



**MINMAX<sup>®</sup>**  
POWER FOR A BETTER FUTURE

2020

## PRODUCT LINE PORTFOLIO



## ▶ ABOUT MINMAX

In the three decades since MINMAX was established in 1990, we have prided ourselves on providing our customers with products and excellent service in a timely way. Our adherence to the best quality standards has also helped MINMAX win customers' hearts and become a preferred business partner.

"Power for a Better Future" We want MINMAX to be better than ever and to focus on the future. We hope MINMAX can work closely with all of our customers, materials suppliers, and employees. Our long-term partnership will help all of us move toward a brighter future, together.

## ▶ PRODUCT LINE AND RANGE



Our general industrial DC-DC converters are used in every corner of modern equipment & systems about everywhere. We offer different electrical specifications and create competitive advantage performance to meet your critical design.



Ultra-high isolation family equipped with very high common mode transient immunity with 15KV/ $\mu$ s qualifies and I/O isolation 4000 to 5000VAC with reinforced insulation, rated for 1000Vrms working voltage. This group can be used in renewable energy industry, like wind power systems, solar energy, etc.



Our railway certified DC-DC converters are designed for stringent requirements and harsh environment. The products family are I/O isolation 3000VAC with reinforced insulation. Furthermore, all railway products comply with EN 50155 certified and fire protection EN 45545-2 approval.



The medical grade DC-DC converters & AC-DC Power Supplies for demanding applications in both medical and healthcare instrumentations. All medical products are approved to latest medical safety standards: ANSI/AAMI ES 60601-1, IEC/EN 60601-1 3<sup>rd</sup> edition with 2xMOPP/2xMOOP.

## ▶ MINMAX QUALITY



### **MINMAX's Quality and Environmental Assurance**

High quality, tight process control and continuous improvements are keys to our quality philosophy. Our goal is to provide quality products and share environmental concerns. MINMAX is certified to management systems as follows:

- ISO 9001:2015 Quality Management Systems
- ISO 14001:2015 Environmental Management Systems
- IECQ QC 080000-1:2017 Hazardous Substance Process Management System



### **CE Declaration**

For those DC-DC converters and AC-DC power supplies which fall under the Low Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU of the European Union.



### **RoHS Statement**

MINMAX all DC-DC Converters and AC-DC Power Supplies are fully European RoHS Directive 2011/65/EC as well as Directive (EU) 2015/863 compliant in connection with prohibition substances (Excepted are those products which have been removed from the actual sales program (obsolete products)).



### **Moisture Sensitivity Level**

All MINMAX surface mount devices (SMD) are qualified for lead-free reflow solder process under the condition that the product is handled in accordance (J-STD-033B) to its moisture sensitivity level (IPC/JEDEC J-STD-020D.1).



### **Conflict Free Minerals Policy**

MINMAX places a high value on the safety, health, ethical treatment and protection of people and the environment. We share international concerns about the conflict in the Democratic Republic of the Congo (DRC) and adjoining countries, and are working to ensure that the mining of the minerals that end up in our products do not contribute to human rights violations in the region.



### **REACH Declaration**

In response to improve the protection of human health and the environment, MINMAX is committed to comply REACH (EC Regulation No.1907/2006, Concerning Registration, Evaluation, Authorization and Restriction of Chemicals).

## GENERAL INDUSTRIAL POWER SOLUTIONS

<b>1-5W</b>	SIP Package DC-DC Converters	<b>05</b>
<b>1-6W</b>	SMD Package DC-DC Converters	<b>06</b>
<b>1-12W</b>	DIP Package DC-DC Converters	<b>07</b>
<b>10-30W</b>	1"×1" Package DC-DC Converters	<b>08</b>
<b>40-50W</b>	2"×1" Package DC-DC Converters	<b>09</b>
<b>6-60W</b>	Chassis & DIN-Rail Mounting DC-DC Converters	<b>10</b>
<b>0.5-1A</b>	Switching Regulators	<b>11</b>
<b>3-60W</b>	Encapsulated Package AC-DC Power Supplies	<b>12</b>

## ULTRA-HIGH ISOLATION POWER SOLUTIONS

<b>1-2W</b>	SIP Package DC-DC Converters	<b>14</b>
<b>2-10W</b>	DIP Package DC-DC Converters	<b>14</b>
<b>15-20W</b>	2"×1" Package DC-DC Converters	<b>14</b>
<b>6-60W</b>	Chassis & DIN-Rail Mounting DC-DC Converters	<b>14</b>

## RAILWAY CERTIFIED POWER SOLUTIONS

<b>3W</b>	DIP Package DC-DC Converters	<b>16</b>
<b>10-40W</b>	2"×1" Package DC-DC Converters	<b>16</b>
<b>50-150W</b>	Quarter Brick DC-DC Converters	<b>16</b>

## MEDICAL SAFETY POWER SOLUTIONS

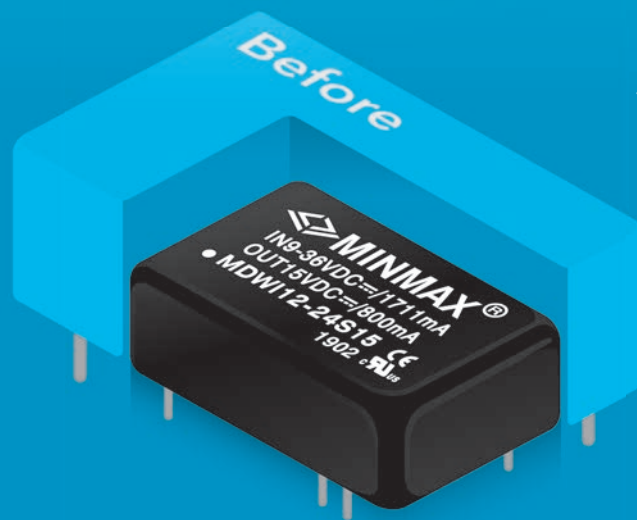
<b>1W</b>	SIP Package DC-DC Converters	<b>18</b>
<b>1-2W</b>	SMD Package DC-DC Converters	<b>18</b>
<b>2-10W</b>	DIP Package DC-DC Converters	<b>18</b>
<b>15-20W</b>	2"×1" Package DC-DC Converters	<b>18</b>
<b>24-60W</b>	Encapsulated Package AC-DC Power Supplies	<b>19</b>

# GENERAL INDUSTRIAL

## POWER SOLUTIONS

**75%**  
Board Space

**79%**  
Weight

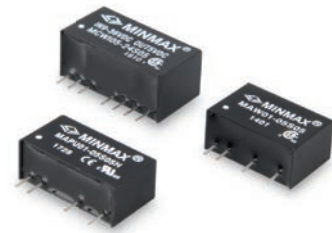


Power Density  
**3.94x**  
**UP**



## Features

- ♦ I/O Isolation Voltage 1000-3000VDC
- ♦ High Efficiency up to 84%
- ♦ Operating Ambient Temp. Range -40°C to +95°C (See Derating Curve)
- ♦ No Min. Load Requirement
- ♦ Under-voltage, Overload and Short Circuit Protection
- ♦ Remote ON/OFF Control
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) ITE Safety Approval



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation (VDC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	Package	OC	SCP	Remote ON/OFF Control	UL/cUL/IEC/EN 60950-1	UL/cUL/IEC/EN 62368-1
MBU100	1W	2.97-3.63, 4.5-5.5, 10.8-13.2, 21.6-26.4	3.3, 5, 9, 12, 15	1000	80%	-40~+85°C			SIP-4					
MAU100	1W	4.5-5.5, 10.8-13.2, 13.5-16.5, 21.6-26.4	3.3, 5, 9, 12, 15, ±5, ±9, ±12, ±15	1000	81%	-40~+85°C			SIP-7				•	
MAU200	1W	4.5-5.5, 10.8-13.2, 21.6-26.4	3.3, 5, 9, 12, 15, ±5, ±9, ±12, ±15	3000	81%	-40~+85°C			SIP-7				•	
MAPU01H	1W	2.97-3.63, 4.5-5.5, 10.8-13.2, 21.6-26.4	3.3, 5, 9, 12, 15, ±5, ±12, ±15	3000	84%	-40~+90°C			SIP-7		•		•	•
MAW01	1W	4.5-9, 9-18, 18-36, 36-75	5, 12, 15, 24, ±12, ±15	1500	80%	-40~+95°C	•	•	SIP-6	•	•		•	•
<b>NEW</b> MAPU02H	2W	4.5-5.5, 10.8-13.2, 21.6-26.4	3.3, 5, 9, 12, 15, ±5, ±12, ±15	3000	82%	-40~+90°C			SIP-7		•			
MCW1000	2W	4.5-9, 9-18, 18-36, 36-75	3.3, 5, 12	1000	81%	-40~+85°C	•		SIP-8	•	•	•	•	•
MCWI02	2W	4.5-18, 9-36, 18-75	3.3, 5, 12, 15, ±5, ±12, ±15	1500	82%	-40~+90°C	•	•	SIP-8	•	•	•	•	•
<b>NEW</b> MCW04	4W	9-18, 18-36, 36-75	5, 12, 15, 24, ±12, ±15	1600	83%	-40~+85°C	•	•	SIP-8	•	•	•		•
<b>NEW</b> MCWI04	4W	9-36, 18-75	5, 12, 15, 24, ±12, ±15	1600	83%	-40~+85°C	•	•	SIP-8	•	•	•		•
MCWI05	5W	4.5-18, 9-36, 18-75	3.3, 5, 12, 15, 24, ±12, ±15	1500	84%	-40~+75°C	•	•	SIP-8	•	•	•	•	•

\*There are different features & spec. by each series, please refer to [www.minimax.com.tw](http://www.minimax.com.tw)



## Features

- ♦ I/O Isolation Voltage 1500-3000VDC
- ♦ High Efficiency up to 85%
- ♦ Operating Ambient Temp. Range -40°C to +90°C (See Derating Curve)
- ♦ No Min. Load Requirement
- ♦ Under-voltage, Overload and Short Circuit Protection
- ♦ Remote ON/OFF Control
- ♦ Conducted EMI EN 55032/22 Class A & FCC Level A Approved
- ♦ Water-washable Process Available
- ♦ Qualified for Lead-free Reflow Solder Process According to IPC/JEDEC J-STD-020D.1
- ♦ Tape & Reel package Available
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) ITE Safety Approval



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation (VDC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	SCP	OC	Remote ON/OFF Control	Water-washable Process Available	IPC/ JEDEC J-STD-020D.1	UL/cUL/IEC/EN 60950-1	UL/cUL/IEC/EN 62368-1
MSLU100	1W	4.5-5.5, 10.8-13.2, 13.5-16.5, 21.6-26.4	3.3, 5, 9, 12, 15, ±5, ±12, ±15	1500	80%	-40~+90°C							•	•	•
MSLU300	1W	4.5-5.5, 10.8-13.2, 21.6-26.4	3.3, 5, 12, 15, ±5, ±12, ±15	3000	81%	-40~+90°C							•	•	
MSPU01H	1W	2.97-3.63, 4.5-5.5, 10.8-13.2	3.3, 5, 12, 15, ±5, ±12, ±15	3000	85%	-40~+85°C			•	•			•	•	•
MSCW01	1W	4.5-9, 9-18, 18-36, 36-75	5, 12, 15, ±12, ±15	1500	82%	-40~+85°C	•	•	•	•	•		•	•	•
MSLU400	2W	4.5-5.5, 10.8-13.2, 21.6-26.4	3.3, 5, 12, ±5, ±12, ±15	1500	80%	-40~+90°C							•	•	
MSDW1000	2W	4.5-9, 9-18, 18-36, 36-75	3.3, 5, 12, 15, ±5, ±12, ±15	1500	81%	-40~+85°C	•		•				•	•	•
MSCWI02	2W	4.5-12, 9-36, 18-75	5, 12, 15, 24, ±12, ±15	1500	85%	-40~+80°C	•	•	•	•	•		•	•	•
MSCWI03	3W	4.5-12, 9-36, 18-75	5, 12, 15, 24, ±12, ±15	1500	85%	-40~+80°C	•	•	•	•	•		•	•	•
MSGWI06	6W	9-36, 18-75	3.3, 5, 12, 15, 24 ±5, ±12, ±15	1500	83%	-40~+80°C	•		•	•	•		•	•	•

\*There are different features & spec. by each series, please refer to [www.minmax.com.tw](http://www.minmax.com.tw)





## Features

- ♦ I/O Isolation Voltage 1500-3000VDC
- ♦ High Efficiency up to 89%
- ♦ Operating Ambient Temp. Range -40°C to +90°C (See Derating Curve)
- ♦ No Min. Load Requirement
- ♦ Under-voltage, Overload and Short Circuit Protection
- ♦ Remote ON/OFF Control
- ♦ Conducted EMI EN 55032/22 Class A & FCC Level A Approved
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) ITE Safety Approval & CE Marking



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation (VDC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	Package	OCP/SCP	Remote ON/OFF Control	UL/cUL/IEC/EN 62368-1
MFPU01H	1W	2.97-3.63, 4.5-5.5, 10.8-13.2	3.3, 5, 12, 15, ±5, ±12, ±15	3000	83%	-40~+90°C			DIP-8	•		•
MFU02	2W	4.5-10, 9-18, 18-36, 36-75	3.3, 5, 12, 15, ±5, ±12, ±15	1500	87%	-40~+80°C	•	•	DIP-8	•		•
MFU03	3W	4.5-10, 9-18, 18-36, 36-75	3.3, 5, 12, 15, ±5, ±12, ±15	1500	87%	-40~+80°C	•	•	DIP-8	•		•
MIU03	3W	4.5-9, 9-18, 18-36, 36-75	3.3, 5, 12, 15, 24, ±5, ±12, ±15	1500 3000	85%	-40~+85°C	•	•	DIP-24	•		•
MDU03	3W	9-36, 18-75	3.3, 5, 12, 15, 24, ±5, ±12, ±15	1500	80%	-40~+85°C	•		DIP-16	•	•	•
MIU03	3W	9-36, 18-75	3.3, 5, 12, 15, 24, ±5, ±12, ±15	1500 3000	84%	-40~+85°C	•	•	DIP-24	•		•
MIU06	6W	9-18, 18-36, 36-75	3.3, 5, 12, 15, 24, ±5, ±12, ±15	1500 3000	84%	-40~+85°C	•	•	DIP-24	•		•
MDU06	6W	9-36, 18-75	3.3, 5, 12, 15, 24, ±12, ±15	1500	87%	-40~+90°C	•	•	DIP-16	•		•
MIU06	6W	9-36, 18-75	3.3, 5, 12, 15, 24, ±5, ±12, ±15	1500 3000	84%	-40~+85°C	•	•	DIP-24	•		•
MDU08	8W	9-18, 18-36, 36-75	3.3, 5, 12, 15, 24, ±12, ±15	1500	86%	-40~+80°C	•	•	DIP-16	•		•
MDU08	8W	9-36, 18-75	3.3, 5, 12, 15, 24, ±12, ±15	1500	86%	-40~+80°C	•	•	DIP-16	•		•
<b>NEW</b> MDU10	10W	9-18, 18-36, 36-75	3.3, 5, 5.1, 12, 15, 24, ±12, ±15	1500	88%	-40~+88°C	•	•	DIP-16	•		•
MIU10	10W	9-18, 18-36, 36-75	3.3, 5, 5.1, 12, 15, ±12, ±15	1500	89%	-40~+85°C	•	•	DIP-24	•	•	•
<b>NEW</b> MDU10	10W	9-36, 18-75	3.3, 5, 5.1, 12, 15, 24, ±12, ±15	1500	88%	-40~+88°C	•	•	DIP-16	•		•
MIU10	10W	9-36, 18-75	3.3, 5, 5.1, 12, 15, 24, ±12, ±15	1500	87%	-40~+85°C	•	•	DIP-24	•	•	•
<b>NEW</b> MDU12	12W	9-18, 18-36, 36-75	5, 5.1, 12, 15, 24, ±12, ±15	1500	88%	-40~+85°C	•	•	DIP-16	•		•
<b>NEW</b> MDU12	12W	9-36, 18-75	5, 5.1, 12, 15, 24, ±12, ±15	1500	88%	-40~+85°C	•	•	DIP-16	•		•

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10-30W

## General Industrial • DC-DC Converters

1"×1" Package



## Features

- ♦ Fully Regulated Output Voltage
- ♦ I/O Isolation Voltage 1500VDC
- ♦ Excellent Efficiency up to 91%
- ♦ Operating Ambient Temp. Range -40°C to +90°C (See Derating Curve)
- ♦ Low No Load Power Consumption
- ♦ No Min. Load Requirement
- ♦ Under-voltage, Overload/Voltage and Short Circuit Protection
- ♦ Remote ON/OFF Control, Output Voltage Trim
- ♦ Shielded Metal Case with Insulated Baseplate
- ♦ Conducted EMI EN 55032 Class A & FCC Level A Approved
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) ITE Safety Approval & CE Marking



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation (VDC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	OCP/SCP	OVP	Remote ON/OFF Control	Output Voltage Trim	UL/cUL/IEC/EN 62368-1
MJW10	10W	9-18, 18-36, 36-75	3.3, 5, 5.1, 12, 15, ±5, ±12, ±15	1500	89%	-40~+80°C	•	•	•		•		•
MJW110	10W	9-36, 18-75	3.3, 5, 5.1, 12, 15, 24, ±5, ±12, ±15	1500	87%	-40~+80°C	•		•		•		•
MJW15	15W	9-18, 18-36, 36-75	3.3, 5, 12, 15, 24, ±12, ±15	1500	91%	-40~+90°C	•	•	•	•	•	•	•
MJW115	15W	9-36, 18-75	3.3, 5, 12, 15, 24, ±12, ±15	1500	91%	-40~+90°C	•	•	•	•	•	•	•
MJW20	20W	9-36, 18-75	3.3, 5, 12, 15, 24, ±12, ±15	1500	89%	-40~+85°C	•	•	•	•	•	•	•
MJW25	25W	9-18, 18-36, 36~75	3.3, 5, 12, 15, ±12, ±15	1500	90%	-40~+80°C	•	•	•	•	•	•	•
MJW125	25W	9-36, 18-75	3.3, 5, 12, 15, ±12, ±15	1500	90%	-40~+80°C	•	•	•	•	•	•	•
<b>NEW</b> MJW130	30W	9-36, 18-75	3.3, 5, 12, 15, 24, ±12, ±15	1500	90%	-40~+80°C	•	•	•	•	•	•	•

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40-50W

## General Industrial • DC-DC Converters

2"×1" Package



## Features

- ♦ Fully Regulated Output Voltage
- ♦ I/O Isolation Voltage 1500VDC
- ♦ Excellent Efficiency up to 92%
- ♦ Operating Ambient Temp. Range -40°C to +80°C (See Derating Curve)
- ♦ Under-voltage, Overload /Temp./Voltage and Short Circuit Protection
- ♦ Remote ON/OFF Control, Output Voltage Trim
- ♦ Shielded Metal Case with Insulated Baseplate
- ♦ Conducted EMI EN 55032/22 Class A & FCC Level A Approved
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) ITE Safety Approval & CE Marking



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation (VDC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	Package	OCP/SCP	OVP/OTP	Remote ON/OFF Control	Output Voltage Trim	UL/cUL/IEC/EN 60950-1	UL/cUL/IEC/EN 62368-1
MKW40	40W	9-18, 18-36, 36-75	3.3, 5, 12, 15, 24 ±12, ±15	1500	92%	-40~+80°C	•	•	2"×1"	•	•	•	•	•	•
MKWI40	40W	9-36, 18-75	3.3, 5, 12, 15, 24 ±12, ±15	1500	91%	-40~+80°C	•	•	2"×1"	•	•	•	•	•	•
MKW50	50W	9-18, 18-36, 36-75	3.3, 5, 12, 15, 24	1500	92%	-40~+80°C	•	•	2"×1"	•	•	•	•	•	•
MKWI50	50W	9-36, 18-75	3.3, 5, 12, 15, 24	1500	92%	-40~+80°C	•	•	2"×1"	•	•	•	•	•	•

\*There are different features & spec. by each series, please refer to [www.minmax.com.tw](http://www.minmax.com.tw)



## Features

- ◆ Fully Encapsulated Plastic Case for Chassis and DIN-Rail Mounting Version
- ◆ Fully Regulated Output Voltage
- ◆ I/O Isolation Voltage 3000VDC
- ◆ Excellent Efficiency up to 92%
- ◆ Operating Ambient Temp. Range -40°C to +92.5°C (See Derating Curve)
- ◆ Under-voltage, Overload/Voltage and Short Circuit Protection
- ◆ No Min. Load Requirement
- ◆ Remote ON/OFF Control
- ◆ EMI Emission EN 55032 Class A & FCC Level A Approved
- ◆ EMC Immunity EN 61000-4-2,3,4,5,6,8 Approved
- ◆ UL/cUL/IEC/EN 62368-1(60950-1) ITE Safety Approval & CE Marking



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation (VDC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	Package	OCP/SCP	OVP	Remote ON/OFF Control	UL/cUL/IEC/EN 62368-1
<b>NEW</b> MJWI06C	6W	9-36, 18-75	5, 5.1, 12, 15, 24, 48, ±12, ±15, ±24	3000VDC	85%	-40~+92.5°C	•	•	Chassis DIN-Rail	•		•	•
<b>NEW</b> MKWI10C	10W	9-36, 18-75	5, 5.1, 12, 15, 24, 48, ±12, ±15, ±24	3000VDC	86%	-40~+92.5°C	•	•	Chassis DIN-Rail	•		•	•
MOWI20C	20W	9-36, 18-75	5.1, 12, 24, 48	2500VDC	91%	-40~+90°C	•	•	Chassis DIN-Rail	•	•	•	•
MQWI40C	40W	9-36, 18-75	5.1, 12, 24, 48	2500VDC	92%	-40~+85°C	•	•	Chassis DIN-Rail	•	•	•	•
MRWI60C	60W	9-36, 18-75	5.1, 12, 24, 48	2500VDC	92%	-40~+85°C	•	•	Chassis DIN-Rail	•	•	•	•

\*There are different features & spec. by each series, please refer to [www.minmax.com.tw](http://www.minmax.com.tw)



## Features

- ◆ Pin-out compatible with LM78xx Linear Regulator
- ◆ Fully Regulated Output Voltage
- ◆ Low Ripple & Noise
- ◆ Excellent Efficiency up to 97%
- ◆ Operating Ambient Temp. Range -40°C to +90°C (See Derating Curve)
- ◆ No Min. Load Requirement
- ◆ Over Temp. and Short Circuit Protection
- ◆ Remote ON/OFF Control, Output Voltage Trim
- ◆ Qualified for Lead-free Reflow Solder Process According to IPC/JEDEC J-STD-020D.1(M78SAR Series)
- ◆ Tape & Reel Package Available (M78SAR Series)



Series	Output Current	Input Voltage Range (VDC)	Output Voltage (VDC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	Package	OTP	SCP	Remote ON/OFF Control	Output Voltage Trim
M78AR-0.5	0.5A	4.75-32	1.5, 1.8, 2.5, 3.3	91%	-40~+90°C	•	•	SIP-3	•	•		
		6.5- 32	5	94%	-40~+90°C	•	•	SIP-3	•	•		
		8-32	6.5	95%	-40~+90°C	•	•	SIP-3	•	•		
		11-32	9	96%	-40~+90°C	•	•	SIP-3	•	•		
		15-32	12	97%	-40~+90°C	•	•	SIP-3	•	•		
		18-32	15	97%	-40~+90°C	•	•	SIP-3	•	•		
M78SAR-0.5	0.5A	4.75-32	1.5, 1.8, 2.5, 3.3	91%	-40~+90°C	•	•	SMD	•	•	•	•
		6.5-32	5	94%	-40~+90°C	•	•	SMD	•	•	•	•
		8-32	6.5	95%	-40~+90°C	•	•	SMD	•	•	•	•
		11-32	9	96%	-40~+90°C	•	•	SMD	•	•	•	•
		15-32	12	97%	-40~+90°C	•	•	SMD	•	•	•	•
		18-32	15	97%	-40~+90°C	•	•	SMD	•	•	•	•
M78AR-1	1A	6.5-32	3.3	93%	-40~+85°C	•	•	SIP-3	•	•		
		6.5-32	5	94%	-40~+85°C	•	•	SIP-3	•	•		
		15-32	12	96%	-40~+85°C	•	•	SIP-3	•	•		

\*There are different features & spec. by each series, please refer to [www.minimax.com.tw](http://www.minimax.com.tw)

3-60W

## General Industrial • AC-DC Power Supplies

Encapsulated Package



## Features

- Universal Input Voltage 85-264VAC, 47-440Hz
- Single, Dual and Triple Fully Regulated Outputs
- Protection Class II as per IEC/EN 60536
- I/O Isolation Voltage 4000VAC with Reinforced Insulation
- Operating Ambient Temp. Range -40°C to +70°C (See Derating Curve)
- Overload/Voltage and Short Circuit Protection
- EMI Emission EN 55011/32/14-1 Class B & FCC Level B Approved
- EMC Immunity EN 61000-4-2, 3, 4, 5, 6, 8, 11 Approved
- Eco Design, Low No Load Power Consumption < 150mW
- UL/cUL/IEC/EN 62368-1(60950-1), TUV/IEC/EN 60335-1

Household Safety Approval &amp; CE Marking



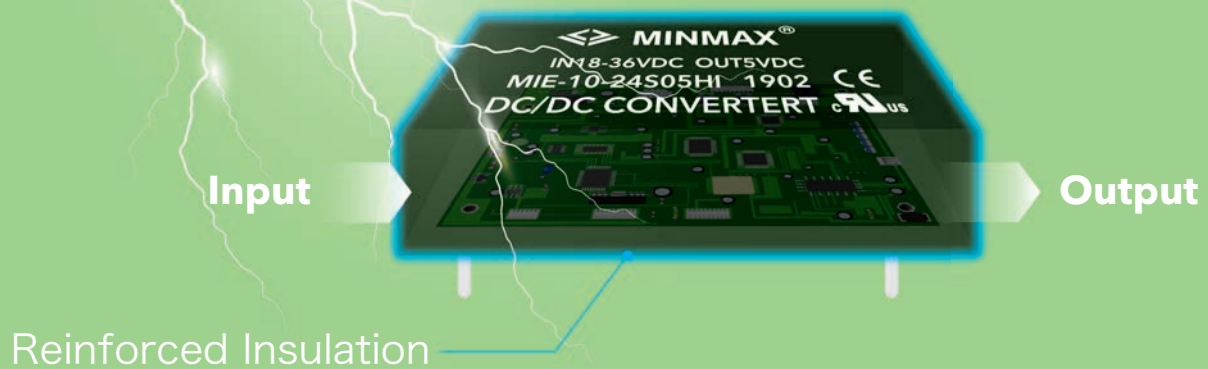
Series	Output Power	Input Voltage Range	Output Voltage (VDC)	Isolation (VAC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	Package	Case Size (inches)	SCP/OCP/OVP	UL/cUL/IEC/EN 62368-1	TUV/IEC/EN 60335-1
AAF-03	3W	85-264VAC 120-370VDC	3.3, 5, 9, 12, 15, 24	3000VAC Reinforced	78%	-25°C~+70°C	•	•	PCB	1.0×1.0×0.64"	•	•	•
ABF-04	4W	85-264VAC 120-370VDC	3.3, 5, 9, 12, 15, 24, 5/3.3, 12/5, ±12, ±15	3000VAC Reinforced	77%	-25°C~+60°C	•	•	PCB	1.44×1.06×0.67"	•	•	•
AAF-05	5W	85-264VAC 120-370VDC	3.3, 5, 9, 12, 15, 24, 48	3000VAC Reinforced	85%	-25°C~+70°C	•	•	PCB Chassis	1.0×1.0×0.64" 1.65×1.02×0.76"	•	•	•
ADF-07	7W	85-264VAC 120-370VDC	3.3, 5, 12, 15, 24	3000VAC Reinforced	78%	-25°C~+70°C	•	•	PCB	2.0×1.0×0.77"	•	•	•
ACF-10	10W	85-264VAC 120-370VDC	3.3, 5, 9, 12, 15, 24, 48	4000VAC Reinforced	86%	-25°C~+70°C	•	•	PCB	1.52×1.0×0.62"	•	•	•
<b>NEW</b> AGF-15	15W	85-264VAC 120-370VDC	3.3, 5, 9, 12, 15, 24, 48	3000VAC Reinforced	84%	-25°C~+70°C	•	•	PCB	2.06×1.07×0.93"	•	•	•
<b>NEW</b> AIF-15	15W	85-264VAC 90-370VDC	5.1, 12, 15, 24, 48	3000VAC Reinforced	84%	-40°C~+70°C	•	•	PCB Chassis DIN-Rail	2.06×1.07×0.93" 2.89×1.18×1.06"	•	•	•
AKF-15	15W	85-264VAC 120-370VDC	5, 12, 15, 24, 48, ±12, ±15, 5/12, 5/±12, 5/±15	3000VAC Reinforced	79%	-25°C~+70°C	•	•	PCB Chassis DIN-Rail	2.91×2.13×0.77" 3.78×2.13×0.92"	•	•	•
<b>NEW</b> AHF-30	30W	85-264VAC 90-370VDC	5.1, 12, 15, 24, 48	3000VAC Reinforced	88%	-40°C~+70°C	•	•	PCB Chassis DIN-Rail	2.52×1.77×0.94" 3.39×1.85×1.17"	•	•	•
AQF-30	30W	85-264VAC 120-370VDC	5, 12, 15, 24, 48, ±12, ±15, 5/12, 5/±12, 5/±15, 5/3.3/12, 3.3/5/12	3000VAC Reinforced	80%	-25°C~+70°C	•	•	PCB Chassis DIN-Rail	3.50×2.50×0.85" 4.41×2.51×1.01"	•	•	•
<b>NEW</b> AKF-60	60W	85-264VAC 90-370VDC	5.1, 12, 15, 24, 48	3000VAC Reinforced	89%	-40°C~+70°C	•	•	PCB Chassis DIN-Rail	2.99×2.13×1.10" 4.02×2.28×1.34"	•	•	•
AZF-60	60W	85-264VAC 120-370VDC	5.1, 12, 15, 24, 36, 48	3000VAC Reinforced	84%	-10°C~+70°C	•	•	PCB Chassis DIN-Rail	3.50×2.66×1.35" 4.41×2.67×1.50"	•	•	•

\*There are different features & spec. by each series, please refer to [www.minmax.com.tw](http://www.minmax.com.tw)

# ULTRA-HIGH ISOLATION

POWER SOLUTIONS

**Isolation  
5000VAC / 60sec**





1-60W

## Ultra-high Isolation • DC-DC Converters

SIP • DIP • 2"×1" Package • Chassis &amp; DIN-Rail Mounting



## Features

- ♦ I/O Isolation Voltage up to 5000VAC with Reinforced Insulation, rated for 1000Vrms Working Voltage.
- ♦ Common Mode Transient Immunity: 15KV/μs
- ♦ Qualified for IGBT and High Isolation Applications
- ♦ High Efficiency up to 90%
- ♦ Operating Ambient Temp. Range -40°C to +96°C (See Derating Curve)
- ♦ No Min. Load Requirement
- ♦ Under-Voltage, Overload/Voltage and Short Circuit Protection
- ♦ EMI Emission EN 55032 Class A & FCC Level A Approved
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) ITE Safety Approval & CE Marking



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation	Working Voltage	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	C.M.T.I	OC	OVP	SCP	UL/cUL/IEC/EN 62368-1
1-2W • SIP Package														
MA01-HI	1W	4.5-5.5, 10.8-13.2, 13.5-16.5, 21.6-26.4	3.3, 5, 9, 12, 15, ±5, ±9, ±12, ±15, +15/-9	5200VDC		80%	-40~+90°C			15 KV/μs			•	•
MAEU02-HI	2W	4.5-5.5, 10.8-13.2, 13.5-16.5, 21.6-26.4	3.3, 5, 9, 12, 15, ±5, ±9, ±12, ±15, +15/-9	5200VDC		85%	-40~+85°C						•	•
2-10W • DIP Package														
MDEU02-HI	2W	4.5-5.5, 10.8-13.2, 21.6-26.4	5, 12, 15, ±12, ±15	4000VAC Reinforced	300 Vrms	75%	-25~+80°C			15 KV/μs				•
MIE03-HI	3.5W	4.5-9, 9-18, 18-36, 36-75	5, 5.8, 12, 15, 24, ±12, ±15	5000VAC Reinforced	1000 Vrms	87%	-40~+96°C	•	•		•	•	•	•
MIE06-HI	6W	9-18, 18-36, 36-75	5, 12, 15, 24, ±12, ±15	5000VAC Reinforced	1000 Vrms	89%	-40~+95°C	•	•		•	•	•	•
<span>NEW</span> MIE10-HI	10W	9-18, 18-36, 36-75	3.3, 5, 5.1, 12, 15, 24, ±12, ±15	5000VAC Reinforced	1000 Vrms	88%	-40~+90°C	•	•		•	•	•	•
15-20W • 2"×1" Package														
MKE15-HI	15W	9-18, 18-36, 36-75	5, 5.1, 12, 15, 24 ±12, ±15	4200VAC Reinforced	1000 Vrms	90%	-40~+85°C	•	•	15 KV/μs	•	•	•	•
MKE20-HI	20W	9-18, 18-36, 36-75	5, 5.1, 12, 15, 24, ±12, ±15	4200VAC Reinforced	1000 Vrms	90%	-40~+80°C	•	•		•	•	•	•
6-60W • Chassis & DIN-Rail Mounting														
<span>NEW</span> MJA06C	6W	80-160	5, 5.1, 12, 15, 24, 48, ±12, ±15, ±24	3000VAC Reinforced	1000 Vrms	84%	-40~+92.5°C	•	•		•		•	•
<span>NEW</span> MKA10C	10W	80-160	5, 5.1, 12, 15, 24, 48, ±12, ±15, ±24	3000VAC Reinforced	1000 Vrms	85%	-40~+87°C	•	•		•		•	•
<span>NEW</span> MOA20C	20W	80-160	5, 5.1, 12, 15, 24, 48, ±12, ±15, ±24	3000VAC Reinforced	1000 Vrms	88%	-40~+94.5°C	•	•		•	•	•	•
<span>NEW</span> MQA40C	40W	80-160	5, 5.1, 12, 15, 24, 48, ±12, ±15, ±24	3000VAC Reinforced	1000 Vrms	89%	-40~+90°C	•	•		•	•	•	•
<span>NEW</span> MRA60C	60W	80-160	5, 5.1, 12, 15, 24, 48, ±12, ±15, ±24	3000VAC Reinforced	1000 Vrms	89%	-40~+90.5°C	•	•		•	•	•	•

\*There are different features & spec. by each series, please refer to [www.minimax.com.tw](http://www.minimax.com.tw)



# RAILWAY CERTIFIED

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## POWER SOLUTIONS





# Railway Certified • DC-DC Converters

DIP • 2"×1" Package • Quarter Brick



## Features

- ♦ Fully Regulated Output Voltage
- ♦ I/O Isolation Voltage 3000VAC with Reinforced Insulation
- ♦ Excellent Efficiency up to 92%
- ♦ 3-75W Operating Ambient Temp. Range -40°C to +95°C (See Derating Curve)
- ♦ 100-150W Operating Base Plate Temp. Range -40°C to +105°C (See Derating Curve)
- ♦ No Min. Load Requirement
- ♦ Under-voltage, Overload /Voltage/Temp. and Short Circuit Protection
- ♦ Remote ON/OFF Control, Output Voltage Trim, Output Sense
- ♦ EMI Emission EN 55032/11 Class A & FCC Level A Approved
- ♦ Vibration and Shock/Bump Test EN 61373 Approved
- ♦ Cooling, Dry & Damp Heat Test IEC/EN 60068-2-1, 2, 30 Approved
- ♦ Railway EMC Standard EN 50121-3-2 Approved
- ♦ Railway Certified EN 50155 (IEC 60571) Approved
- ♦ Fire Protection Test EN 45545-2 Approved
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) Safety Approval & CE Marking



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation (VAC)	Efficiency	Operating Ambient Temp. Range	No Min. Load	OC/SCP	OVP	OTP	Remote ON/OFF Control	Output Voltage Trim	Output Sense	EN50155 (IEC60571)	UL/cUL/IEC/EN 62368-1
3W • DIP Package															
<b>NEW</b> MIZI03	3W	9-36 18-75 40-160	5, 12, 15, ±12, ±15	3000VAC Reinforced	85%	-40~+92°C Ambient	•	•						•	•
10-40W • 2"×1" Package															
MKZI10	10W	9-36 18-75 40-160	5, 12, 15, 24, ±12, ±15	3000VAC Reinforced	89%	-40~+95°C Ambient	•	•	•		•	•		•	•
MKZI20	20W	9-36 18-75 40-160	5, 12, 15, 24, ±12, ±15	3000VAC Reinforced	88%	-40~+88.5°C Ambient	•	•	•		•	•		•	•
<b>NEW</b> MKZI40	40W	36-160	5, 12, 15, 24, 54, ±12, ±15	3000VAC Reinforced	90%	-40~+85.5°C Ambient	•	•	•		•	•		•	•
50-150W • Quarter Brick															
MTQZ50	50W	43-101 66-160	5, 12, 15, 24	3000VAC Reinforced	92%	-40~+85°C Ambient	•	•	•	•	•	•	•	•	•
MTQZ75	75W	43-101 66-160	5, 12, 15, 24	3000VAC Reinforced	92%	-40~+80°C Ambient	•	•	•	•	•	•	•	•	•
<b>NEW</b> MTQZI100	100W	40-160	5, 12, 15, 24, 54	3000VAC Reinforced	91.5%	-40~+105°C Base plate	•	•	•	•	•	•	•	•	•
<b>NEW</b> MTQZI150	150W	40-160	5, 12, 15, 24, 54	3000VAC Reinforced	90%	-40~+105°C Base plate	•	•	•	•	•	•	•	•	•

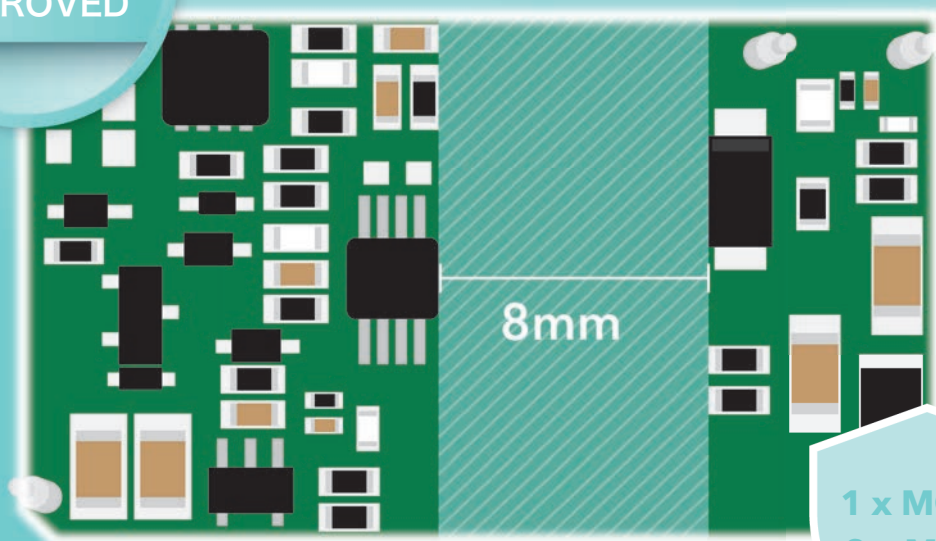
\*There are different features & spec. by each series, please refer to [www.minmax.com.tw](http://www.minmax.com.tw)

# MEDICAL SAFETY

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## POWER SOLUTIONS

IEC 60601-1  
APPROVED



1 x MOOP  
2 x MOPP

1-20W

## Medical Safety • DC-DC Converters

SIP • SMD • DIP • 2"×1" Package



## Features

- ♦ I/O Isolation Voltage up to 5000VAC with Reinforced Insulation, rate for 1000Vrms Working Voltage
- ♦ Low I/O Leakage Current < 2μA
- ♦ High Efficiency up to 90%
- ♦ Operating Ambient Temp. Range -40°C to +96°C (See Derating Curve)
- ♦ No Min. Load Requirement
- ♦ Under-voltage, Overload/Voltage and Short Circuit Protection
- ♦ Conducted EMI EN 55011/22 Class A & FCC Level A Approved
- ♦ Medical EMC Standard with 4<sup>th</sup> Edition of EMI EN 55011 and EMS EN 60601-1-2 Approved
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) ITE Safety Approval & CE Marking
- ♦ Medical Safety with 2xMOPP per 3<sup>rd</sup> Edition of IEC/EN 60601-1 & ANSI/AAMI ES 60601-1 Approved



Series	Output Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Isolation (VAC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	OCP	OVP	SCP	Protection Level	ANSI/AAMI ES 60601-1	IEC/EN 60601-1 3 <sup>rd</sup>
1W • SIP Package														
MAU400	1W	4.5-5.5, 10.8-13.2	5, 12, 15, ±5, ±12, ±15	3000VAC Reinforced	75%	-25~+85°C						1xMOPP 2xMOOP	•	•
<b>NEW</b> MAU01M	1W	4.5-5.5, 10.8-13.2, 21.6-26.4	5, 12, 15	4000VAC Reinforced	81%	-40~+95°C						2xMOPP	•	•
1-2W • SMD Package														
<b>NEW</b> MSCU01M	1W	4.5-5.5, 10.8-13.2, 21.6-26.4	5, 12, 15, ±12, ±15	4000VAC Reinforced	84%	-40~+95°C						2xMOPP	•	•
MSHU100	2W	4.5-5.5, 10.8-13.2, 21.6-26.4	5, 12, 15, ±12, ±15	4000VAC Reinforced	75%	-25~+80°C						1xMOPP 2xMOOP	•	•
2-10W • DIP Package														
MDHU100	2W	4.5-5.5, 10.8-13.2, 21.6-26.4	5, 12, 15, ±12, ±15	4000VAC Reinforced	75%	-25~+80°C						1xMOPP 2xMOOP	•	•
MIHW2000	3W	9-40, 18-80, 36-160	5, 12, ±12, ±15	4000VAC Reinforced	83%	-40~+85°C	•		•			1xMOPP 2xMOOP	•	•
<b>NEW</b> MIW03M	3.5W	4.5-9, 9-18, 18-36, 36-75	5, 5.8, 12, 15, ±12, ±15	5000VAC Reinforced	87%	-40~+96°C	•	•	•	•	•	2xMOPP	•	•
<b>NEW</b> MIW06M	6W	9-18, 18-36, 36-75	5, 12, 15, ±12, ±15	5000VAC Reinforced	89%	-40~+95°C	•	•	•	•	•	2xMOPP	•	•
<b>NEW</b> MIW10M	10W	9-18, 18-36, 36-75	3.3, 5, 5.1, 12, 15, 24, ±12, ±15	5000VAC Reinforced	88%	-40~+90°C	•	•	•	•	•	2xMOPP	•	•
15-20W • 2"×1" Package														
MKW15M	15W	9-18, 18-36, 36-75	5, 5.1, 12, 15, 24, ±12, ±15	4200VAC Reinforced	90%	-40~+85°C	•	•	•	•	•	2xMOPP	•	•
MKW20M	20W	9-18, 18-36, 36-75	5, 5.1, 12, 15, 24, ±12, ±15	4200VAC Reinforced	90%	-40~+80°C	•	•	•	•	•	2xMOPP	•	•

\*There are different features & spec. by each series, please refer to [www.minmax.com.tw](http://www.minmax.com.tw)

24-60W

## Medical Safety • AC-DC Power Supplies

Encapsulated Package



## Features

- ♦ Universal Input Voltage 85-264VAC, 47-440Hz
- ♦ Protection Class II as per IEC/EN 60536
- ♦ I/O Isolation Voltage 4000VAC with Reinforced Insulation
- ♦ Operating Ambient Temp. Range -40°C to +80°C (See Derating Curve)
- ♦ No Min. Load Requirement
- ♦ Overload/Voltage and Short Circuit Protection
- ♦ EMI Emission EN 55011/32 Class B & FCC Level B Approved
- ♦ EMC Immunity EN 61000-4-2,3,4,5,6,8,11 Approved
- ♦ Medical EMC Standard with 4<sup>th</sup> Edition of EMI EN 55011 & EMS EN 60601-1-2 Approved
- ♦ Medical Safety with 2xMOPP per 3<sup>rd</sup> Edition of IEC/EN 60601-1 & ANSI/AAMI ES 60601-1 Approved
- ♦ UL 508 Safety Approval Specifically for Industrial Application
- ♦ UL/cUL/IEC/EN 62368-1(60950-1) Safety Approval & CE Marking



Series	Output Power	Input Voltage Range (VAC)	Output Voltage (VDC)	Isolation (VAC)	Efficiency	Operating Ambient Temp. Range	Output Regulation	No Min. Load	Package	OCP/SCP	OVP	Protection Level	ANSI/AAMI ES 60601-1	IEC/EN 60601-1 3 <sup>rd</sup>
AJM-24	24W	85-264	5, 9, 12, 15, 24, ±12 ±15	4000VAC Reinforced	85%	-40~+80°C	•	•	PCB Chassis DIN-Rail	•	•	2xMOPP	•	•
APM-40	40W	85-264	5, 12, 15, 24, ±12 ±15	4000VAC Reinforced	85%	-40~+80°C	•	•	PCB Chassis DIN-Rail	•	•	2xMOPP	•	•
AYM-60	60W	85-264	5.1, 12, 15, 24, 48	4000VAC Reinforced	88%	-40~+80°C	•	•	PCB Chassis DIN-Rail	•	•	2xMOPP	•	•

\*There are different features & spec. by each series, please refer to [www.minimax.com.tw](http://www.minimax.com.tw)



# MINMAX POWER SOLUTIONS 1-150W

DC-DC CONVERTERS  
AC-DC POWER SUPPLIES

## GENERAL INDUSTRIAL POWER SOLUTIONS

### DC-DC CONVERTERS

<b>1-5W</b>   SIP Package	<b>1-12W</b>   DIP Package	<b>40-50W</b>   2"×1" Package	<b>0.5-1A</b>   Switching Regulators
<b>1-6W</b>   SMD Package	<b>10-30W</b>   1"×1" Package	<b>6-60W</b>   Chassis & DIN-Rail Mounting	

### AC-DC POWER SUPPLIES

**3-60W** | Encapsulated Package

## ULTRA-HIGH ISOLATION POWER SOLUTIONS

Our general industrial DC-DC converters are used in every corner of modern equipment & systems about everywhere.

We offer different electrical specifications and create competitive advantage performance to meet your critical design.

Ultra-high isolation family equipped with very high common mode transient immunity with 15KV/ $\mu$ s qualifies and I/O isolation 4000 to 5000VAC with reinforced insulation, rated for 1000Vrms working voltage.

### DC-DC CONVERTERS

<b>1-2W</b>   SIP Package	<b>2-10W</b>   DIP Package	<b>15-20W</b>   2"×1" Package	<b>6-60W</b>   Chassis & DIN-Rail Mounting
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## RAILWAY CERTIFIED POWER SOLUTIONS

Our railway certified DC-DC converters are designed for stringent requirements and harsh environment. The products family are I/O isolation 3000 VAC with reinforced insulation. Furthermore, all railway products comply with EN 50155 certified and fire protection EN 45545-2 approval.

### DC-DC CONVERTERS

<b>3W</b>   DIP Package	<b>50-150W</b>   Quarter Brick
<b>10-40W</b>   2"×1" Package	

## MEDICAL SAFETY POWER SOLUTIONS

The medical grade DC-DC converters & AC-DC Power Supplies for demanding applications in both medical and healthcare instrumentations. All medical products are approved to latest medical safety standards: ANSI/AAMI ES 60601-1, IEC/EN 60601-1 3<sup>rd</sup> edition with 2xMOPP/2xMOOP.

### DC-DC CONVERTERS

<b>1W</b>   SIP Package	<b>1-2W</b>   SMD Package	<b>2-10W</b>   DIP Package	<b>15-20W</b>   2"×1" Package
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### AC-DC POWER SUPPLIES

**24-60W** | Encapsulated Package

\* If there is any mistake in the document, please follow the official datasheet.  
[www.minmax.com.tw](http://www.minmax.com.tw)

for more info., please go to  
[www.minmax.com.tw](http://www.minmax.com.tw)



**MINMAX TECHNOLOGY CO., LTD.**

No.18, Sin Sin Rd., An-Ping Industrial Dist., Tainan 702 Taiwan



+886-6-2923150



+886-6-2923149



[sales@minmax.com.tw](mailto:sales@minmax.com.tw)