M8110 SERIES

DC/DC POWER SUPPLY

PRODUCT HIGHLIGHTS

- MINIATURE
- HIGH DENSITY
- TEN OUTPUTS
- DC/DC CONVERTER
- UP TO 150W

John Tucci • Phone: (607) 563-5388 • Email: jtucci@amphenol-aao.com
• www.amphenol-aerospace.com

Amphenol
MILITARY HIGH SPEED

M8110 Series– DC/DC Power Supply

APPLICATIONS

Military, Ruggedized, Telecom, Industrial

SPECIAL FEATURES

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Fixed switching frequency (250 kHz)
- External synchronization capability
- TTL logic enable
- EMI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

ENVIRONMENTAL CONDITIONS

Meets or exceeds MIL-STD-810D

Temperature:
Operating: –55 °C to +85 °C (baseplate)
Storage: –55 °C to +125 °C

RELIABILITY

150,000 hours, calculated IAW MIL-HDBK-217F Notice 2 at +85 °C baseplate, Ground Fix conditions.

ELECTRICAL SPECIFICATIONS

DC INPUT

Input voltage range: 18 to 48 V_{DC}

Input transient protection:
All models meet or exceed (no damage)
MIL-STD-1275A (100 V for 50 ms) and
MIL-STD-704A, MIL-STD-704D (80 V for 0.1 s)

Efficiency: up to 80%

EMC: Designed to meet MIL-STD-461F*
CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103
Isolation:
Input to Output: 200 V_{DC}
Input to Case: 200 V_{DC}

DC OUTPUTS (floating from input)

Line/Load regulation:
Typical ±1% (for low voltages up to ±4%) (no load to full load, –55 °C to +85 °C)

Ripple and Noise: 50 mV_{p-p} typical (max. 1%)

Current limiting:
Continuous protection for unlimited time

Over voltage protection:
Passive transorb on outputs

Over temperature protection:
Shutdown if baseplate temperature exceeds +105 ± 5 °C. Automatic recovery upon cooldown to below +95 ± 5 °C.

Isolation:
Output to Case: 100 V_{DC}

* EMC compliance achieved when tested with 5 µH LISNs, shielded harness and static resistive load

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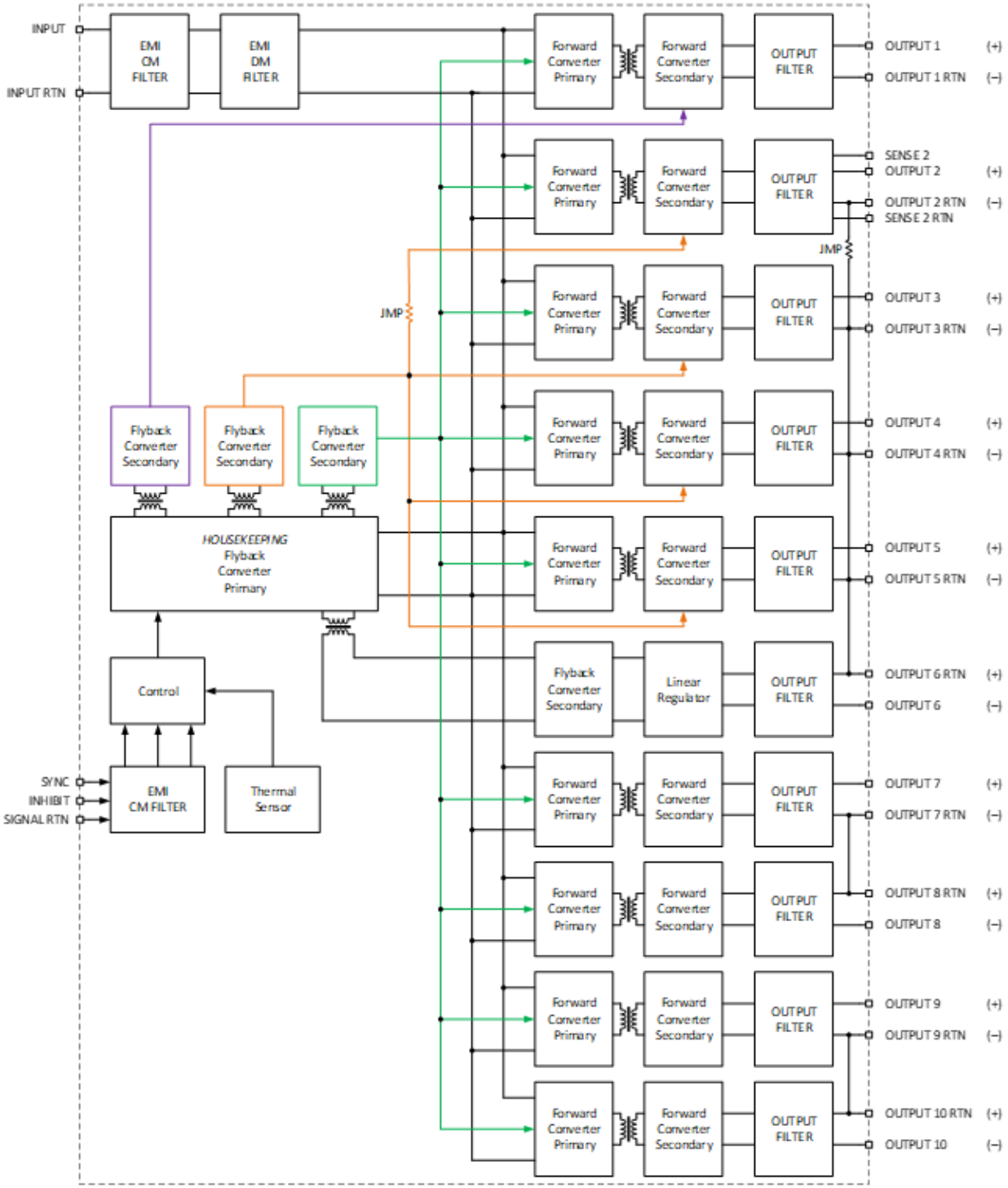
OPERATIONAL BLOCK DIAGRAM TYPE A



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OUTPUTS CONFIGURATION RANGE TYPE A

Output #	Voltage Range	Current Range	Power Range
1	2.5 to 30 V_{DC}	0 to 4 A	0 to 10 W
2	2.5 to 50 V_{DC}	0 to 6 A	0 to 30 W
3	2.5 to 50 V_{DC}	0 to 9 A	0 to 40 W
4	1.1 to 5 V_{DC}	0 to 3 A	0 to 5 W
5	1.1 to 5 V_{DC}	0 to 3 A	0 to 5 W
6	-3.3 to -24 V_{DC}	0 to 0.4 A	0 to 5 W
7	2.5 to 50 V_{DC}	0 to 6 A	0 to 45 W
8	-2.5 to -50 V_{DC}	0 to 6 A	0 to 45 W
9	1.5 to 30 V_{DC}	0 to 3 A	0 to 10 W
10	-1.5 to -30 V_{DC}	0 to 3 A	0 to 10 W
Total			0 to 145 W

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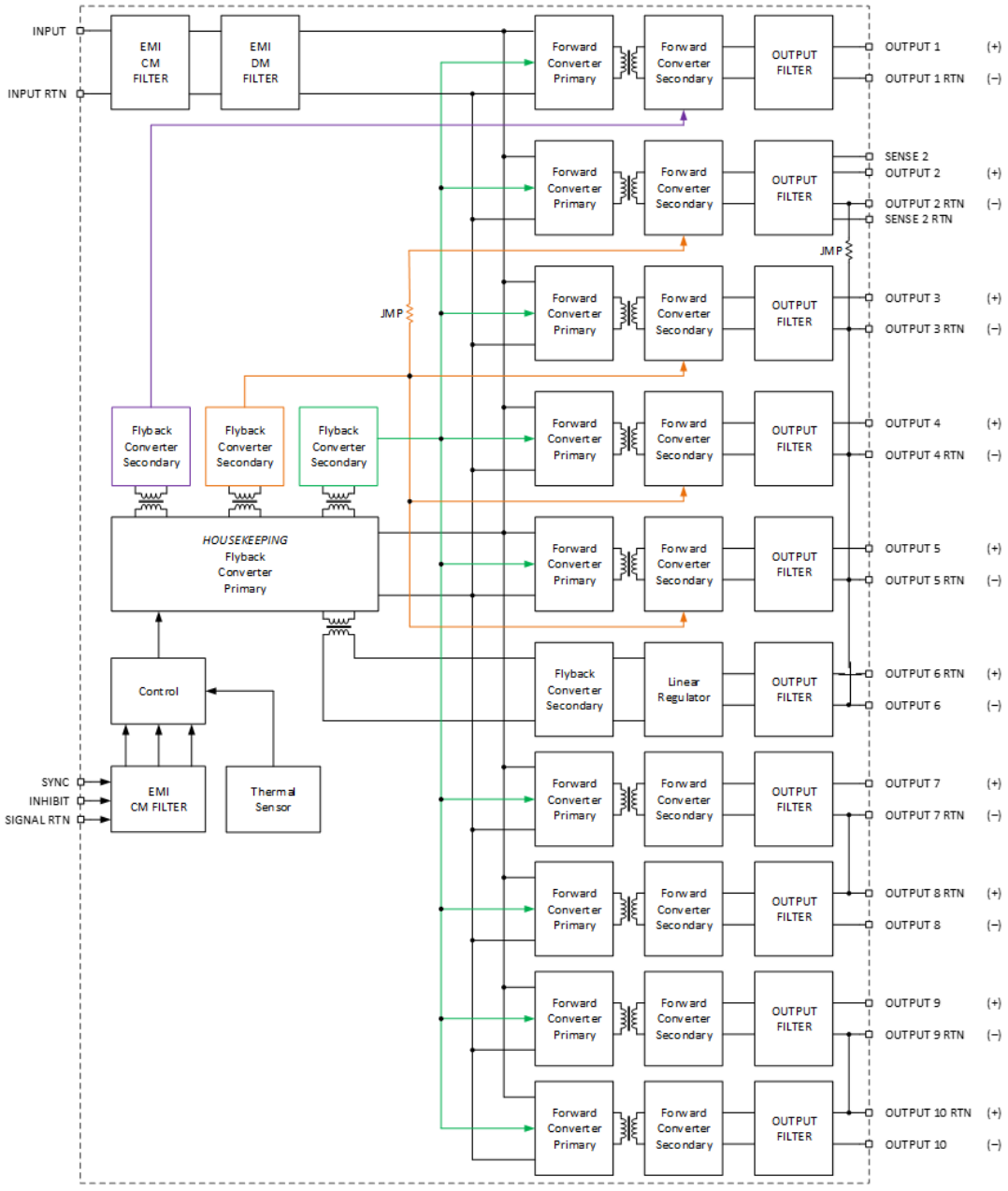
OPERATIONAL BLOCK DIAGRAM TYPE B



OUTPUTS CONFIGURATION RANGE TYPE B

Output #	Voltage Range	Current Range	Power Range
1	2.5 to 30 V_{DC}	0 to 4 A	0 to 10 W
2	2.5 to 50 V_{DC}	0 to 6 A	0 to 30 W
3	2.5 to 50 V_{DC}	0 to 9 A	0 to 40 W
4	1.1 to 5 V_{DC}	0 to 3 A	0 to 5 W
5	1.1 to 5 V_{DC}	0 to 3 A	0 to 5 W
6	3.3 to 24 V_{DC}	0 to 0.4 A	0 to 5 W
7	2.5 to 50 V_{DC}	0 to 6 A	0 to 45 W
8	-2.5 to -50 V_{DC}	0 to 6 A	0 to 45 W
9	1.5 to 30 V_{DC}	0 to 3 A	0 to 10 W
10	-1.5 to -30 V_{DC}	0 to 3 A	0 to 10 W
Total			0 to 145 W

OUTPUTS ISOLATION (GROUND RTN GROUPS)

- All outputs are isolated form the input.
- Outputs are seperated into the following five galvanically isolated groups:
  - Group A: Output #1
  - Group B: Output #2 (must be connected to group C if output voltage is lower than 5V)
  - Group C: Outputs #3, #4, #5 and #6
  - Group D: Outputs #7 and #8
  - Group E: Outputs #9 and #10

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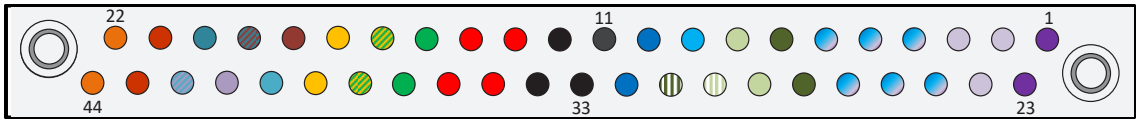
PIN ASSIGNMENT: TYPE A

Connector type: M55302/61A44 or eq.

Mates with: M55302/62-A44M (solder cup termination) or M55302/66-44M (#22 AWG crimp termination) or eq.

Pin No.	Function	P	
1	OUT 4	+	
2	OUT 3	+	
3	OUT 3	+	
4	OUT 3/4/5/6 RTN		
5	OUT 3/4/5/6 RTN		
6	OUT 3/4/5/6 RTN		
7	OUT 2 RTN	–	
8	OUT 2	+	
9	OUT 6	–	
10	OUT 5	+	
11	INPUT RTN	–	
12	INPUT RTN	–	
13	INPUT	+	
14	INPUT	+	
15	OUT 8	–	
16	OUT 7/8 RTN		
17	OUT 7	+	
18	OUT 9	+	
19	OUT 9/10 RTN		
20	OUT 10	–	
21	OUT 1 RTN	–	
22	OUT 1	+	

Pin No.	Function	P	
23	OUT 4	+	
24	OUT 3	+	
25	OUT 3/4/5/6 RTN		
26	OUT 3/4/5/6 RTN		
27	OUT 3/4/5/6 RTN		
28	OUT 2 RTN	–	
29	OUT 2	+	
30	SENSE 2	+	
31	SENSE 2 RTN	–	
32	OUT 5	+	
33	INPUT RTN	–	
34	INPUT RTN	–	
35	INPUT	+	
36	INPUT	+	
37	OUT 8	–	
38	OUT 7/8 RTN		
39	OUT 7	+	
40	INHIBIT	+	
41	SYNC	+	
42	SIGNAL RTN	–	
43	OUT 1 RTN	–	
44	OUT 1	+	



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PIN ASSIGNMENT: TYPE B

Connector type: M55302/61A44 or eq.

Mates with: M55302/62-A44M (solder cup termination) or M55302/66-44M (#22 AWG crimp termination) or eq.

Pin No.	Function	P	
1	OUT 4	+	
2	OUT 3	+	
3	OUT 3	+	
4	OUT 3/4/5 RTN – OUT 6		
5	OUT 3/4/5 RTN – OUT 6		
6	OUT 3/4/5/6 RTN		
7	OUT 2 RTN	–	
8	OUT 2	+	
9	OUT 6	+	
10	OUT 5	+	
11	INPUT RTN	–	
12	INPUT RTN	–	
13	INPUT	+	
14	INPUT	+	
15	OUT 8	–	
16	OUT 7/8 RTN		
17	OUT 7	+	
18	OUT 9	+	
19	OUT 9/10 RTN		
20	OUT 10	–	
21	OUT 1 RTN	–	
22	OUT 1	+	

Pin No.	Function	P	
23	OUT 4	+	
24	OUT 3	+	
25	OUT 3/4/5 RTN – OUT 6		
26	OUT 3/4/5 RTN – OUT 6		
27	OUT 3/4/5 RTN – OUT 6		
28	OUT 2 RTN	–	
29	OUT 2	+	
30	SENSE 2	+	
31	SENSE 2 RTN	–	
32	OUT 5	+	
33	INPUT RTN	–	
34	INPUT RTN	–	
35	INPUT	+	
36	INPUT	+	
37	OUT 8	–	
38	OUT 7/8 RTN		
39	OUT 7	+	
40	INHIBIT	+	
41	SYNC	+	
42	SIGNAL RTN	–	
43	OUT 1 RTN	–	
44	OUT 1	+	

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SIGNALS DESCRIPTION

SENSE 2 (pin 11)
The ***SENSE 1*** line is used to achieve accurate voltage regulation at load 1 terminals.
To use this feature, connect this pin directly to load 1's positive terminal.
If this function is not required, short ***SENSE 2*** to ***OUT 2*** (pins 8 and 29) as close as possible to the connector.

SENSE 2 RTN (pin 30)
The ***SENSE 1 RTN*** line is used to achieve accurate voltage regulation at load terminals.
To use this feature, connect this pin directly to load's negative terminal.
If this function is not required, short ***SENSE 2 RTN*** to ***OUT 2 RTN*** (pins 7 and 28) as close as possible to the connector.

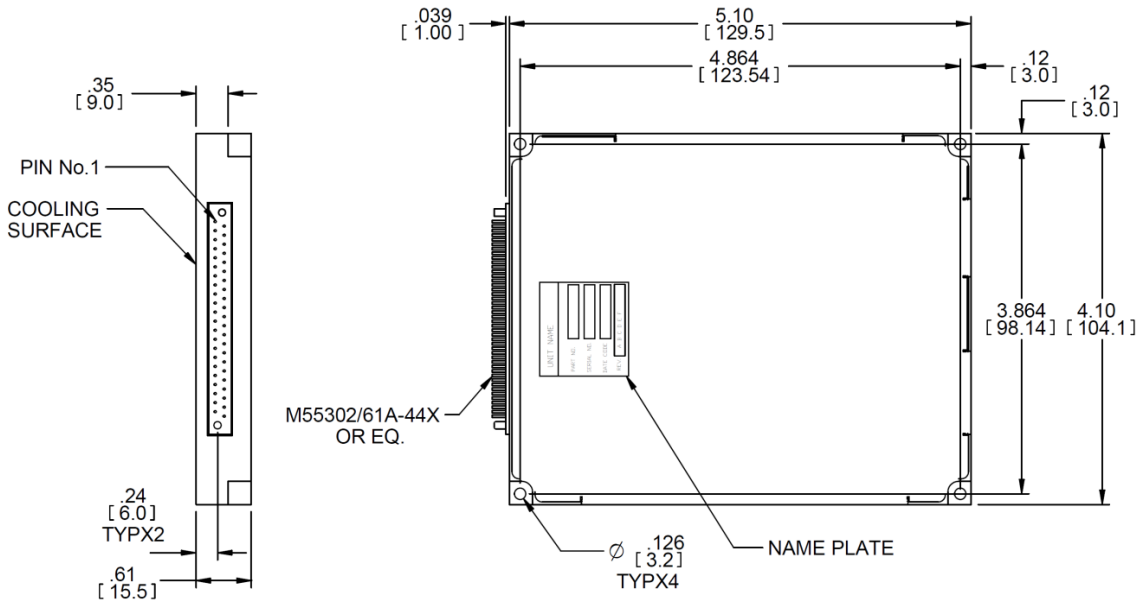
Note: The use of remote sense has a limit of voltage dropout between the converter's output and the load's terminals of approximately 5% of nominal output voltage or 0.5 V – the lesser of the two.

INHIBIT (pin 40)
The ***INHIBIT*** signal is used to turn the power supply ON and OFF.
TTL "1"or OPEN – Power supply active (output turned on).
TTL "0" or SHORT to ***SIGNAL RTN*** – Power supply inhibited (output turned off).
If this function is not required, leave this pin unconnected.
This signal is referenced to ***SIGNAL RTN*** (pin 42)

SYNC (pin 41)
The ***SYNC*** signal is used to synchronize the power supply's switching frequency to system's clock. Valid external clock frequency is 250 kHz ± 10 kHz, and duty cycle is 50% ± 10%.
If this function is not required, leave this pin unconnected - the power supply will use its internal clock.
This signal is referenced to ***SIGNAL RTN*** (pin 42)

SIGNAL RTN (pin 42)
Both ***INHIBIT*** and ***SYNC*** signals are referenced to this pin.
This pin is referenced to ***INPUT RTN*** (pins 11, 12, 33 and 34).

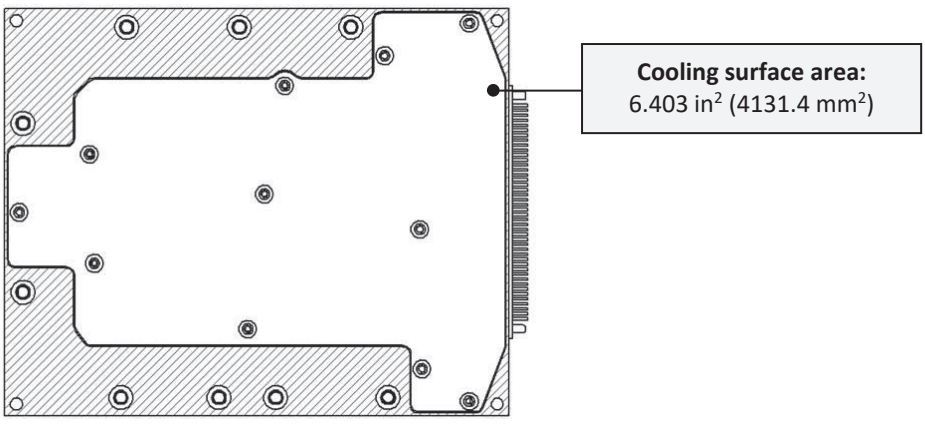
OUTLINE DRAWING



Notes

1. Dimensions are in inches [mm]
2. Tolerance is:
   .XX ± .02 in
   .XXX ± .01 in
3. Weight: 11.78 oz [334 g] ± 2%

HEAT DISSIPATION AREA



Note: Specifications are subject to change without prior notice by the manufacturer

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