



Certificate of Compliance

Certificate: 2679693

Master Contract: 231746

Project: 2679693

Date Issued: December 25, 2013

Issued to: MINMAX Technology Co., Ltd.
18 Sin-Sin Road
An-Ping Industrial District
Tainan, 702
TAIWAN
Attention: Mr. Lester Fang

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only



Issued by: 
Hades Lee

PRODUCTS

CLASS 5311 11 – POWER SUPPLIES - Component Type (For Canadian Certification)

CLASS 5311 91 – POWER SUPPLIES - Component Type (For US Certification)

Component type DC/DC Converter, Models MIAR03 Series, MA01-HI Series, MCWI02 Series, MJW25 Series, MJW25-HS Series, MKWI50 Series, MKWI50-HS Series. Ratings as follow:

For MIAR03 Series					
Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
MIAR03-05S05	OB-MIAR03-05S05-T1	Nominal: 5.0 Vdc	857	5.0	600
MIAR03-05S12	OB-MIAR03-05S12-T1	Range: 4.5-5.5 Vdc	769	12.0	250
MIAR03-05S15	OB-MIAR03-05S15-T1	Input Fuse: 1500 mA	769	15.0	200
MIAR03-05D12	OB-MIAR03-		769	±12.0	±125



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	05D12-T1				
MIAR03-05D15	OB-MIAR03-05D15-T1		769	±15.0	±100
MIAR03-12S05	OB-MIAR03-12S05-T1	Nominal: 12 Vdc Range: 10.8-13.2 Vdc Input Fuse: 700 mA	338	5.0	600
MIAR03-12S12	OB-MIAR03-12S12-T1		313	12.0	250
MIAR03-12S15	OB-MIAR03-12S15-T1		313	15.0	200
MIAR03-12D12	OB-MIAR03-12D12-T1		309	±12.0	±125
MIAR03-12D15	OB-MIAR03-12D15-T1		305	±15.0	±100
MIAR03-24S05	OB-MIAR03-24S05-T1		Nominal: 24 Vdc Range: 21.6-26.4 Vdc Input Fuse: 350 mA	167	5.0
MIAR03-24S12	OB-MIAR03-24S12-T1	156		12.0	250
MIAR03-24S15	OB-MIAR03-24S15-T1	156		15.0	200
MIAR03-24D12	OB-MIAR03-24D12-T1	154		±12.0	±125
MIAR03-24D15	OB-MIAR03-24D15-T1	152		±15.0	±100

For MA01-HI Series

Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
MA01-05S033HI	OB-MA01-05S033HI-T1	Nominal: 5.0 Vdc Range: 4.5-5.5 Vdc Input Fuse: 500 mA	286	3.3	303
MA01-05S05HI	OB-MA01-05S05HI-T1		286	5.0	200
MA01-05S09HI	OB-MA01-05S09HI-T1		266	9.0	111
MA01-05S12HI	OB-MA01-05S12HI-T1		261	12.0	84
MA01-05S15HI	OB-MA01-05S15HI-T1		254	15.0	66
MA01-05D05HI	OB-MA01-05D05HI-T1		282	±5.0	±100
MA01-05D09HI	OB-MA01-05D09HI-T1		269	±9.0	±56
MA01-05D12HI	OB-MA01-05D12HI-T1		262	±12.0	±42
MA01-	OB-MA01-		254	±15.0	±33



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05D15HI	05D15HI-T1				
MA01-12S033HI	OB-MA01-12S033HI-T1	Nominal: 12 Vdc Range: 10.8-13.2 Vdc Input Fuse: 200 mA	117	3.3	303
MA01-12S05HI	OB-MA01-12S05HI-T1		117	5.0	200
MA01-12S09HI	OB-MA01-12S09HI-T1		110	9.0	111
MA01-12S12HI	OB-MA01-12S12HI-T1		108	12.0	84
MA01-12S15HI	OB-MA01-12S15HI-T1		104	15.0	66
MA01-12D05HI	OB-MA01-12D05HI-T1		116	±5.0	±100
MA01-12D09HI	OB-MA01-12D09HI-T1		111	±9.0	±56
MA01-12D12HI	OB-MA01-12D12HI-T1		108	±12.0	±42
MA01-12D15HI	OB-MA01-12D15HI-T1		104	±15.0	±33
MA01-15S033HI	OB-MA01-15S033HI-T1		Nominal: 15 Vdc Range: 13.5-16.5 Vdc Input Fuse: 150 mA	95	3.3
MA01-15S05HI	OB-MA01-15S05HI-T1	95		5.0	200
MA01-15S09HI	OB-MA01-15S09HI-T1	89		9.0	111
MA01-15S12HI	OB-MA01-15S12HI-T1	90		12.0	84
MA01-15S15HI	OB-MA01-15S15HI-T1	84		15.0	66
MA01-15D05HI	OB-MA01-15D05HI-T1	94		±5.0	±100
MA01-15D09HI	OB-MA01-15D09HI-T1	90		±9.0	±56
MA01-15D12HI	OB-MA01-15D12HI-T1	86		±12.0	±42
MA01-15D15HI	OB-MA01-15D15HI-T1	84		±15.0	±33
MA01-24S033HI	OB-MA01-24S033HI-T1	Nominal: 24 Vdc Range: 21.6-26.4 Vdc Input Fuse: 100 mA		60	3.3
MA01-24S05HI	OB-MA01-24S05HI-T1		60	5.0	200
MA01-24S09HI	OB-MA01-24S09HI-T1		56	9.0	111
MA01-24S12HI	OB-MA01-24S12HI-T1		53	12.0	84



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MA01-24S15HI	OB-MA01-24S15HI-T1		52	15.0	66
MA01-24D05HI	OB-MA01-24D05HI-T1		59	±5.0	±100
MA01-24D09HI	OB-MA01-24D09HI-T1		56	±9.0	±56
MA01-24D12HI	OB-MA01-24D12HI-T1		55	±12.0	±42
MA01-24D15HI	OB-MA01-24D15HI-T1		53	±15.0	±33

For MCWI02 Series					
Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
MCWI02-12S033	OB-MCWI02-12S033-T1	Nominal: 12 Vdc Range: 4.5-18 Vdc Input Fuse: 1000 mA	183	3.3	500
MCWI02-12S05	OB-MCWI02-12S05-T1		208	5.0	400
MCWI02-12S12	OB-MCWI02-12S12-T1		204	12.0	167
MCWI02-12S15	OB-MCWI02-12S15-T1		204	15.0	134
MCWI02-12D05	OB-MCWI02-12D05-T1		208	±5.0	±200
MCWI02-12D12	OB-MCWI02-12D12-T1		202	±12.0	±83
MCWI02-12D15	OB-MCWI02-12D15-T1		204	±15.0	±67
MCWI02-24S033	OB-MCWI02-24S033-T1		Nominal: 24 Vdc Range: 9-36 Vdc Input Fuse: 500 mA	92	3.3
MCWI02-24S05	OB-MCWI02-24S05-T1	104		5.0	400
MCWI02-24S12	OB-MCWI02-24S12-T1	102		12.0	167
MCWI02-24S15	OB-MCWI02-24S15-T1	102		15.0	134
MCWI02-24D05	OB-MCWI02-24D05-T1	104		±5.0	±200
MCWI02-24D12	OB-MCWI02-24D12-T1	101		±12.0	±83
MCWI02-24D15	OB-MCWI02-24D15-T1	102		±15.0	±67
MCWI02-48S033	OB-MCWI02-48S033-T1	Nominal: 48 Vdc		46	3.3



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MCWI02-48S05	OB-MCWI02-48S05-T1	Range: 18-75 Vdc Input Fuse: 250 mA	52	5.0	400
MCWI02-48S12	OB-MCWI02-48S12-T1		51	12.0	167
MCWI02-48S15	OB-MCWI02-48S15-T1		51	15.0	134
MCWI02-48D05	OB-MCWI02-48D05-T1		52	±5.0	±200
MCWI02-48D12	OB-MCWI02-48D12-T1		51	±12.0	±83
MCWI02-48D15	OB-MCWI02-48D15-T1		51	±15.0	±67

For MJW25 Series and MJW25-HS Series

Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
MJW25-12S033 MJW25-12S033-HS	MJW25-12S033 (PWB type)	Nominal: 12 Vdc Range: 9-18 Vdc Input Fuse: 5000 mA	1900	3.3	6000
MJW25-12S05 MJW25-12S05-HS	MJW25-12S05 (PWB type)		2340	5.0	5000
MJW25-12S12 MJW25-12S12-HS	MJW25-12S12 (PWB type)		2350	12.0	2090
MJW25-12S15 MJW25-12S15-HS	MJW25-12S15 (PWB type)		2350	15.0	1670
MJW25-12D12 MJW25-12D12-HS	MJW25-12D12 (PWB type)		2340	±12.0	±1040
MJW25-12D15 MJW25-12D15-HS	MJW25-12D15 (PWB type)		2360	±15.0	±840
MJW25-24S033 MJW25-24S033-HS	MJW25-24S033 (PWB type)		Nominal: 24 Vdc Range: 18-36 Vdc Input Fuse: 2500 mA	940	3.3
MJW25-24S05 MJW25-24S05-HS	MJW25-24S05 (PWB type)	1160		5.0	5000
MJW25-24S12 MJW25-24S12-HS	MJW25-24S12 (PWB type)	1160		12.0	2090
MJW25-24S15	MJW25-24S15	1160		15.0	1670



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MJW25-24S15-HS	(PWB type)				
MJW25-24D12 MJW25-24D12-HS	MJW25-24D12 (PWB type)		1170	±12.0	±1040
MJW25-24D15 MJW25-24D15-HS	MJW25-24D15 (PWB type)		1180	±15.0	±840
MJW25-48S033 MJW25-48S033-HS	MJW25-48S033 (PWB type)	Nominal: 48 Vdc Range: 36-75 Vdc Input Fuse: 1250 mA	470	3.3	6000
MJW25-48S05 MJW25-48S05-HS	MJW25-48S05 (PWB type)		580	5.0	5000
MJW25-48S12 MJW25-48S12-HS	MJW25-48S12 (PWB type)		580	12.0	2090
MJW25-48S15 MJW25-48S15-HS	MJW25-48S15 (PWB type)		580	15.0	1670
MJW25-48D12 MJW25-48D12-HS	MJW25-48D12 (PWB type)		585	±12.0	±1040
MJW25-48D15 MJW25-48D15-HS	MJW25-48D15 (PWB type)		590	±15.0	±840

Note: The suffix “-HS” meaning is the converter with heatsink.

For MKWI50 Series and MKWI50-HS Series

Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
MKWI50-24S033 MKWI50-24S033-HS	MKWI50-24S033 (PWB type)	Nominal: 24 Vdc Range: 9-36 Vdc Input Fuse: 10000 mA	1528	3.3	10000
MKWI50-24S05 MKWI50-24S05-HS	MKWI50-24S05 (PWB type)		2290	5.0	10000
MKWI50-24S12 MKWI50-24S12-HS	MKWI50-24S12 (PWB type)		2267	12.0	4170
MKWI50-	MKWI50-		2263	15.0	3330



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24S15 MKWI50- 24S15-HS	24S15 (PWB type)				
MKW150- 24S24 MKWI50- 24S24-HS	MKW150- 24S24 (PWB type)		2286	24.0	2080
MKW150- 48S033 MKWI50- 48S033-HS	MKW150- 48S033 (PWB type)	Nominal: 48 Vdc Range: 18-75 Vdc Input Fuse: 5000 mA	764	3.3	10000
MKW150- 48S05 MKWI50- 48S05-HS	MKW150- 48S05 (PWB type)		1145	5.0	10000
MKW150- 48S12 MKWI50- 48S12-HS	MKW150- 48S12 (PWB type)		1134	12.0	4170
MKW150- 48S15 MKWI50- 48S15-HS	MKW150- 48S15 (PWB type)		1134	15.0	3330
MKW150- 48S24 MKWI50- 48S24-HS	MKW150- 48S24 (PWB type)		1143	24.0	2080

Note: The suffix “-HS” meaning is the converter with heatsink.

Note:

(1) The above models are intended for use with Information Technology Equipment, where the suitability of the combination is determined by CSA Group.

(2) Maximum operating ambient:

For MIAR03 Series:

Maximum ambient (Tma): +75°C (Power Derating Curve 100%, full load)

Maximum ambient (Tma): +85°C (Power Derating Curve 50%, full load)

For MA01-HI Series:

Maximum ambient (Tma): +85°C (Power Derating Curve 100%, full load)

For MCWI02 Series:

Maximum ambient (Tma): +75°C (Power Derating Curve 100%, full load)



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Maximum ambient (Tma): +90°C (Power Derating Curve 50%, full load)

For MJW25 Series:

Power Derating Curve 100%, full load:

Maximum ambient (Tma) for MJW25-12S033: +53°C

Maximum ambient (Tma) for MJW25-24S033, MJW25-48S033: +57°C

Maximum ambient (Tma) for MJW25-24S05, MJW25-24S12, MJW25-24S15, MJW25-48S05, MJW25-48S12, MJW25-48S15: +56°C

Maximum ambient (Tma) for MJW25-12S05, MJW25-12S12, MJW25-12S15, MJW25-12D12, MJW25-12D15, MJW25-24D12, MJW25-24D15, MJW25-48D12, MJW25-48D15: +50°C

Power Derating Curve 50%, half load:

Maximum ambient (Tma) for MJW25-12S033: +80°C

Maximum ambient (Tma) for MJW25-24S033, MJW25-48S033: +82°C

Maximum ambient (Tma) for MJW25-24S05, MJW25-24S12, MJW25-24S15, MJW25-48S05, MJW25-48S12, MJW25-48S15: +81°C

Maximum ambient (Tma) for MJW25-12S05, MJW25-12S12, MJW25-12S15, MJW25-12D12, MJW25-12D15, MJW25-24D12, MJW25-24D15, MJW25-48D12, MJW25-48D15: +78°C

For MJW25-HS Series:

Power Derating Curve 100%, full load:

Maximum ambient (Tma) for MJW25-12S033-HS: +61°C

Maximum ambient (Tma) for MJW25-24S033-HS, MJW25-48S033-HS: +65°C

Maximum ambient (Tma) for MJW25-24S05-HS, MJW25-24S12-HS, MJW25-24S15-HS, MJW25-48S05-HS, MJW25-48S12-HS, MJW25-48S15-HS: +64°C

Maximum ambient (Tma) for MJW25-12S05-HS, MJW25-12S12-HS, MJW25-12S15-HS, MJW25-12D12-HS, MJW25-12D15-HS, MJW25-24D12-HS, MJW25-24D15-HS, MJW25-48D12-HS, MJW25-48D15-HS: +59°C

Power Derating Curve 50%, half load:

Maximum ambient (Tma) for MJW25-12S033-HS: +83°C

Maximum ambient (Tma) for MJW25-24S033-HS, MJW25-48S033-HS: +86°C

Maximum ambient (Tma) for MJW25-24S05-HS, MJW25-24S12-HS, MJW25-24S15-HS, MJW25-48S05-HS, MJW25-48S12-HS, MJW25-48S15-HS: +85°C

Maximum ambient (Tma) for MJW25-12S05-HS, MJW25-12S12-HS, MJW25-12S15-HS, MJW25-12D12-HS, MJW25-12D15-HS, MJW25-24D12-HS, MJW25-24D15-HS, MJW25-48D12-HS, MJW25-48D15-HS: +82°C

For MKWI50 Series:

Power Derating Curve 100%, full load:

Maximum ambient (Tma) for 3.3V output models: +61°C

Maximum ambient (Tma) for MKWI50-24S05, MKWI50-24S24, MKWI50-48S05, MKWI50-48S24: +46°C

Maximum ambient (Tma) for MKWI50-24S12, MKWI50-24S15, MKWI50-48S12, MKWI50-48S15: +53°C

Power Derating Curve 50%, half load:

Maximum ambient (Tma) for 3.3V output models: +83°C

Maximum ambient (Tma) for MKWI50-24S05, MKWI50-24S24, MKWI50-48S05, MKWI50-48S24: +75°C

Maximum ambient (Tma) for MKWI50-24S12, MKWI50-24S15, MKWI50-48S12, MKWI50-48S15: +80°C



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For MKWI50-HS Series:

Power Derating Curve 100%, full load:

Maximum ambient (Tma) for 3.3V output models: +69°C

Maximum ambient (Tma) for MKWI50-24S05-HS, MKWI50-24S24-HS, MKWI50-48S05-HS, MKWI50-48S24-HS: +57°C

Maximum ambient (Tma) for MKWI50-24S12-HS, MKWI50-24S15-HS, MKWI50-48S12-HS, MKWI50-48S15-HS: +62°C

Power Derating Curve 50%, half load:

Maximum ambient (Tma) for 3.3V output models: +87°C

Maximum ambient (Tma) for MKWI50-24S05-HS, MKWI50-24S24-HS, MKWI50-48S05-HS, MKWI50-48S24-HS: +81°C

Maximum ambient (Tma) for MKWI50-24S12-HS, MKWI50-24S15-HS, MKWI50-48S12-HS, MKWI50-48S15-HS: +83°C

APPLICABLE REQUIREMENTS

- CAN/CSA-C22.2 No 60950-1-07 - Information Technology Equipment - Safety - Part 1: General Incl. AM1 (2011) Requirements
- ANSI/UL Std No 60950-1, 2nd Ed. Incl. AM1 (2011) - Information Technology Equipment - Safety - Part 1: General Requirements



Supplement to Certificate of Compliance

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*The products listed, including the latest revision described below,
are eligible to be marked in accordance with the referenced Certificate.*

Product Certification History

Project	Date	Description
2679693	December 25, 2013	Original Certification.