Certificate of Compliance

Certificate: 2679690 **Master Contract:** 226037

Project: 2741812 **Date Issued:** July 07, 2014

Issued to: **TRACO Electronic AG**
Sihlbruggstrasse 111
Baar, Zurich 6340
SWITZERLAND
Attention: Mr. Michael Bruderer

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 TEM 3N Series, TMV-HI Series, TMR 2WIN Series, THL 25 Series, THL 25-HS Series, TEN 50WI Series, TEN 50WI-HS Series. Ratings as follow:

For TEM 3N Series					
Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
TEM 3-0511N	OB-MIAR03-05S05-T1	Nominal: 5.0 Vdc Range: 4.5-5.5 Vdc Input Fuse: 1500 mA	857	5.0	600
TEM 3-0512N	OB-MIAR03-05S12-T1		769	12.0	250
TEM 3-0513N	OB-MIAR03-05S15-T1		769	15.0	200
TEM 3-0522N	OB-MIAR03-05D12-T1		769	±12.0	±125
TEM 3-0523N	OB-MIAR03-		769	±15.0	±100

	05D15-T1				
TEM 3-1211N	OB-MIAR03-12S05-T1	Nominal: 12 Vdc Range: 10.8-13.2 Vdc Input Fuse: 700 mA	338	5.0	600
TEM 3-1212N	OB-MIAR03-12S12-T1		313	12.0	250
TEM 3-1213N	OB-MIAR03-12S15-T1		313	15.0	200
TEM 3-1222N	OB-MIAR03-12D12-T1		309	±12.0	±125
TEM 3-1223N	OB-MIAR03-12D15-T1		305	±15.0	±100
TEM 3-2411N	OB-MIAR03-24S05-T1	Nominal: 24 Vdc Range: 21.6-26.4 Vdc Input Fuse: 350 mA	167	5.0	600
TEM 3-2412N	OB-MIAR03-24S12-T1		156	12.0	250
TEM 3-2413N	OB-MIAR03-24S15-T1		156	15.0	200
TEM 3-2422N	OB-MIAR03-24D12-T1		154	±12.0	±125
TEM 3-2423N	OB-MIAR03-24D15-T1		152	±15.0	±100

For TMV-HI Series

Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
TMV 0503SHI	OB-MA01-05S033HI-T1	Nominal: 5.0 Vdc Range: 4.5-5.5 Vdc Input Fuse: 500 mA	286	3.3	303
TMV 0505SHI	OB-MA01-05S05HI-T1		286	5.0	200
TMV 0509SHI	OB-MA01-05S09HI-T1		266	9.0	111
TMV 0512SHI	OB-MA01-05S12HI-T1		261	12.0	84
TMV 0515SHI	OB-MA01-05S15HI-T1		254	15.0	66
TMV 0505DHI	OB-MA01-05D05HI-T1		282	±5.0	±100
TMV 0509DHI	OB-MA01-05D09HI-T1		269	±9.0	±56
TMV 0512DHI	OB-MA01-05D12HI-T1		262	±12.0	±42
TMV 0515DHI	OB-MA01-05D15HI-T1		254	±15.0	±33
TMV 05159HI	OB-MA01-		260	+15.0/-9.0	+33/-55

	05A1509HI-T1				
TMV 1203SHI	OB-MA01-12S033HI-T1	Nominal: 12 Vdc Range: 10.8-13.2 Vdc Input Fuse: 200 mA	117	3.3	303
TMV 1205SHI	OB-MA01-12S05HI-T1		117	5.0	200
TMV 1209SHI	OB-MA01-12S09HI-T1		110	9.0	111
TMV 1212SHI	OB-MA01-12S12HI-T1		108	12.0	84
TMV 1215SHI	OB-MA01-12S15HI-T1		104	15.0	66
TMV 1205DHI	OB-MA01-12D05HI-T1		116	±5.0	±100
TMV 1209DHI	OB-MA01-12D09HI-T1		111	±9.0	±56
TMV 1212DHI	OB-MA01-12D12HI-T1		108	±12.0	±42
TMV 1215DHI	OB-MA01-12D15HI-T1		104	±15.0	±33
TMV 12159HI	OB-MA01-12A1509HI-T1		107	+15.0/-9.0	+33/-55
TMV 1503SHI	OB-MA01-15S033HI-T1	Nominal: 15 Vdc Range: 13.5-16.5 Vdc Input Fuse: 150 mA	95	3.3	303
TMV 1505SHI	OB-MA01-15S05HI-T1		95	5.0	200
TMV 1509SHI	OB-MA01-15S09HI-T1		89	9.0	111
TMV 1512SHI	OB-MA01-15S12HI-T1		90	12.0	84
TMV 1515SHI	OB-MA01-15S15HI-T1		84	15.0	66
TMV 1505DHI	OB-MA01-15D05HI-T1		94	±5.0	±100
TMV 1509DHI	OB-MA01-15D09HI-T1		90	±9.0	±56
TMV 1512DHI	OB-MA01-15D12HI-T1		86	±12.0	±42
TMV 1515DHI	OB-MA01-15D15HI-T1		84	±15.0	±33
TMV 15159HI	OB-MA01-15A1509HI-T1		87	+15.0/-9.0	+33/-55
TMV 2403SHI	OB-MA01-24S033HI-T1	Nominal: 24 Vdc Range: 21.6-26.4 Vdc	60	3.3	303
TMV 2405SHI	OB-MA01-24S05HI-T1		60	5.0	200

TMV 2409SHI	OB-MA01-24S09HI-T1	Input Fuse: 100 mA	56	9.0	111
TMV 2412SHI	OB-MA01-24S12HI-T1		53	12.0	84
TMV 2415SHI	OB-MA01-24S15HI-T1		52	15.0	66
TMV 2405DHI	OB-MA01-24D05HI-T1		59	±5.0	±100
TMV 2409DHI	OB-MA01-24D09HI-T1		56	±9.0	±56
TMV 2412DHI	OB-MA01-24D12HI-T1		55	±12.0	±42
TMV 1515DHI	OB-MA01-24D15HI-T1		53	±15.0	±33
TMV 24159HI	OB-MA01-24A1509HI-T1		55	+15.0/-9.0	+33/-55

For TMR 2WIN Series

Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
TMR 2-1210WIN	OB-MCWI02-12S033-T1	Nominal: 12 Vdc Range: 4.5-18 Vdc Input Fuse: 1000 mA	183	3.3	500
TMR 2-1211WIN	OB-MCWI02-12S05-T1		208	5.0	400
TMR 2-1212WIN	OB-MCWI02-12S12-T1		204	12.0	167
TMR 2-1213WIN	OB-MCWI02-12S15-T1		204	15.0	134
TMR 2-1221WIN	OB-MCWI02-12D05-T1		208	±5.0	±200
TMR 2-1222WIN	OB-MCWI02-12D12-T1		202	±12.0	±83
TMR 2-1223WIN	OB-MCWI02-12D15-T1		204	±15.0	±67
TMR 2-2410WIN	OB-MCWI02-24S033-T1	Nominal: 24 Vdc Range: 9-36 Vdc Input Fuse: 500 mA	92	3.3	500
TMR 2-2411WIN	OB-MCWI02-24S05-T1		104	5.0	400
TMR 2-2412WIN	OB-MCWI02-24S12-T1		102	12.0	167
TMR 2-2413WIN	OB-MCWI02-24S15-T1		102	15.0	134
TMR 2-2421WIN	OB-MCWI02-24D05-T1		104	±5.0	±200

TMR 2-2422WIN	OB-MCWI02-24D12-T1		101	±12.0	±83
TMR 2-2423WIN	OB-MCWI02-24D15-T1		102	±15.0	±67
TMR 2-4810WIN	OB-MCWI02-48S033-T1	Nominal: 48 Vdc Range: 18-75 Vdc Input Fuse: 250 mA	46	3.3	500
TMR 2-4811WIN	OB-MCWI02-48S05-T1		52	5.0	400
TMR 2-4812WIN	OB-MCWI02-48S12-T1		51	12.0	167
TMR 2-4813WIN	OB-MCWI02-48S15-T1		51	15.0	134
TMR 2-4821WIN	OB-MCWI02-48D05-T1		52	±5.0	±200
TMR 2-4822WIN	OB-MCWI02-48D12-T1		51	±12.0	±83
TMR 2-4823WIN	OB-MCWI02-48D15-T1		51	±15.0	±67

For THL 25 Series and THL 25-HS Series

Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
THL 25-1210 THL 25-1210-HS	MJW25-12S033 (PWB type)	Nominal: 12 Vdc Range: 9-18 Vdc Input Fuse: 5000 mA	1900	3.3	6000
THL 25-1211 THL 25-1211-HS	MJW25-12S05 (PWB type)		2340	5.0	5000
THL 25-1212 THL 25-1212-HS	MJW25-12S12 (PWB type)		2350	12.0	2090
THL 25-1213 THL 25-1213-HS	MJW25-12S15 (PWB type)		2350	15.0	1670
THL 25-1222 THL 25-1222-HS	MJW25-12D12 (PWB type)		2340	±12.0	±1040
THL 25-1223 THL 25-1223-HS	MJW25-12D15 (PWB type)		2360	±15.0	±840
THL 25-2410 THL 25-2410-HS	MJW25-24S033 (PWB type)	Nominal: 24 Vdc Range: 18-36 Vdc	940	3.3	6000
THL 25-2411	MJW25-24S05		1160	5.0	5000

THL 25-2411-HS	(PWB type)	Input Fuse: 2500 mA			
THL 25-2412 THL 25-2412-HS	MJW25-24S12 (PWB type)		1160	12.0	2090
THL 25-2413 THL 25-2413-HS	MJW25-24S15 (PWB type)		1160	15.0	1670
THL 25-2422 THL 25-2422-HS	MJW25-24D12 (PWB type)		1170	±12.0	±1040
THL 25-2423 THL 25-2423-HS	MJW25-24D15 (PWB type)		1180	±15.0	±840
THL 25-4810 THL 25-4810-HS	MJW25-48S033 (PWB type)	Nominal: 48 Vdc Range: 36-75 Vdc Input Fuse: 1250 mA	470	3.3	6000
THL 25-4811 THL 25-4811-HS	MJW25-48S05 (PWB type)		580	5.0	5000
THL 25-4812 THL 25-4812-HS	MJW25-48S12 (PWB type)		580	12.0	2090
THL 25-4813 THL 25-4813-HS	MJW25-48S15 (PWB type)		580	15.0	1670
THL 25-4822 THL 25-4822-HS	MJW25-48D12 (PWB type)		585	±12.0	±1040
THL 25-4823 THL 25-4823-HS	MJW25-48D15 (PWB type)		590	±15.0	±840
Note: The suffix "-HS" meaning is the converter with heatsink.					

For TEN 50WI Series and TEN 50WI-HS Series					
Model Number	Transformer Number	Input Voltage Range	Rated Input Current (mA)	Output Voltage (Vdc)	Output Current (mA)
TEN 50-2410WI TEN 50-2410WI -HS	MKWI50-24S033 (PWB type)	Nominal: 24 Vdc Range: 9-36 Vdc Input Fuse: 10000 mA	1528	3.3	10000
TEN 50-2411WI TEN 50-	MKWI50-24S05 (PWB type)		2290	5.0	10000

2411WI -HS					
TEN 50-2412WI TEN 50-2412WI -HS	MKWI50-24S12 (PWB type)		2267	12.0	4170
TEN 50-2413WI TEN 50-2413WI -HS	MKWI50-24S15 (PWB type)		2263	15.0	3330
TEN 50-2415WI TEN 50-2415WI -HS	MKWI50-24S24 (PWB type)		2286	24.0	2080
TEN 50-4810WI TEN 50-4810WI -HS	MKWI50-48S033 (PWB type)	Nominal: 48 Vdc Range: 18-75 Vdc Input Fuse: 5000 mA	764	3.3	10000
TEN 50-4811WI TEN 50-4811WI -HS	MKWI50-48S05 (PWB type)		1145	5.0	10000
TEN 50-4812WI TEN 50-4812WI -HS	MKWI50-48S12 (PWB type)		1134	12.0	4170
TEN 50-4813WI TEN 50-4813WI -HS	MKWI50-48S15 (PWB type)		1134	15.0	3330
TEN 50-4815WI TEN 50-4815WI -HS	MKWI50-48S24 (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 TEM 3N Series:
Maximum ambient (Tma): +75℃ (Power Derating Curve 100%, full load)
Maximum ambient (Tma): +85℃ (Power Derating Curve 50%, full load)

For TMV-HI Series:
Maximum ambient (Tma): +85℃ (Power Derating Curve 100%, full load)

For TMR 2WIN Series:
Maximum ambient (Tma): +75℃ (Power Derating Curve 100%, full load)
Maximum ambient (Tma): +90℃ (Power Derating Curve 50%, full load)

For THL 25 Series:
Power Derating Curve 100%, full load:
Maximum ambient (Tma) for THL 25-1210: +53℃
Maximum ambient (Tma) for THL 25-2410, THL 25-4810: +57℃
Maximum ambient (Tma) for THL 25-2411, THL 25-2412, THL 25-2413, THL 25-4811, THL 25-4812, THL 25-4813: +56℃
Maximum ambient (Tma) for THL 25-1211, THL 25-1212, THL 25-1213, THL 25-1222, THL 25-1223, THL 25-2422. THL 25-2423, THL 25-4822, THL 25-4823: +50℃

Power Derating Curve 50%, half load:
Maximum ambient (Tma) for THL 25-1210: +80℃
Maximum ambient (Tma) for THL 25-2410, THL 25-4810: +82℃
Maximum ambient (Tma) for THL 25-2411, THL 25-2412, THL 25-2413, THL 25-4811, THL 25-4812, THL 25-4813: +81℃
Maximum ambient (Tma) for THL 25-1211, THL 25-1212, THL 25-1213, THL 25-1222, THL 25-1223, THL 25-2422. THL 25-2423, THL 25-4822, THL 25-4823: +78℃

For THL 25-HS Series:
Power Derating Curve 100%, full load:
Maximum ambient (Tma) for THL 25-1210-HS: +53℃
Maximum ambient (Tma) for THL 25-2410-HS, THL 25-4810-HS: +57℃
Maximum ambient (Tma) for THL 25-2411-HS, THL 25-2412-HS, THL 25-2413-HS, THL 25-4811-HS, THL 25-4812-HS, THL 25-4813-HS: +56℃
Maximum ambient (Tma) for THL 25-1211-HS, THL 25-1212-HS, THL 25-1213-HS, THL 25-1222-HS, THL 25-1223-HS, THL 25-2422-HS. THL 25-2423-HS, THL 25-4822-HS, THL 25-4823-HS: +50℃

Power Derating Curve 50%, half load:
Maximum ambient (Tma) for THL 25-1210-HS: +80℃
Maximum ambient (Tma) for THL 25-2410-HS, THL 25-4810-HS: +82℃
Maximum ambient (Tma) for THL 25-2411-HS, THL 25-2412-HS, THL 25-2413-HS, THL 25-4811-HS, THL 25-4812-HS, THL 25-4813-HS: +81℃
Maximum ambient (Tma) for THL 25-1211-HS, THL 25-1212-HS, THL 25-1213-HS, THL 25-1222-HS, THL 25-1223-HS, THL 25-2422-HS. THL 25-2423-HS, THL 25-4822-HS, THL 25-4823-HS: +78℃

For TEN 50WI Series:
Power Derating Curve 100%, full load:
Maximum ambient (Tma) for 3.3V output models: +61℃
Maximum ambient (Tma) for TEN 50-2411WI, TEN 50-2415WI, TEN 50-4811WI, TEN 50-4815WI: +46℃

Maximum ambient (Tma) for TEN 50-2412WI, TEN 50-2413WI, TEN 50-4812WI, TEN 50-4813WI: +53℃

Power Derating Curve 50%, half load:
Maximum ambient (Tma) for 3.3V output models: +83℃
Maximum ambient (Tma) for TEN 50-2411WI, TEN 50-2415WI, TEN 50-4811WI, TEN 50-4815WI: +75℃
Maximum ambient (Tma) for TEN 50-2412WI, TEN 50-2413WI, TEN 50-4812WI, TEN 50-4813WI: +80℃

For TEN 50WI-HS Series:
Power Derating Curve 100%, full load:
Maximum ambient (Tma) for 3.3V output models: +69℃
Maximum ambient (Tma) for TEN 50-2411WI-HS, TEN 50-2415WI-HS, TEN 50-4811WI-HS, TEN 50-4815WI-HS: +57℃
Maximum ambient (Tma) for TEN 50-2412WI-HS, TEN 50-2413WI-HS, TEN 50-4812WI-HS, TEN 50-4813WI-HS: +62℃

Power Derating Curve 50%, half load:
Maximum ambient (Tma) for 3.3V output models: +87℃
Maximum ambient (Tma) for TEN 50-2411WI-HS, TEN 50-2415WI-HS, TEN 50-4811WI-HS, TEN 50-4815WI-HS: +81℃
Maximum ambient (Tma) for TEN 50-2412WI-HS, TEN 50-2413WI-HS, TEN 50-4812WI-HS, TEN 50-4813WI-HS: +83℃

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No 60950-1-07 Incl. AM1 (2011)	-	Information Technology Equipment - Safety - Part 1: General 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

Certificate: 2679690 **Master Contract:** 226037

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
2741812	July 07, 2014	Cover to alternate models and construction.
2679690	December 27, 2013	Original Certification.