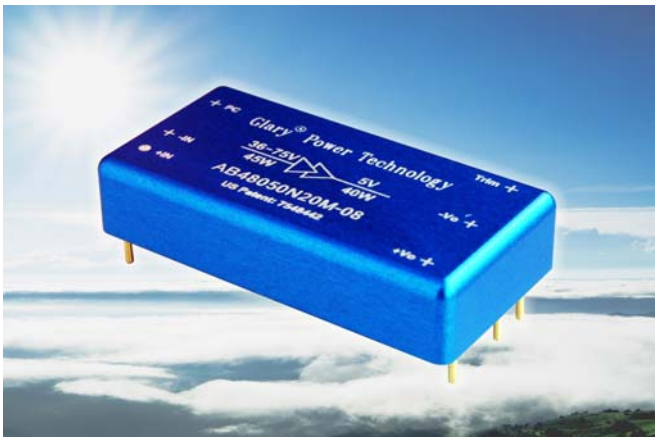
Aurora Converter

Industrial B case up to 50W／12A

Efficiency >90% | 50W/in³ | Full Metal Package | EN55022 Class B | 7.6Mhrs MTBF

Remote ON OFF | INPUT 2:1 | OVP | OTP | OCP

Pb | RoHS 2002/95/EC



The high efficiency ***Aurora*** Converter provides up to 50W/10A output with industry standard “B” case (2” × 1”) package. The power stage is designed with the efficiently patented “Coupled-Inductor SR” topology, which results in very high efficiency. The low profile module design with silicone potted metal package eliminates the hot spots and further secures better thermal performance.

PART NUMBER SYSTEM

AB	48	050	a	b	c	d	-	10	XX	X
Series Name	Input Voltage	Output Voltage	Enable Logic	Pin Dimension	Standoff Height	Base-Plate		Output Current	Suffix	Version
AB	**48=**36V~75V **24=**18V~36V	**Unit:** 0.1V Increments **120=**12V **050=**5V	**P:** Positive **N:** Negative	**0**：0.12” **1**：0.16”	**0**：0.00”	**E**：Enclosed standard type	**-**	**00~12**：For output current rating	For marketing purpose only	

MODEL LIST (Contact to factory for special input / output)

Part Number *	Maximum Input		Maximum Output		Efficiency
AB48120abcd-04XXX	36V~75V	55W	12.0V/4.2A	50W	91%
AB48050abcd-10XXX	36V~75V	56W	5.0V/10A	50W	90%
AB48033abcd-12XXX	36V~75V	45W	3.3V/12A	40W	88%
AB48025abcd-12XXX	36V~75V	35W	2.5V/12A	30W	86%

Part Number *	Maximum Input		Maximum Output		Efficiency
AB24120abcd-04XXX	18V~36V	55W	12.0V/4.2A	50W	91%
AB24050abcd-10XXX	18V~36V	56W	5.0V/10A	50W	90%
AB24033abcd-12XXX	18V~36V	45W	3.3V/12A	40W	88%
AB24025abcd-12XXX	18V~36V	35W	2.5V/12A	30W	86%

REFERENCED THERMAL IMAGES

To be updated in next version	To be updated in next version

SPECIFICATIONS

Absolute Maximum Ratings		
Temperature	Operation Storage	-40°C to +110°C -55°C to +125°C
Input Voltage Range	Operation: 24V Models 48V Models Transient (100mS): 24V Models 48V Models	 -0.5V to +40Vdc -0.5V to +80Vdc 50V Maximum 100V Maximum
Isolation Voltage	Input to Output Input to Case Output to Case	2.0KV Minimum 1.0KV Minimum 0.5KV Minimum
Remote Control		-0.5V to +12Vdc

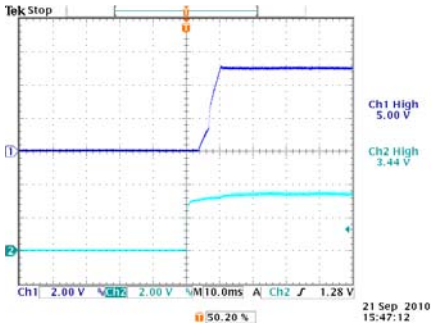
General Parameters		
Conversion Efficiency	Typical	See table
Switching Frequency	Typical	400KHz
MTBF	Bellcore TR-332 issue 6	7.6×10^6 hrs @GB/25°C (AB48050abcd-08)
OTP	Internal	110°C(Tc) ±5°C
Weight		35g

Control Functions		
Remote Control	Logic High Logic Low	+3.0V to +6.5V 0V to +1.0V
Input Current of Remote Control Pin		-0.5mA ~ +1.5mA

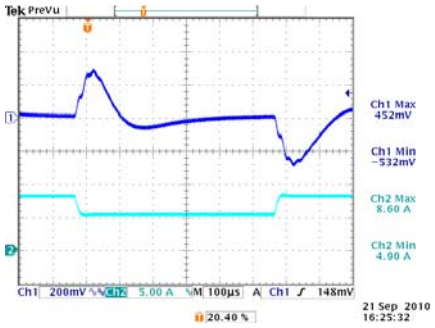
Input		
Operation Voltage Range	24V Models 48V Models	+18V to +36Vdc +36V to +75Vdc
Reflected Ripple Current	L_{EXT} = 10uH	20mA Max
Power ON Voltage Ranges	24V Models 48V Models	+17.0V to +18.0Vdc +34.0V to +36.0Vdc
Power OFF Voltage Ranges	24V Models 48V Models	+15.6V to +16.6Vdc +31.2V to +33.2Vdc
Off State Input Current	V_{NOM}	3mA Max
Latch-State Input Current	V_{NOM}	8mA Max
Input Capacitance	24V Models 48V Models	10.0uF Max 6uF Max

Output		
Voltage Accuracy	Typical	±1.0%
Line Regulation	Full Input Range	±0.2%
Load Regulation	0%~100%	±0.2%
Temperature Drift	-40°C ~100°C	±0.03%/°C
Output Tolerance Band	All Conditions	±4%
Ripple & Noise (20MHz)	Peak-Peak (RMS)	3% (1%) V_O
Over Voltage Protection	V_{NOM}, 10% Load	115~130 %V_O
Output Current Limits	V_{NOM}	108%~125%
Voltage Trim	V_{NOM}, 10% Load	±10%
Input Ripple Rejection (<1KHz)	V_{NOM}, Full Load	-50dB
Step Load (2.5A/μS)	50%~75% Load	±8%Vo /500μS
Start-Up Delay Time	V_{NOM}, Full Load	20mS/250mS

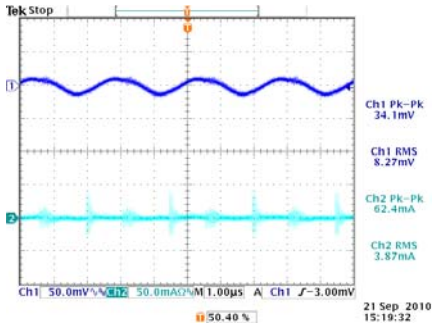
TYPICAL WAVES AND CURVES



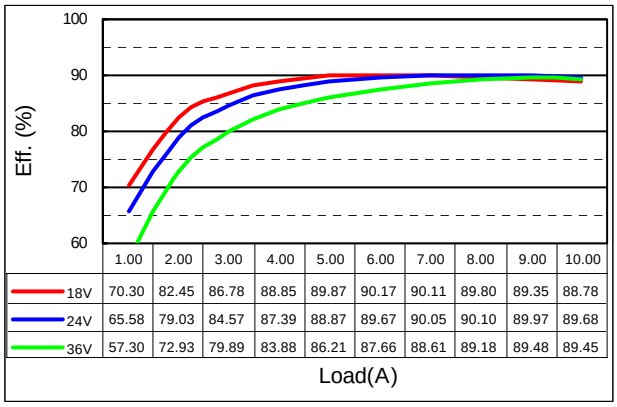
Start-up waveform of AB24050abcd-10XXX
(V_{IN}: 24V, Load: 10A)



Transient response of AB24050abcd-10XXX
(V_{IN}: 24V, Load: 8.5A/5A@2.5A/µS)

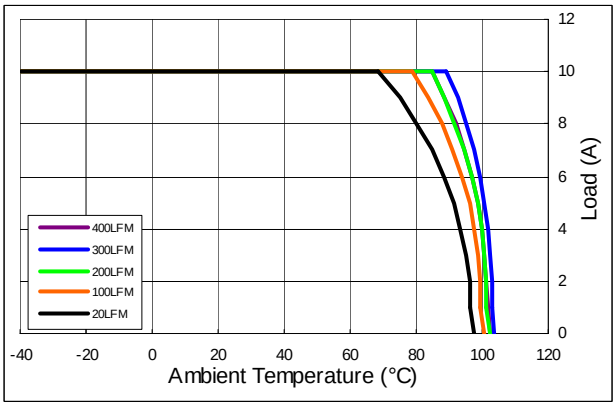


Input/Output ripples of AB24050abcd-10XXX
(V_{IN}: 24V, Load: 10A, L_{IN}=10uH)

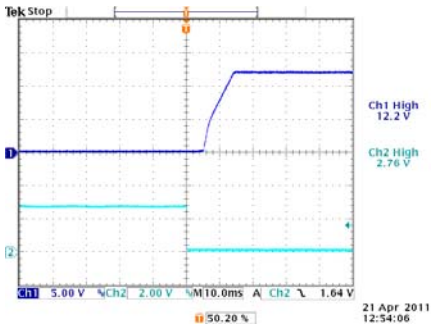


	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
18V	70.30	82.45	86.78	88.85	89.87	90.17	90.11	89.80	89.35	88.78
24V	65.58	79.03	84.57	87.39	88.87	89.67	90.05	90.10	89.97	89.68
36V	57.30	72.93	79.89	83.88	86.21	87.66	88.61	89.18	89.48	89.45

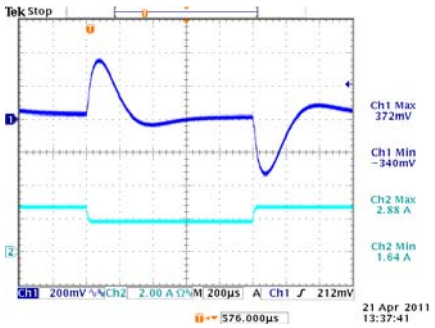
Efficiency Plot of AB24050abcd-10XXX



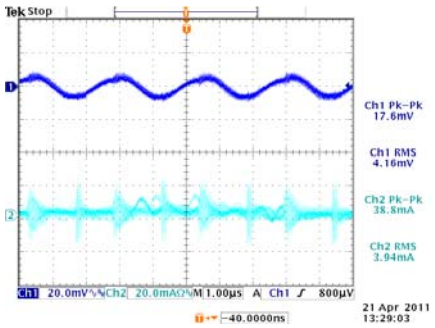
Derating Curves of AB24050abcd-10XXX for T_C= 110°C



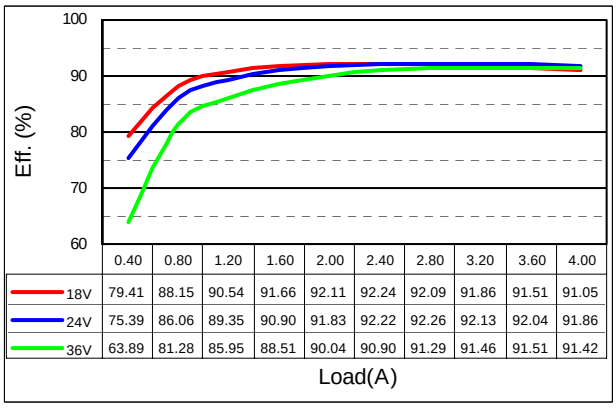
Start-up waveform of AB24120abcd-04XXX
(V_{IN}: 24V, Load: 4.2A)



Transient response of AB24120abcd-04XXX
(V_{IN}: 24V, Load: 3A/2A@2.5A/µS)

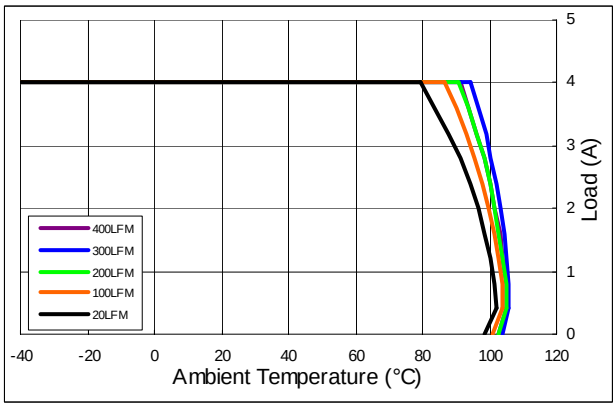


Input/Output ripples of AB24120abcd-04XXX
(V_{IN}: 24V, Load: 4.2A, L_{IN}=10uH)



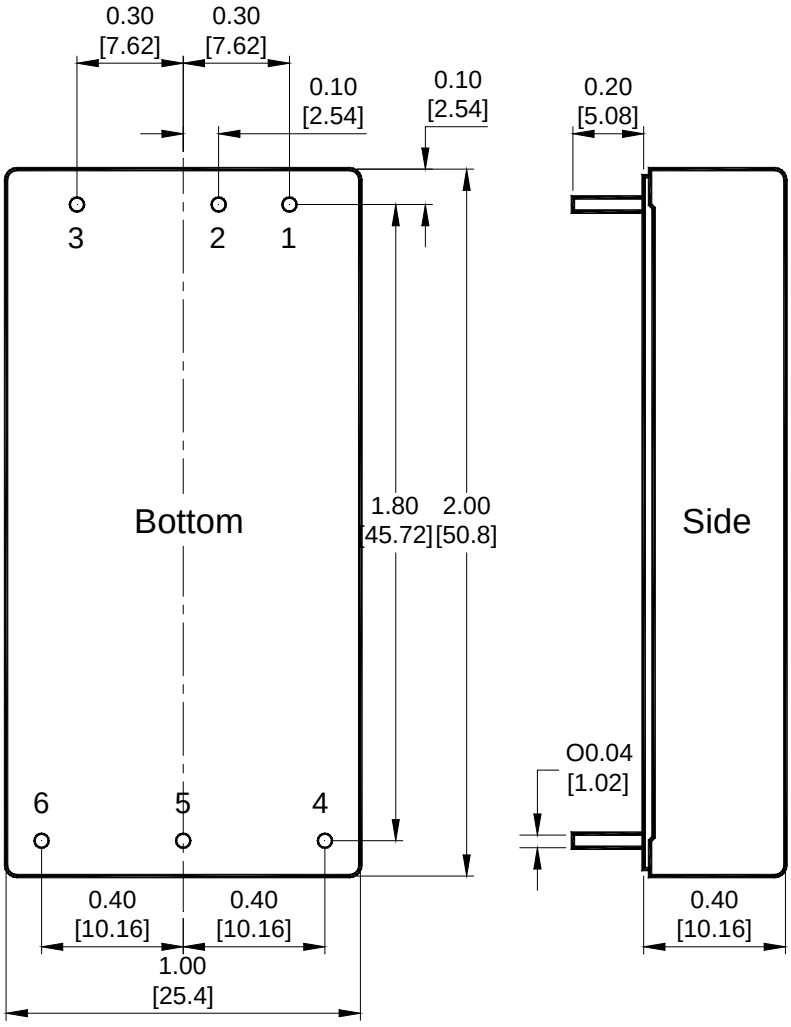
	0.40	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00
18V	79.41	88.15	90.54	91.66	92.11	92.24	92.09	91.86	91.51	91.05
24V	75.39	86.06	89.35	90.90	91.83	92.22	92.26	92.13	92.04	91.86
36V	63.89	81.28	85.95	88.51	90.04	90.90	91.29	91.46	91.51	91.42

Efficiency plot of AB24120abcd-04XXX



Derating curves of AB24120abcd-04XXX for T_C= 110°C

METAL ENCLOSED PACKAGE



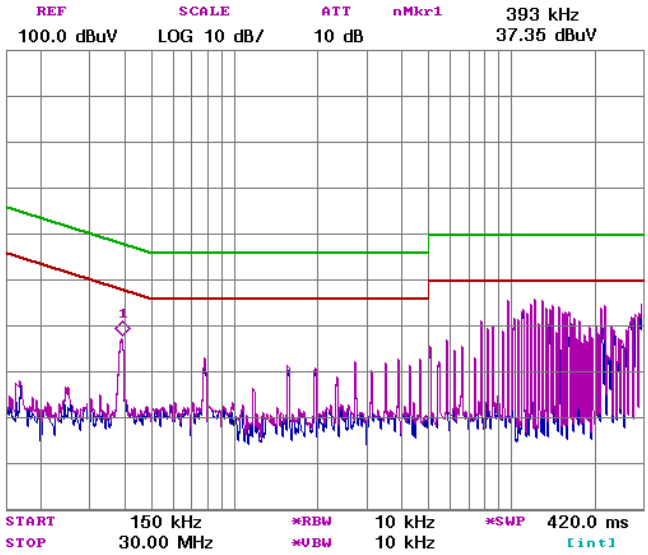
Dimensions and Pin Connections

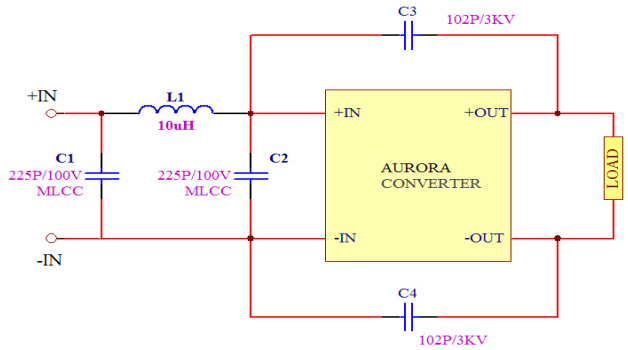
Designation	Function Description	Pin #
+Vi	Positive input	**1**
-IN	Negative input	**2**
Remote	ON/OFF control	**3**
+Vo	Positive output	**4**
-Vo	Negative output	**5**
TRIM	Output voltage adjust	**6**

Dimensions: inches (mm)
Tolerances: .xx±0.02 (.x±0.5)
.xxx±0.01 (.x±0.25)

Weight: 35g
Base plate: Non-conductive
Pin material: Copper alloy or Brass
Pin plating: Golden over Nickel

REFERENCED EMC CIRCUIT





Measured conductive level of AB48050abcd-08XXX and referenced filter circuit

Referenced EMC Performance

The tested result shown in left-hand side is obtained by loading the power module with a resistive load only. It can be used as a design reference for customer system. However! The performance of customer's system depends on the whole system design. It should be noted that modifications on the circuit parameters and fine adjustment of the final layout affect the final EMC performance greatly.

Bandwidth of EMC Components

No components are ideal for infinite frequency range. The bandwidth of EMC components should be taking into consideration when designing an EMC filter circuit. To connect ceramic capacitor with electricity capacitor in parallel and connect low inductance inductor with big one could get a better bandwidth.

NOTE:

1. **It is recommended that the input should be protected by fuses or other protection devices.**
2. All specifications are typical at nominal input, full load and 25°C unless otherwise noted.
3. Specifications are subject to change without notice.
4. Printed or downloaded datasheets are not subject to Glary document control.
5. Product labels shown, including safety agency certificates, may vary based on the date of manufacture.
6. Information provided in this documentation is for ordering purposes only.
7. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications, which necessitate specific safety and regulatory standards other than the ones listed in this datasheet.

IMPORTANT

- *※ General specifications and the performances are related to standard series only, no special customer specification display here except requested items.*
- *※ In order to secure effective usage of converter and the validity of Glary's service and warranty coverage, please refer to the application notes for general usage. For needs of usage beyond the application notes, please contact to Glary headquarter or our regional sales representative office for help.*