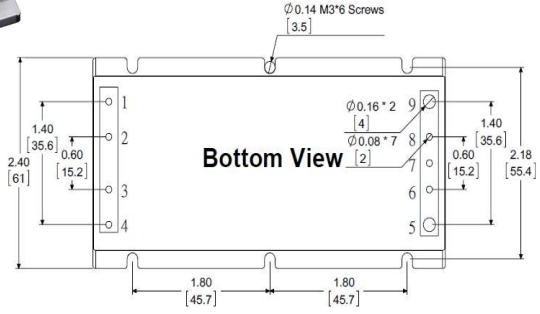
1/2 Brick VICOR Pinout/ 6-sided metal case

SFB Series
400W~600W / Full Brick with VICOR pinout

4:1 Wide Input Voltage:
9-36, 18-75, 40-180 VDC
Output Voltage: 12, 24, 28, 48 VDC
Output Power: 400W～600W
Operating Case Temperature:
-45˚C～105˚C
High Efficiency up to 89%
Package: 6 sides aluminum case with flange
Provide parallel function
Size: 4.62” x 2.40” x 0.59”
117.3 x 61.0 x 15.0mm



Full Brick Vicor Pinout



Full Brick Vicor Pinout/ 6-sided metal case

DC/DC Railway Application Product Introduction

DC/DC Brick Series - S Product Feature

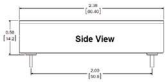
- Built-in EMI filter
- Isolation voltage up to 2250 VDC
- Fully SMT manufacturing, standard product, with good lead time, cost-effective
- The DOSA and VICOR pins are optional, can replace directly without any other additional components.
- Input voltage range up to 110 (40-180) Vin (continuous), with stronger anti input surge ability and higher reliability.

SQBS Series
50W~100W / 1/8、1/4 Brick with DOSA、VICOR pinout

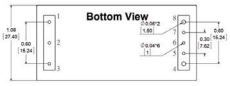
4:1 Wide Input Voltage:
9-36, 18-75, 40-180 VDC
Output Voltage: 12, 24, 28, 48 VDC
Output Power: 50W～100W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 89%
Package:1/8 Brick Flat

1/4 Brick 6 sides aluminum case with flange

Size: 2.38” x 1.08”(1.47”) x 0.56”
60.4 x 27.4 (37.3) x 14.2 mm

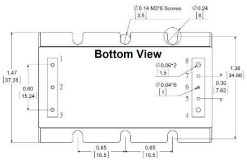


1/8 Brick & 1/4 Brick DOSA & Vicor Pinout

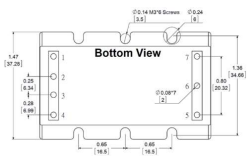


1/8 Brick DOSA Pinout/ 6-sided metal case

1/8 Brick VICOR Pinout/ 6-sided metal case



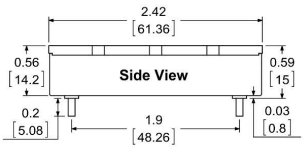
1/4 Brick DOSA Pinout/ 6-sided metal case



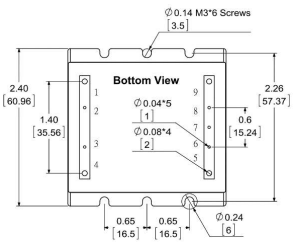
1/4 Brick VICOR Pinout/ 6-sided metal case

SHBS Series
50W~100W / 1/2 Brick with DOSA、VICOR pinout

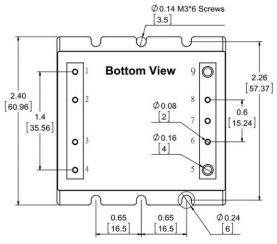
4:1 Wide Input Voltage:
9-36, 18-75, 40-180 VDC
Output Voltage: 5, 12, 24, 28, 48 VDC
Output Power: 50W～100W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 89%
Package: 6 sides aluminum case with flange
Size: 2.42” x 2.40” x 0.59”
61.4 x 61.0 x 15.0mm



1/2 Brick DOSA & Vicor Pinout



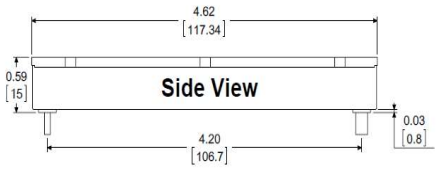
1/2 Brick DOSA Pinout/ 6-sided metal case



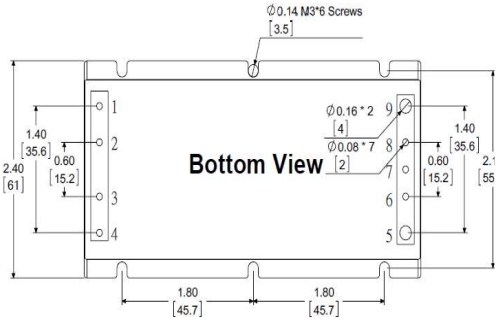
1/2 Brick VICOR Pinout/ 6-sided metal case

SFBS Series
50W~100W / Full Brick with VICOR pinout

4:1 Wide Input Voltage:
9-36, 18-75, 40-180 VDC
Output Voltage: 5, 12, 24, 28, 48 VDC
Output Power: 50W～100W
Operating Case Temperature:
-40˚C～100˚C
High Efficiency up to 89%
Package: 6 sides aluminum case with flange
Provide parallel function
Size: 4.62” x 2.40” x 0.59”
117.3 x 61.0 x 15.0mm



Full Brick Vicor Pinout



Full Brick Vicor Pinout/ 6-sided metal case

PowerGood Technology Research Group Co., Ltd
Address：5F, No.40, Keya Rd., Daya Dist., Taichung City 42881, Taiwan
Website：www.powergood.com
E-mail：sales1@powergood.com