

P R B X

POWERBOX Defense Line
DAA/DAB/DAC Series
150W to several kW
DC/DC Conduction cooled

Description

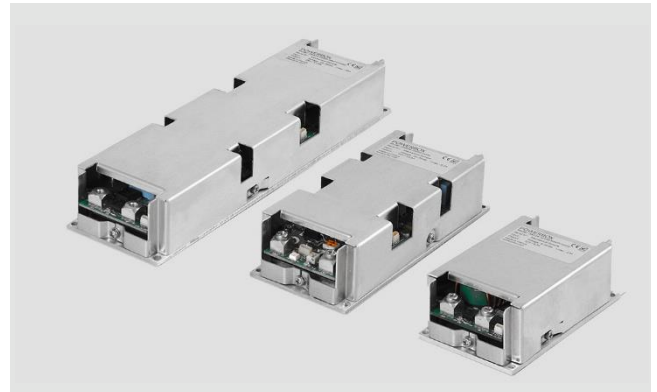
The DAA/DAB/DAC, very compact DC/DC converter in chassis mount format, incorporates input filtering, input and output protections, very robust mechanical mounting and connection, optional conformal coating, required in most of the severe environment for industrial, railways, defense type of applications. The converter provides high reliability, high efficiency, input-to-output isolation, soft start, overtemperature protection, input over/undervoltage lockout. The converters wide range of inputs are protected against surges and transients and EMI filtered. The outputs are continuously short circuit proof. The 100°C baseplate operation allows operation in high temperature environment. The output can be configured in many different output voltages from 3V3 to 48VDC, can be put in series and parallel, others possibilities are even possible as semi-standard versions. Wide range of accessories like input & output Bus bars, N+1 oring diodes, parallel cables are available to simplify multi units assemblies. Military options (M) make it suitable for MIL STD compliance.

Features

12, 24, 48, 72, 110VDC in
3 packages 150, 300W, 500W
Output from 3V3 to 48VDC
Input filtering EN55022 & transient protection
Reverse polarity protection
Several outputs, parallel or series operations up to several kW
MIL-STD1275, 461, 810, 704 options
Safety built to meet IEC/EN62368-1, ROHS lead-free-solder compliant

Options

Heatsink (H)	The unit is built as standard with a aluminum baseplate as described in the mechanical data. The converter can be delivered with a 15mm heatsink.
Ruggedized (M)	The unit can be ruggedized to meet MIL-STD810E, MIL-STD461E CE102. M option with 12 and 24Vin will comply with MIL STD 1275A on DAA and DAB only.
-40°C operation (T)	The thermal grade of the components are comply with low ambient temperature.
Conformal coating (V)	During manufacturing process components and pcb are covered with an acrylic coating to address high level of ambient humidity application.
IP-Enclosure (IP)	Built in IP65 sealed enclosure.



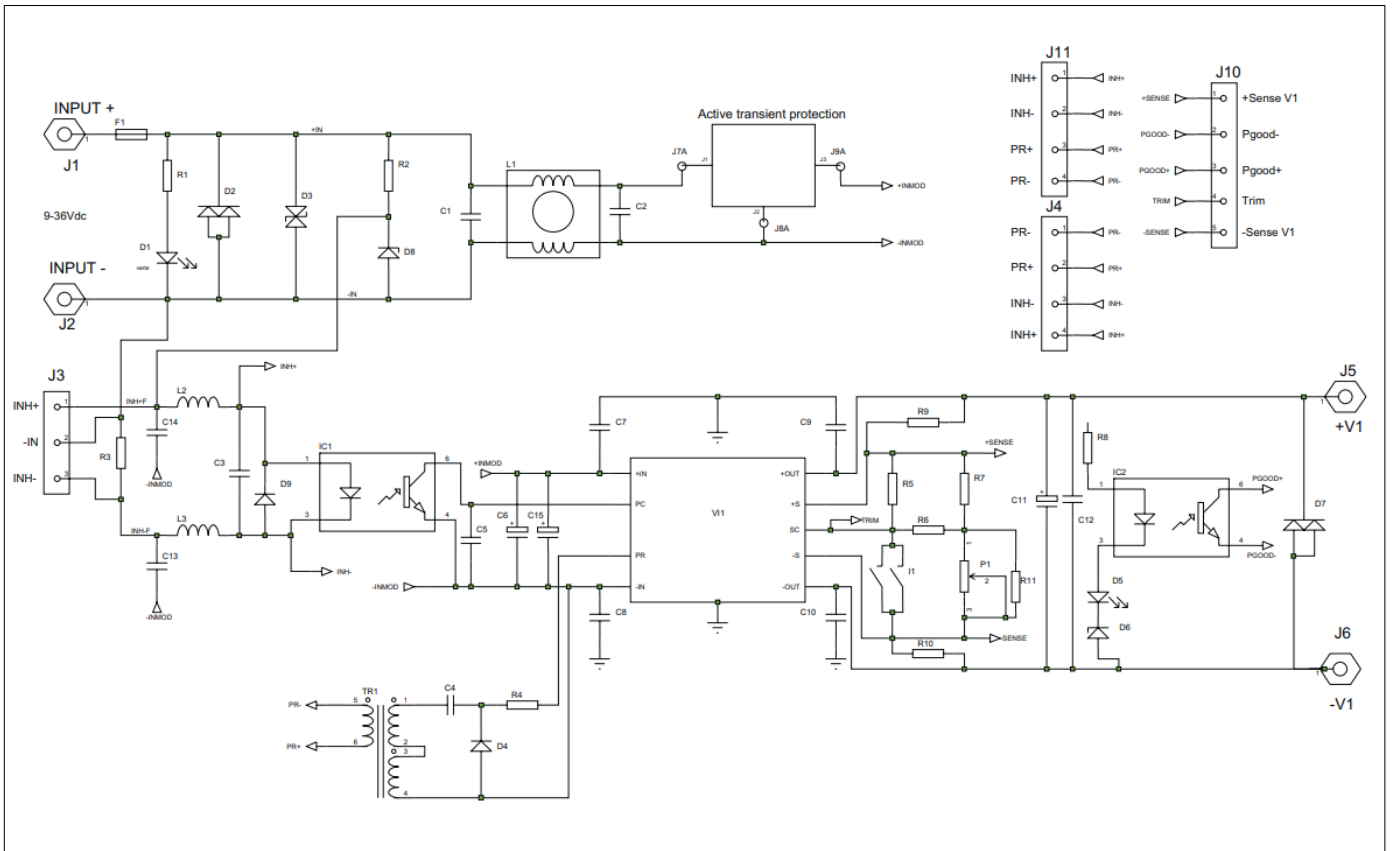
Input

Electrical input data	See table
Input fuse	A fuse mounted inside the converter protects against damages in case of a failure. The fuse is not user-accessible.
Input transient protection	A VDR (Voltage Dependent Resistor) and a common mode input filter form an effective protection against input transients in severe environments like railways. When M option is defined for DAA500 and DAB300 Series, the unit is incorporating an active protection against high energy transient MIL STD 1275, DO160.
Input reverse polarity	A diode placed internally across the input will cause the fuse to blow in case of a reverse polarity of input voltage.

Accessories

Input parallel bus bar with capacitor footprints	The input bus bar simplifies the assembly of 2 or 3 units. It includes input extra capacitor footprints for application with long lenght from the source to the converter.
Output parallel bus bar	Available for 2up & 3up versions, it connects together the differents positive outputs as well as negative output.
Output serial bus bar	It connects the negative of the first unit with the positive of the second to create high voltage configuration.
Output N+1 bus bar including diode	From 1up to 4up, this accessory puts in parallel the outputs with the addition of an oring diode mounted on an aluminium bar.
Inhibition and parallel cable	These 50mm cables allow unit to current share in parallel and allow the user to inhibit all units at the same time.

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Functionalities	Conditions	Input 12V			Input 24V			Input 48V			Input 72V			Input 110V		
		DAA	DAB	DAC	DAA	DAB	DAC	DAA	DAB	DAC	DAA	DAB	DAC	DAA	DAB	DAC
Parallel operation	current share with PR connected	✓	✓		✓	✓		✓	✓		✓	✓		✓	✓	
Redundant operation	R option or external diode	✓	✓		✓	✓		✓	✓		✓	✓		✓	✓	
Series operation		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remote senses		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MIL COTS version	M option	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Conformal coating	V option	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
-40°C Operation	T option	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MIL-STD-704 A,C,D,E,F, 28V Steady State	M option, built to meet	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MIL-STD-704 A,C,D,E,F 28V Surges High Transients	M option, built to meet	✓	✓	✓	✓	✓	✓									
MIL-STD-704 A,C,D,E,F 28V Surges Low Transients	M option, built to meet	✓	✓	✓	✓	✓	✓									
MIL-STD-704 C,D,E,F 28V Surges Low Transients	M option, built to meet	✓	✓	✓	✓	✓	✓									
MIL-STD-704 A,C,D,E,F 28V Spikes	M option, built to meet	✓	✓	✓	✓	✓	✓									
MIL-STD-810E (Shocks, Vibrations, Accelerations, Humidity)	M,V option built to meet	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MIL-STD-461 Conducted Emission CE101, CE102	M option built to meet	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MIL-STD-461 Conducted Susceptibility CS101, 114, 116	M option built to meet	✓	✓	✓	✓	✓	✓									
MIL-STD-1275 A,B,C,D Steady State, Surges and Spikes	100V/50ms, 250V/70uS, M option	✓	✓		✓	✓										
RTCA-DO-160E sect.16 cat.Z, Surges	80V/100ms, 48V/1s not meet , M option	✓	✓	✓	✓	✓	✓									
DEF STAN 61-5, Part 6 28V	100V/50ms, M option	✓	✓	✓	✓	✓	✓									
ABD100.1.8 Surge and Normal Transients	M option	✓	✓	✓	✓	✓	✓									
EN50155 Environmental	V option	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EN50155, EN55022A, EN55011A, EN50121-3-2	Conduction Emission, built to meet	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EN 50155 Input Range and Transient	built to meet	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Input Characteristics	Condt.	Model Number	12V			24V			48V			72V			110V			Units
			min	typ	max	min	tip	max	min	typ	max	min	typ	max	min	typ	max	
Operating input voltage			9		36	18		36	36		75	43		110	66	143	V	
Input surge	<100ms				50			50			100			150		230	V	
Undervoltage turn-on					8.9		17.5	17.9		35		42			64		V	
Undervoltage turn-off				8.5		14.8	15.3		30		36.5			56		V		
Overvoltage turn-off			36.2		40	36.3		39.7	75.7		82.5	111		121	155	170	V	
Input current	Vin min	DAA			30			33			16.2			11		7.2	A	
		DAB			21			16.5			8.2			7		3.6	A	
		DAC			15			10			3.7			4.2		1.8	A	
No load input power		DAA	8	17		8	14		8	16		11	17		11	15	W	
		DAB	6	11		6	7.8		6	11		8	11		7	9	W	
		DAC	3	10		3	7		3	5		5	7		3	5	W	
Input capacitance	No inrush	DAA	440			440			44		20			20			uF	
	limiting	DAB	270			270			44		10			10			uF	
	circuit	DAC	220			220			44		10			10			uF	
Start-up time		DAA	50			50			50		50			50			ms	
		DAB	50			50			50		50			50			ms	
		DAC	50			50			50		50			50			ms	

Part Number Structure

DA	A	24	-	12	200	W ⁽¹⁾	-	HMTV
Chassis		Input		Output	Power	Input Range		Options
A: 225mm (150-500W)		24: 18-36VDC		3V3: 3.3VDC	50: 50W	□: 2:1 (18-36VDC)		□: None
B: 140mm (75-300W)		48: 36-75VDC		5: 5VDC	75: 75W	W: 4:1 (9-36VDC)		H: Heatsink
C: 100mm (50-150W)		72: 43-110VDC		6V5: 6.5VDC	100: 100W			M: Ruggedized
		110: 66-143VDC		8: 8VDC	125: 125W			T: -40°C operation
				12: 12VDC	150: 150W			V: Conformal coating
				15: 15VDC	175: 175W			IP: IP-enclosure
				24: 24VDC	200: 200W			
				28: 28VDC	250: 250W			
				36: 36VDC	300: 300W			
				48: 48VDC	400: 400W			
					500: 500W			

Note:

1: Wide input only available for 24V input

Installations

These converters are components, intended exclusively for integration into other equipment by an industrial assembly process or by a professional competent person. Installation must strictly follow the safety regulations in respect of the enclosure, mounting, creepage and clearance distances, markings of the end-use application. Connection to the system shall be made via appropriate connection. The +Vin is internally fused. This fuse is designed to protect the converter against overcurrent caused by a failure, but may not be able to satisfy all requirements. External fuses in the wiring circuit to one or both input pins may be necessary to ensure compliance with local requirements. Do not open the converters, or the warranty will be invalidated. Make sure that there is sufficient heat dissipation available for conduction cooling. This should be verified by measuring the case of temperature at the specified measuring point, when the converter is operated in the end-use application.

Designed/Built to Meet Standards and approvals

The converters are built to meet. 'Built to meet' mentioned in the different paragraphs of the datasheet means that the product is designed to meet the standard but not certified it in a laboratory. The installation is an important factor to fulfil EMI, electromagnetic immunity and emission for that reason the product shall be validated in its final application as additional filters may be needed.

Output Data DAA Series

General conditions : 25°C ambient. 1) Recycle input voltage or inhibit to restart (>100ms off) - 2) Output voltage 95 % of nominal - 3) Output voltage < 250mV - 4) Nominal input, full load, 20MHz bandwidth - 5) No load to full load, nominal input

Model	Output Voltage	Output Power	Volt. Adj. (1)		Overvoltage Protection (2)			Output Current	Output Current limit (3)			Short Circuit Current (4)			Output Noise (5)		Efficiency	Load regulation (6)
	V	W	Min	Max	Min	Typ	Max	A	Min	Typ	Max	Min	Typ	Max	Typ	Max	%	%
12Vin																		
DAA24-3V3150W-x	3V3	150	3.0	3.63	4.1	4.3	4.5	45	46.4	52	61.5	31.8	52	61.5	75	100	78	0.2
DAA24-5175W-x	5V	175	4.5	5.5	6	6.25	6.5	35	35.7	40	49	24	40	49	170	350	76	0.2
DAA24-6V5200W-x	6V5	200	5.85	7.15	7.7	8	8.3	30.5	31.4	35	41.6	21	35	41.6	170	350	78	0.2
DAA24-8200W-x	8V	200	7.2	8.8	9.3	9.7	10.2	25	25.5	29	33.8	17.5	29	33.8	180	400	80	0.2
DAA24-12200W-x	12V	200	10.8	13.2	13.7	14.3	14.9	16.6	17	19.2	22.6	11.6	19.2	22.6	150	350	80	0.2
DAA24-15200W-x	15V	200	13.5	16.5	17	17.8	18.6	13.3	13.5	15.3	20.6	9.3	15.3	20.6	150	275	84	0.2
DAA24-24200W-x	24V	200	21.6	26.4	27	28	29.2	8.33	8.4	9.6	11.3	5.8	9.6	11.3	220	400	85	0.2
DAA24-28200W-x	28V	200	25.2	30.8	31	32.7	34	7.1	7.3	8.2	10	5	8.2	10	150	250	84	0.2
DAA24-36200W-x	36V	200	32.4	39.6	40	42	43.5	5.5	5.7	7.7	8.1	3.4	7	8	150	280	82	0.2
DAA24-48200W-x	48V	200	43.2	52.8	53.5	56	58	4.1	4.25	4.4	5.8	2.9	4.8	5.8	180	400	82	0.2
24Vin																		
DAA24-3V3200-x	3V3	200	3.0	3.63	4.1	4.3	4.5	60	61.8	69	82	42	69	82	75	100	79	0.2
DAA24-3V3264-x	3V3	264	3.0	3.63	4.1	4.3	4.5	80	81.6	92	108	56	92	108	75	100	78	0.2
DAA24-5300-x	5V	300	4.5	5.5	6	6.25	6.5	60	61.2	69	81	42	69	81	100	150	84	0.2
DAA24-5400-x	5V	400	4.5	5.5	6	6.25	6.5	80	81.6	92	104	56	92	104	100	190	84	0.2
DAA24-6V5400-x	6V5	400	5.85	7.15	7.7	8	8.3	61	62.7	71	83	43	71	83	75	125	85	0.2
DAA24-8300-x	8V	300	7.2	8.8	9.3	9.7	10.2	37.5	38.2	43	51	26	43	51	150	250	86	0.2
DAA24-12300-x	12V	300	10.8	13.2	13.7	14.3	14.9	25	25.5	29	34	17.5	29	34	150	150	86	0.2
DAA24-12400-x	12V	400	10.8	13.2	13.7	14.3	14.9	33.3	34	38	44	23	38	44	180	320	86	0.2
DAA24-12500-x	12V	500	10.8	13.2	13.7	14.3	14.9	41.6	42.5	48	56	29	48	56	150	340	86	0.2
DAA24-15300-x	15V	300	13.5	16.5	17	17.8	18.6	20	20.5	23	27	14	23	27	120	200	86	0.2
DAA24-15400-x	15V	400	13.5	16.5	17	17.8	18.6	26.6	27	31	35	18	31	35	100	150	87	0.2
DAA24-24300-x	24V	300	21.6	26.4	27	28	29.2	12.5	12.7	14.4	17	8.8	14.4	17	75	100	87.5	0.2
DAA24-24400-x	24V	400	21.6	26.4	27	28	29.2	16.6	17	19	21.7	2.2	19	21.7	80	100	87.5	0.2
DAA24-24500-x	24V	500	21.6	26.4	27	28	29.2	20.8	21.3	24	28	14	24	28	150	250	87.5	0.2
DAA24-28300-x	28V	300	25.2	30.8	31	32.7	34	10.7	10.9	12.3	14.5	3	12.3	14.5	75	125	87	0.2
DAA24-28400-x	28V	400	25.2	30.8	31	32.7	34	14.2	14.5	16	19.4	10	16.4	19.4	120	200	87	0.2
DAA24-28500-x	28V	500	25.2	30.8	31	32.7	34	17.9	18.3	20.6	24.2	12.5	20.6	24.2	125	215	87	0.2
DAA24-36300-x	36V	300	32.4	39.6	40	42	43.5	8.33	8.5	9.6	11.3	5.8	9.6	11.3	75	100	87.5	0.2
DAA24-36400-x	36V	400	32.4	39.6	40	42	43.5	11.1	11.3	12.8	15	7.8	12.8	15	75	150	87.5	0.2
DAA24-48300-x	48V	300	43.2	52.8	53.5	56	58	6.25	6.4	7.2	8.5	4.3	7.2	8.5	100	225	86.5	0.2
DAA24-48400-x	48V	400	43.2	52.8	53.5	56	58	8.33	8.5	9.6	11.3	4.8	9.6	11.3	100	200	86	0.2
48Vin																		
DAA48-3V3264-x	3V3	264	3.0	3.63	4.1	4.3	4.5	80	81.6	94	108	56	92	112	75	100	80	0.2
DAA48-5400-x	5V	400	4.5	5.5	6	6.25	6.5	80	81.6	92	104	8	92	104	75	100	84	0.2
DAA48-8400-x	8V	400	7.2	8.8	9.3	9.7	10.2	50	51	57	67	35	57	67	150	310	84	0.2
DAA48-12500-x	12V	500	10.8	13.2	13.7	14.3	14.9	41.6	42.5	48	54	29	48	54	150	250	87	0.2

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DAA48-15500-x	15V	500	13.5	16.5	17	17.8	18.6	33.3	34	38	45	3.8	38	45	75	100	88.5	0.2
DAA48-24500-x	24V	500	21.6	26.4	27	28	29.2	20.8	21.3	23.4	25.5	14.6	23.4	25.1	75	100	87	0.2
DAA48-28500-x	28V	500	25.2	30.8	31	32.7	34	17.8	18.2	20.6	23.3	12.5	20.6	23.3	75	100	88.5	0.2
DAA48-36500-x	36V	500	32.4	39.6	40	42	43.5	13.9	14.1	16	19	9.7	16	19	100	150	86	0.2
DAA48-48500-x	48V	500	43.2	52.8	53.5	56	58	10.4	10.6	12	13.6	6.2	12	14.8	150	175	89	0.2
72Vin																		
DAA72-3V3264-x	3V3	264	3.0	3.63	4.1	4.3	4.5	80	81.6	92	108	56	92	108	75	120	80	0.2
DAA72-5300-x	5V	300	4.5	5.5	6	6.25	6.5	60	61.2	69	81	22	69	81	75	120	84	0.2
DAA72-8300-x	8V	300	7.2	8.8	9.3	9.7	10.2	37.5	38.2	43	51	26	43	51	150	150	84	0.2
DAA72-12400-x	12V	400	10.8	13.2	13.7	14.3	14.9	33.3	33.9	38	45	23	38	45	180	400	86	0.2
DAA72-15400-x	15V	400	13.5	16.5	17	17.8	18.6	26.7	27.2	30.7	36.2	18	30.7	36.2	200	375	86	0.2
DAA72-24400-x	24V	400	21.6	26.4	27	28	29.2	16.6	17	19	23.5	11.5	19	22.6	150	200	87	0.2
DAA72-28400-x	28V	400	25.2	30.8	31	32.7	34	14.2	14.5	16.4	19.5	10	16.4	19.4	150	380	88	0.2
DAA72-36400-x	36V	400	32.4	39.6	40	42	43.5	11.1	11.3	12.8	15	7.7	12.8	15	120	250	87	0.2
DAA72-48400-x	48V	400	43.2	52.8	53.5	56	58	8.33	8.4	9.5	11.3	5.8	9.5	11.3	150	300	87	0.2
110Vin																		
DAA110-3V3150-x	3V3	150	3.0	3.63	4.1	4.3	4.5	45	46.4	52	61.5	31.8	52	61.5	75	100	81	0.2
DAA110-3V3200-x	3V3	200	3.0	3.63	4.1	4.3	4.5	60	61.8	69	82	42	69	82	75	110	80	0.2
DAA110-5200-x	5V	200	4.5	5.5	6	6.26	6.5	40	40.8	46	54	28	46	54	120	200	85	0.2
DAA110-5300-x	5V	300	4.5	5.5	6	6.26	6.5	60	61.2	69	81	42	69	81	75	120	84	0.2
DAA110-8200-x	8V	200	7.2	8.8	9.3	9.7	10.2	25	25.5	29	34	6	29	34	150	275	87	0.2
DAA110-8300-x	8V	300	7.2	8.8	9.3	9.7	10.2	37.5	38.2	43	51	26	43	51	150	250	86	0.2
DAA110-12300-x	12V	300	10.8	13.2	13.7	14.3	14.9	25	25.5	28.8	33.8	17.5	28.8	33.8	150	300	86	0.2
DAA110-12400-x	12V	400	10.8	13.2	13.7	14.3	14.9	33.3	34	38.3	45	23	38.3	45	150	300	85	0.2
DAA110-15300-x	15V	300	13.5	16.5	17	17.8	18.6	20	20.4	23	27	14	23	27	150	315	87	0.2
DAA110-15400-x	15V	400	13.5	16.5	17	17.8	18.6	26.6	27.2	30.7	36.1	10	30.7	36.1	120	230	87	0.2
DAA110-24300-x	24V	300	21.6	26.4	27	28	29.2	12.5	12.7	14.4	17	8.7	14.4	17	130	240	88	0.2
DAA110-24400-x	24V	400	21.6	26.4	27	28	29.2	16.6	17	19	22.6	11.5	19	22.5	100	175	86	0.2
DAA110-28300-x	28V	300	25.2	30.8	31	32.7	34	10.7	10.9	12.3	14.5	7.5	12.3	14.5	150	280	87	0.2
DAA110-28400-x	28V	400	25.2	30.8	31	32.7	34	14.2	14.5	16.5	20	10	16.5	20	120	200	87	0.2
DAA110-36300-x	36V	300	32.4	39.6	40	42	43.5	8.33	8.5	9.5	11.3	5.8	9.5	11.3	100	175	88	0.2
DAA110-36400-x	36V	400	32.4	39.6	40	42	43.5	11.1	11.3	12.8	15	3.2	12.8	15	120	200	88	0.2
DAA110-48300-x	48V	300	43.2	52.8	53.5	56	58	6.25	6.4	7.2	8.4	4.3	7.2	8.4	200	175	87	0.2
DAA110-48400-x	48V	400	43.2	52.8	53.5	56	58	8.33	8.5	9.6	11.3	5.8	9.6	11.3	100	200	89	0.2

Output Data DAB Series

General conditions : 25°C ambient. 1) Recycle input voltage or inhibit to restart (>100ms off) - 2) Output voltage 95 % of nominal - 3) Output voltage < 250mV - 4) Nominal input, full load, 20MHz bandwidth - 5) No load to full load, nominal input

	Output Voltage	Output Power	Volt. Adj. (1)		OVP (2)			Output Current	Output Current limit (3)			Short Circuit Current (4)			Output Noise (5)		Efficiency	Load regulation (6)
Model	V	W	V		V			A	A			A			mVpp		%	%
Number	Nom	Nom	Min	Max	Min	Typ	Max	Max	Min	Typ	Max	Min	Typ	Max	Typ	Max	Typ	Typ
12Vin																		
DAB24-3V375W-x	3V3	75	3.0	3.63	4.1	4.3	4.5	22.7	23.1	26	31	15.5	26	31	60	100	77	0.2
DAB24-575W-x	5V	75	4.5	5.5	6	6.25	6.5	15	15.3	17.5	20.5	10.5	17.5	20.5	150	300	73	0.2
DAB24-12125W-x	12V	125	10.8	13.2	13.7	14.3	14.9	10.4	10.6	12	14.1	7.3	12	14.1	150	350	80	0.2
DAB24-15150W-x	15V	150	13.5	16.5	17	17.8	18.6	10	10.2	11.5	13.5	7	11.5	13.5	200	350	80	0.2
DAB24-24150W-x	24V	150	21.6	26.4	27	28	29.2	6.25	6.4	7.2	9.3	4.4	7.2	9.3	250	400	80	0.2
DAB24-28150W-x	28V	150	25.2	30.8	31	32.7	34	5.3	5.4	6.1	7.3	3.7	6.2	7.3	200	400	80	0.2
DAB24-36-150W-x	36V	150	32.4	39.6	40	42	43.5	4.1	4.2	4.8	5.7	2.9	4.8	5.7	200	400	79	0.2
DAB24-48150W-x	48V	150	43.2	52.8	53.5	56	58	3.1	3.2	3.6	4.3	2.2	3.6	4.3	200	400	81	0.2
24Vin																		
DAB24-3V3100-x	3V3	100	3.0	3.63	4.1	4.3	4.5	30	30.9	35	41	21	35	41	75	100	80	0.2
DAB24-3V3150-x	3V3	150	3.0	3.63	4.1	4.3	4.5	45	46.4	52	61	32	52	61	100	200	80	0.2
DAB24-5150-x	5V	150	4.5	5.5	6	6.25	6.5	30	30.6	34	40	5.8	34	40	50	75	84	0.2
DAB24-5200-x	5V	200	4.5	5.5	6	6.25	6.5	40	40.8	52	55	28	52	62	80	125	83	0.2
DAB24-6V5100-x	6V5	200	5.85	7.15	7.7	8	8.3	30.5	31.4	35	41	21	35	41	150	230	84	0.2
DAB24-8200-x	8V	200	7.2	8.8	9.3	9.7	10.2	25	25.5	29	34	17	29	34	150	250	86	0.2
DAB24-12150-x	12V	150	10.8	13.2	13.7	14.3	14.9	12.5	12.8	14.4	17	8.5	14.4	17	100	200	87	0.2
DAB24-12200-x	12V	200	10.8	13.2	13.7	14.3	14.9	16.6	17	19	23	11.5	19	23	250	400	85	0.2
DAB24-12250-x	12V	250	10.8	13.2	13.7	14.3	14.9	20.8	21.3	24	29	14.5	24	29	150	250	86	0.2
DAB24-15150-x	15V	150	13.5	16.5	17	17.8	18.6	10	10.2	11.5	13.5	7	11.5	13.5	150	250	87	0.2
DAB24-15200-x	15V	200	13.5	16.5	17	17.8	18.6	13.3	13.5	16	17.3	13.5	16	17.3	150	300	86	0.2
DAB24-24150-x	24V	150	21.6	26.4	27	28	29.2	6.25	6.4	7.2	8.4	3.7	7.2	8.4	120	250	87	0.2
DAB24-24200-x	24V	200	21.6	26.4	27	28	29.2	8.33	8.5	9.8	11.5	5.9	9.8	11.5	150	250	87	0.2
DAB24-24250-x	24V	250	21.6	26.4	27	28	29.2	10.4	10.6	12	14.1	7	12	14.1	150	300	86	0.2
DAB24-28150-x	28V	150	25.2	30.8	31	32.7	34	5.3	5.5	6.1	7.2	3.7	6.1	7.2	150	250	87	0.2
DAB24-28200-x	28V	200	25.2	30.8	31	32.7	34	7.1	7.3	8.2	9.6	5	8.2	9.6	150	225	86	0.2
DAB24-28250-x	28V	250	25.2	30.8	31	32.7	34	8.9	9.1	10.3	12.1	6.3	10.3	12.1	100	175	88	0.2
DAB24-36150-x	36V	150	32.4	39.6	40	42	43.5	4.17	4.25	4.8	5.7	2.9	4.8	5.7	120	250	87	0.2
DAB24-36200-x	36V	200	32.4	39.6	40	42	43.5	5.5	5.67	6.4	7.5	4	6.4	7.5	120	250	87	0.2
DAB24-48150-x	48V	150	43.2	52.8	53.5	56	58	3.1	3.2	3.6	4.2	2.2	3.6	4.2	100	150	87	0.2
DAB24-48200-x	48V	200	43.2	52.8	53.5	56	58	4.1	4.25	4.8	5.7	2.9	4.8	5.7	150	250	87	0.2
DAB24-48250-x	48V	250	43.2	52.8	53.5	56	58	5.2	5.3	6	7	3.6	6	7	150	250	88	0.2
48Vin																		
DAB48-3V3150-x	3V3	150	3.0	3.63	4.1	4.3	4.5	45	46.4	52	61	32	52	61	75	100	81	0.2
DAB48-5200-x	5V	200	4.5	5.5	6	6.25	6.5	40	41	46	52	28	46	56	75	120	84	0.2
DAB48-12250-x	12V	250	10.8	13.2	13.7	14.3	14.9	20.8	21.3	24	27.3	14.6	24	26.2	200	400	86	0.2
DAB48-15250-x	15V	250	13.5	16.5	17	17.8	18.6	16.6	17	19	22	11.5	19	22	120	200	88	0.2
DAB48-24250-x	24V	250	21.6	26.4	27	28	29.2	10.4	10.7	12	13.7	7.3	12	13.7	150	275	88	0.2
DAB48-28250-x	28V	250	25.2	30.8	31	32.7	34	9	9.1	10.3	12.1	5	10.3	12.1	120	220	88.5	0.2
DAB48-36250-x	36V	250	32.4	39.6	40	42	43.5	6.9	7.1	7.9	9.4	4.8	8	9.4	150	315	88.5	0.2
DAB48-48250-x	48V	250	43.2	52.8	53.5	56	58	5.2	5.3	6	7.3	2.1	6	7.3	100	180	89	0.2
DAB48-48300-x	48V	300	43.2	52.8	53.5	56	58	6.25	6.4	7.2	8.4	4.5	7.2	8.4	80	150	89	0.2

POWERBOX Defense Line
DAA/DAB/DAC Series
150W to several kW
DC/DC Conduction Cooled

72Vin																		
DAB72-3V3100-x	3V3	100	3.0	3.63	4.1	4.3	4.5	30.3	30.9	35	41	21	35	41	120	150	81	0.2
DAB72-5150-x	5V	150	4.5	5.5	6	6.25	6.5	30	30.9	35	41	21	35	41	100	230	84	0.2
DAB72-8150-x	8V	150	7.2	8.8	9.3	9.7	10.2	18.7	19.1	21.6	25.5	5	21	25.5	150	220	84.5	0.2
DAB72-12250-x	12V	250	10.8	13.2	13.7	14.3	14.9	20.8	21.3	24	28	14.5	24	28	150	350	86	0.2
DAB72-15250-x	15V	250	13.5	16.5	17	17.8	18.6	16.6	17	19	22.6	11.5	19	22.6	250	400	86	0.2
DAB72-24250-x	24V	250	21.6	26.4	27	28	29.2	10.4	10.6	12	14.4	7	12	14.1	150	270	86	0.2
DAB72-28250-x	28V	250	25.2	30.8	31	32.7	34	8.9	9.1	10.3	12.1	6.3	10.3	12.1	150	330	88	0.2
DAB72-36250-x	36V	250	32.4	39.6	40	42	43.5	6.9	7.1	8.2	9.4	5	8.2	9.4	150	250	87	0.2
DAB72-48250-x	48V	250	43.2	52.8	53.5	56	58	5.2	5.3	6	7.1	3.6	6	7.1	150	250	86	0.2
110Vin																		
DAB110-3V375-x	3V3	75	3.0	3.63	4.1	4.3	4.5	22.7	23.1	26	30.7	16	26	30.7	75	100	81	0.2
DAB110-3V3100-x	3V3	100	3.0	3.63	4.1	4.3	4.5	30.3	30.9	35	41	21	35	41	75	100	81	0.2
DAB110-5100-x	5V	100	4.5	5.5	6	6.25	6.5	20	20.4	23	27.3	14	23	27	150	300	80	0.2
DAB110-5150-x	5V	150	4.5	5.5	6	6.25	6.5	30	30.6	34	41	21	35	41	75	120	84	0.2
DAB110-8150-x	8V	150	7.2	8.8	9.3	9.7	10.2	18.7	19.1	21.6	25.5	13.1	21.6	25.5	120	250	85	0.2
DAB110-12150-x	12V	150	10.8	13.2	13.7	14.3	14.9	12.5	12.7	14.4	17	8.7	14.4	17	100	190	87	0.2
DAB110-12200-x	12V	200	10.8	13.2	13.7	14.3	14.9	16.6	17	19	23	11.5	19	23	120	200	86	0.2
DAB110-15150-x	15V	150	13.5	16.5	17	17.8	18.6	10	10.2	11.5	13.5	7	11.5	13.5	150	260	88	0.2
DAB110-15200-x	15V	200	13.5	16.5	17	17.8	18.6	13.3	13.5	15.3	18	6.5	15.3	18	150	300	87	0.2
DAB110-24150-x	24V	150	21.6	26.4	27	28	29.2	6.25	6.4	7.2	9.5	4.4	7.2	9.5	100	150	88	0.2
DAB110-24200-x	24V	200	21.6	26.4	27	28	29.2	8.33	8.5	9.6	11.5	5.9	9.6	11.5	150	250	86	0.2
DAB110-28150-x	28V	150	25.2	30.8	31	32.7	34	5.3	5.5	6.2	7.2	3.7	6.2	7.2	120	225	88	0.2
DAB110-28200-x	28V	200	25.2	30.8	31	32.7	34	7.1	7.3	8.2	9.7	5	8.2	9.7	150	300	86.5	0.2
DAB110-36150-x	36V	150	32.4	39.6	40	42	43.5	4.1	4.2	4.8	5.7	2.9	4.8	5.7	100	190	86	0.2
DAB110-36200-x	36V	200	32.4	39.6	40	42	43.5	5.5	5.7	6.4	7.5	4	6.4	7.5	120	250	88	0.2
DAB110-48150-x	48V	150	43.2	52.8	53.5	56	58	3.1	3.2	3.6	4.3	2.1	3.6	4.3	80	150	86	0.2
DAB110-48200-x	48V	200	43.2	52.8	53.5	56	58	4.1	4.3	4.8	5.7	2.9	4.8	5.7	75	100	87	0.2

Output Data DAC Series

General conditions : 25°C ambient. 1) Recycle input voltage or inhibit to restart (>100ms off) - 2) Output voltage 95 % of nominal - 3) Output voltage < 250mV - 4) Nominal input, full load, 20MHz bandwidth - 5) No load to full load, nominal input

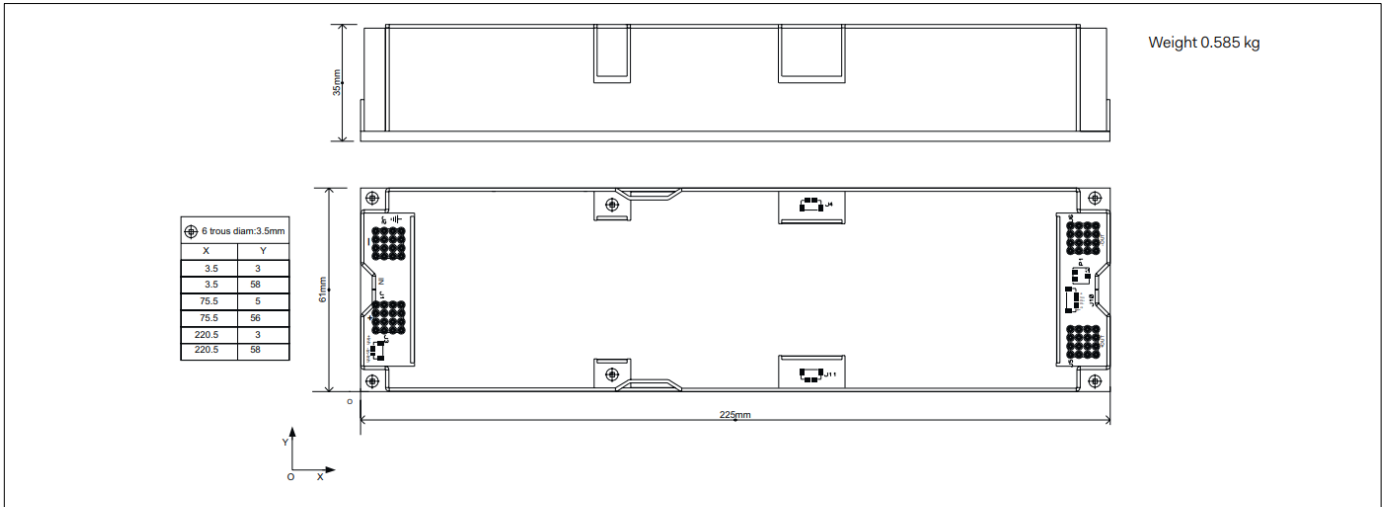
Model	Output Voltage		Output Power		Volt. Adj. (1)		OVP (2)			Output Current			Output Current limit (3)			Short Circuit Current (4)			Output Noise (5)		Efficiency		Load regulation (6)	
	V	W	V		V			A	A		A		A			mVpp		%		%				
Number	Nom	Nom	Min	Max	Min	Typ	Max	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Typ	Max	Typ	Typ	Typ		
12Vin																								
DAC24-3V350W-x	3V3	50	3.0	3.63	4.1	4.3	4.5	15.1	15.5	17.5	23.4	10.6	17.5	20.6	100	225	70.5	0.2						
DAC24-550W-x	5V	50	4.5	5.5	6	6.25	6.5	10	10	11.5	13.5	7	11.5	13.5	100	160	76	0.2						
DAC24-12100W-x	12V	100	10.8	13.2	13.7	14.3	14.9	8.3	8.4	9.5	11.3	5.8	9.6	11.3	125	250	79	0.2						
DAC24-15100W-x	15V	100	13.5	16.5	17	17.8	18.6	6.7	6.8	7.8	9.1	4.6	7.8	9.1	125	250	79.5	0.2						
DAC24-24100W-x	24V	100	21.6	26.4	27	28	29.2	4.1	4.2	4.8	5.7	2.9	4.8	5.43	110	225	81.5	0.2						
DAC24-28100W-x	28V	100	25.2	30.8	31	32.7	34	3.6	3.6	4.15	5.4	2.5	4.15	5.4	100	200	79.5	0.2						
DAC24-36100W-x	36V	100	32.4	39.6	40	42	43.5	2.8	2.85	3.2	3.8	1.9	3.2	3.8	100	225	80	0.2						
DAC24-48100W-x	48V	100	43.2	52.8	53.5	56	58	2.1	2.12	2.4	3.4	1.45	2.4	3.4	90	157	79	0.2						
24Vin																								
DAC24-3V350-x	3V3	50	3.0	3.63	4.1	4.3	4.5	15.1	15.5	17.5	21	10.5	17.5	20.6	120	300	78	0.2						
DAC24-3V375-x	3V3	75	3.0	3.63	4.1	4.3	4.5	22.7	23	26	31	15.9	26	31	100	175	78	0.2						
DAC24-550-x	5V	50	4.5	5.5	6	6.25	6.5	10	10.2	11.5	13.5	8	11.5	13.5	90	100	83	0.2						
DAC24-5100-x	5V	100	4.5	5.5	6	6.25	6.5	20	20.3	23	27	2.5	23	27	90	125	83	0.2						
DAC24-5125-x	5V	125	4.5	5.5	6	6.25	6.5	25	25.5	29	34	17	29	34	100	190	83	0.2						
DAC24-8100-x	8V	100	7.2	8.8	9.3	9.7	10.2	12.5	12.7	14.5	17	8.5	14.5	17	100	185	85	0.2						
DAC24-1250-x	12V	50	10.8	13.2	13.7	14.3	14.9	4.1	4.2	4.8	5.7	2.9	4.8	5.7	80	100	87	0.2						
DAC24-12100-x	12V	100	10.8	13.2	13.7	14.3	14.9	8.3	8.5	9.5	11	1.1	9.5	11	150	260	85	0.2						
DAC24-12150-x	12V	150	10.8	13.2	13.7	14.3	14.9	12.5	12.8	14.4	17	8.5	14.4	17	120	215	87	0.2						
DAC24-1550-x	15V	50	13.5	16.5	17	17.8	18.6	3.3	3.4	3.8	4.5	2.33	3.8	4.5	90	200	87	0.2						
DAC24-15100-x	15V	100	13.5	16.5	17	17.8	18.6	6.7	6.8	7.7	8.7	4.7	7.7	8.7	75	125	88	0.2						
DAC24-15150-x	15V	150	13.5	16.5	17	17.8	18.6	10	10.2	11.5	13.5	7	11.5	13.5	100	190	88	0.2						
DAC24-2450-x	24V	50	21.6	26.4	27	28	29.2	2.1	2.12	2.4	2.8	1.45	2.4	2.8	75	100	88	0.2						
DAC24-24100-x	24V	100	21.6	26.4	27	28	29.2	4.1	4.25	4.8	5.7	2.9	4.8	5.7	75	100	87	0.2						
DAC24-24150-x	24V	150	21.6	26.4	27	28	29.2	6.3	6.4	7.2	8.4	4.4	7.2	8.4	75	100	87	0.2						
DAC24-2850-x	28V	50	25.2	30.8	31	32.7	34	1.78	1.8	2.1	2.4	1.25	2.1	2.4	75	100	88	0.2						
DAC24-28100-x	28V	100	25.2	30.8	31	32.7	34	3.5	3.6	4.15	5	0.5	4.1	5	75	100	88	0.2						
DAC24-28150-x	28V	150	25.2	30.8	31	32.7	34	5.4	5.5	6.2	7.2	3.8	6.2	7.2	75	150	88	0.2						
DAC24-3650-x	36V	50	32.4	39.6	40	42	43.5	1.39	1.42	1.6	1.9	0.9	1.6	1.9	50	75	84	0.2						
DAC24-36100-x	36V	100	32.4	39.6	40	42	43.5	2.8	2.85	3.2	3.8	1.9	3.2	3.8	50	75	86	0.2						
DAC24-4850-x	48V	50	43.2	52.8	53.5	56	58	1.05	1.06	1.2	1.5	0.7	1.2	1.5	80	150	86	0.2						
DAC24-48100-x	48V	100	43.2	52.8	53.5	56	58	2.1	2.15	2.4	2.9	1.45	2.4	2.9	80	150	86	0.2						
DAC24-48150-x	48V	150	43.2	52.8	53.5	56	58	3.1	3.2	3.8	4.2	2.3	3.8	4.2	75	150	88	0.2						
48Vin																								
DAC48-3V350-x	3V3	50	3.0	3.63	4.1	4.3	4.5	15.1	15.5	17.5	21	10.5	17.5	21	75	100	79	0.2						
DAC48-3V375-x	3V3	75	3.0	3.63	4.1	4.3	4.5	22.7	22.9	26	32	15.9	26	32	75	100	80	0.2						
DAC48-550-x	5V	50	4.5	5.5	6	6.25	6.5	10	10.2	11.5	13.5	7	11.5	13.5	75	120	84	0.2						
DAC48-575-x	5V	75	4.5	5.5	6	6.25	6.5	15	15.3	17.5	20	10.5	17.5	20.6	75	100	82	0.2						
DAC48-5100-x	5V	100	4.5	5.5	6	6.25	6.5	20	20.5	23	26	14	23	26	70	100	84	0.2						
DAC48-8100-x	8V	100	7.2	8.8	9.3	9.7	10.2	12.5	12.7	14.4	17.5	9.7	14.4	17	100	150	87	0.2						
DAC48-8150-x	8V	150	7.2	8.8	9.3	9.7	10.2	18.7	19.1	21.5	26	13	21	26	100	175	86	0.2						

POWERBOX Defense Line
DAA/DAB/DAC Series
150W to several kW
DC/DC Conduction Cooled

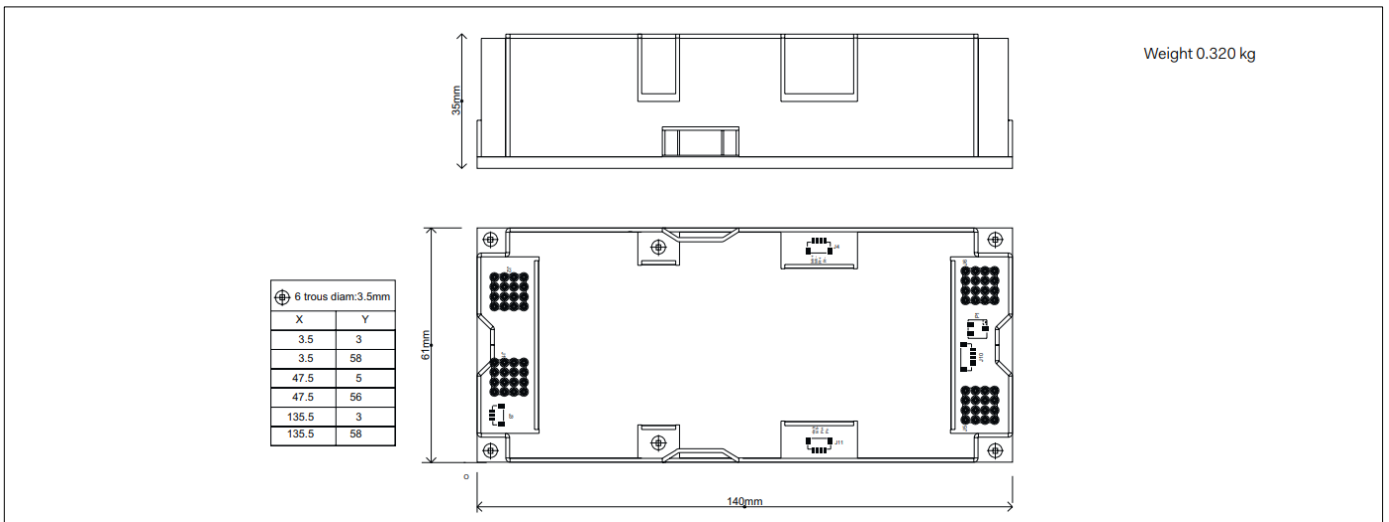
DAC48-1275-x	12V	75	10.8	13.2	13.7	14.3	14.9	6.25	6.35	7.2	8.4	4.4	7.2	8.4	100	200	85	0.2
DAC48-12150-x	12V	150	10.8	13.2	13.7	14.3	14.9	12.5	12.7	14.4	17	9.7	14.4	17	100	225	87	0.2
DAC48-1575-x	15V	75	13.5	16.5	17	17.8	18.6	5	5.1	5.7	6.8	3.5	5.7	6.8	70	100	88	0.2
DAC48-15150-x	15V	150	13.5	16.5	17	17.8	18.6	10	10.2	11.5	13.5	7	11.5	13.5	75	150	87	0.2
DAC48-2475-x	24V	75	21.6	26.4	27	28	29.2	3.1	3.2	3.6	4.3	0.5	3.6	4.3	50	75	87	0.2
DAC48-24150-x	24V	150	21.6	26.4	27	28	29.2	6.25	6.37	7.2	9.1	4.4	7.2	9.1	120	200	88	0.2
DAC48-2875-x	28V	75	25.2	30.8	31	32.7	34	2.6	2.7	3.1	3.6	1.9	3.1	3.6	120	200	88	0.2
DAC48-28150-x	28V	150	25.2	30.8	31	32.7	34	5.3	5.4	6.1	7	3.7	6.2	7	75	140	88	0.2
DAC48-36150-x	36V	150	32.4	39.6	40	42	43.5	4.1	4.2	4.8	5.7	2.9	4.8	5.7	80	120	87	0.2
DAC48-4875-x	48V	75	43.2	52.8	53.5	56	58	1.55	1.6	1.8	2.1	1.1	1.8	2.1	100	175	87	0.2
DAC48-48150-x	48V	150	43.2	52.8	53.5	56	58	3.1	3.2	3.6	4.5	2.2	3.6	4.5	75	120	88	0.2
72Vin																		
DAC72-3V375-x	3V3	75	3.0	3.63	4.1	4.3	4.5	22.7	23.1	26	31	15.9	26	31	75	130	81	0.2
DAC72-550-x	5V	100	4.5	5.5	6	6.25	6.5	20	20.4	23	27	14	23	27	75	150	81	0.2
DAC72-8100-x	8V	100	7.2	8.8	9.3	9.7	10.2	12.5	12.7	14.4	17	8.7	14.4	17	120	180	82.5	0.2
DAC72-12150-x	12V	150	10.8	13.2	13.7	14.3	14.9	12.5	12.7	14.4	17	8.7	14.4	17	120	220	85	0.2
DAC72-15150-x	15V	150	13.5	16.5	17	17.8	18.6	10	10.2	11.5	13.5	7	11.5	13.5	100	180	85	0.2
DAC72-24150-x	24V	150	21.6	26.4	27	28	29.2	6.25	6.35	7.2	8.4	4.4	7.2	8.4	100	150	84	0.2
DAC72-28150-x	28V	150	25.2	30.8	31	32.7	34	5.3	5.4	6.1	7.3	3.7	6.2	7.3	75	130	85	0.2
DAC72-36150-x	36V	150	32.4	39.6	40	42	43.5	4.1	4.2	4.8	5.7	2.9	4.8	5.7	70	100	87	0.2
DAC72-48150-x	48V	150	43.2	52.8	53.5	56	58	3.1	3.2	3.6	4.3	2.2	3.6	4.3	70	100	86	0.2
110Vin																		
DAC110-3V350-x	3V3	50	3.0	3.63	4.1	4.3	4.5	15	15.5	17.5	21	10.5	17.5	21	120	210	79	0.2
DAC110-575-x	5V	75	4.5	5.5	6	6.25	6.5	15	15.3	17.5	20.5	10.5	17.5	20.5	80	120	83	0.2
DAC110-875-x	8V	75	7.2	8.8	9.3	9.7	10.2	9.3	9.5	10.8	12.7	6.5	10.8	12.7	150	350	84	0.2
DAC110-12100-x	12V	100	10.8	13.2	13.7	14.3	14.9	8.3	8.5	9.6	11.3	5.8	9.6	11.3	100	190	86	0.2
DAC110-15100-x	15V	100	13.5	16.5	17	17.8	18.6	6.7	6.8	7.7	9.1	4.7	7.7	9.1	75	130	83.5	0.2
DAC110-24100-x	24V	100	21.6	26.4	27	28	29.2	4.1	4.2	4.8	5.7	2.9	4.8	5.7	75	100	85	0.2
DAC110-28100-x	28V	100	25.2	30.8	31	32.7	34	3.57	3.65	4.15	4.8	2.5	4.1	4.8	50	100	85	0.2
DAC110-36100-x	36V	100	32.4	39.6	40	42	43.5	2.76	2.85	3.2	3.8	1.9	3.2	3.8	100	190	85	0.2
DAC110-48100-x	48V	100	43.2	52.8	53.5	56	58	2.1	2.15	2.4	2.8	0.6	2.4	2.8	80	100	85	0.2
DAC110-48150-x	48V	150	43.2	52.8	53.5	56	58	3.1	3.2	3.6	4.2	2.2	3.2	3.6	75	100	86	0.2

POWERBOX Defense Line
 DAA/DAB/DAC Series
 150W to several kW
 DC/DC Conduction Cooled

Mechanical DAA Series



Mechanical DAB Series



Mechanical for DAC Series

