VLA209-24126

NON-ISOLATED TYPE DC-DC CONVERTER

DESCRIPITON

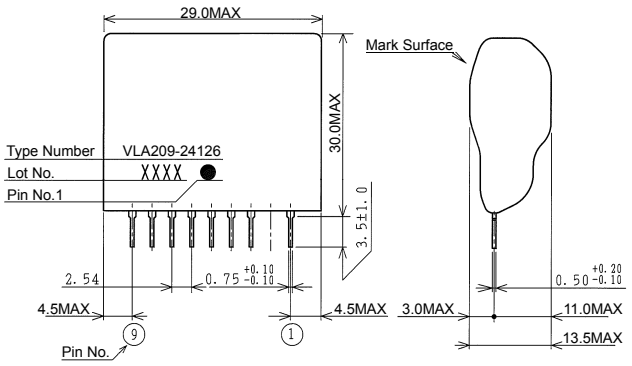
VLA209-24126 is a non-isolated type DC-DC converter.

FEATURES

- •Input ····· DC9 V~ 36V
- •Output ····· 12V, 0.5A (6W)
  5V, 0.5A (2.5W)
  3.3V, 0.5A (1.65W)
  (Adjust external resistance)
- •Over current protection (auto resumption)

OUTLINE DRAWING

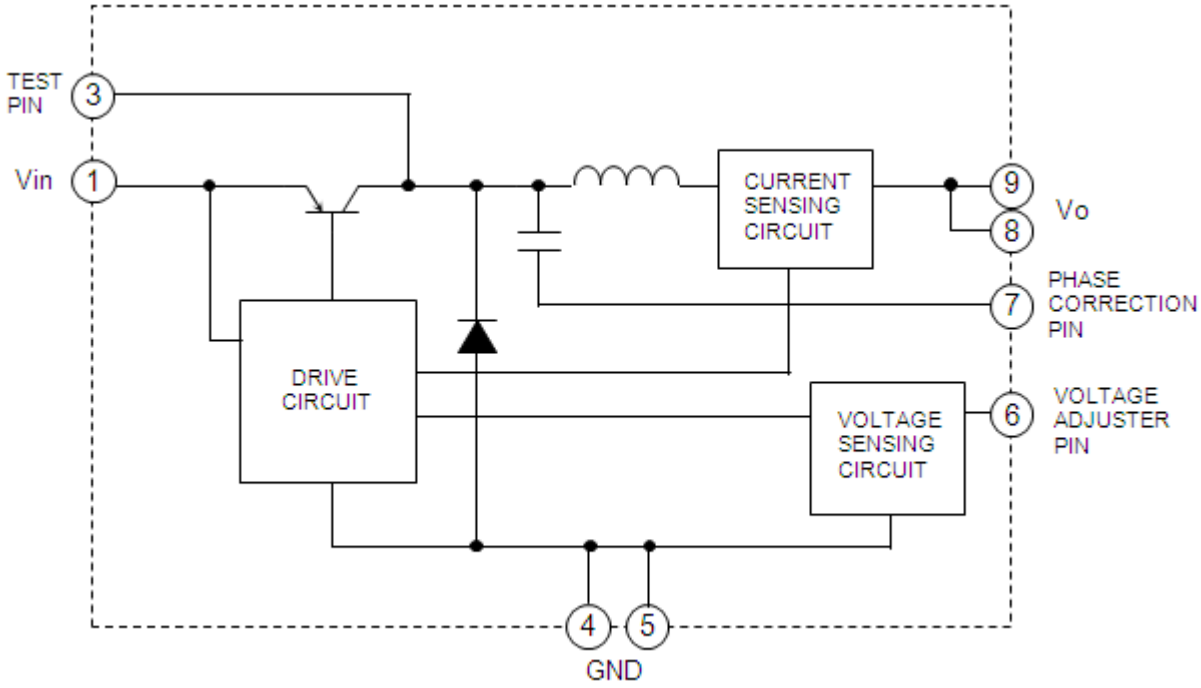
Dimensions : mm



APPLICATIONS

Machine control

BLOCK DIAGRAM



MAXIMUM RATINGS (unless otherwise noted, Ta=25°C)

Symbol	Parameter	Conditions	Ratings	Unit
Vin	Input voltage	—	36	V
Io	Output voltage	—	0.5	A
Topr	Operating temperature	No condensation	-20 ~ +70	°C
Tstg	Storage temperature	No condensation	-20 ~ +80	°C

ELECTRICAL CHARACTERISTICS (unless otherwise noted, Vin=24V, Ta=25°C)

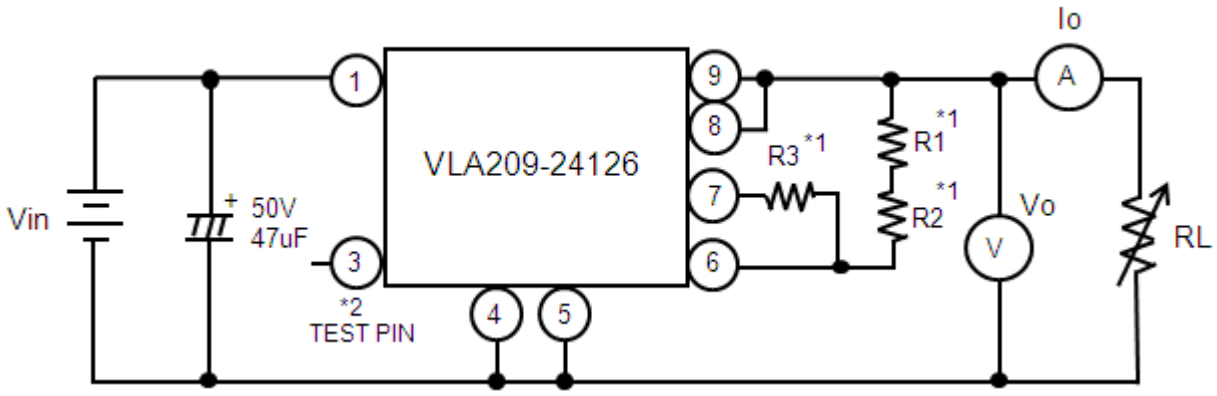
Symbol	Parameter	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Vin	Input voltage	Recommended range (*1)	9(18)	24	36	V
Vo	Output voltage	Io=0.025A ~ 0.5A (*2)	11.4	12.0	12.6	V
			4.75	5.00	5.25	V
			3.14	3.30	3.46	V
Reg-I	Input regulation	Vo=12V: Io=0.5A, Vin=9V ~ 36V	-	-	240	mV
		Vo=5V: Io=0.5A, Vin=9V ~ 36V	-	-	100	mV
		Vo=3.3V: Io=0.5A, Vin=9V ~ 36V	-	-	33	mV
Reg-L	Load regulation	Vo=12V: Io=0.025A ~ 0.5A	-	-	360	mV
		Vo=5V: Io=0.025A ~ 0.5A	-	-	150	mV
		Vo=3.3V: Io=0.025A ~ 0.5A	-	-	99	mV
Vp-p	Ripple voltage	Vo=12V: Io=0.5A (*3)	-	-	600	mV
		Vo=5V: Io=0.5A (*3)	-	-	250	mV
		Vo=3.3V: Io=0.5A (*3)	-	-	215	mV
η	Efficiency	Vo=12V: Io=0.5A, Vin=24V	-	87	-	%
		Vo=5V: Io=0.5A, Vin=24V	-	77	-	%
		Vo=3.3V: Io=0.5A, Vin=24V	-	70	-	%

(*1) When output voltage is 12V, minimum Input voltage is 18V

(*2) Adjust external resistance (Please refer to ‘chart 1’ in page 3.)

(*3) Not contain the spike noise.

TEST CIRCUIT DIAGRAM



*1 R1, R2 (tolerance 1%), R3

Chart 1

		value of resistance		
		R1	R2	R3
Output voltage	12V	47k ohm	2.2k ohm	1k ohm
	5V	15k ohm	3.3k ohm	1k ohm
	3.3V	6.8k ohm	3.9k ohm	1k ohm

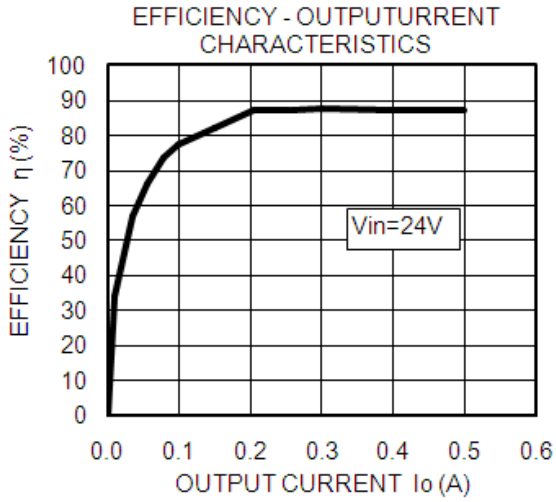
$Vo = (R1+R2+3900) \times 2.26 \times 10^{-4}$

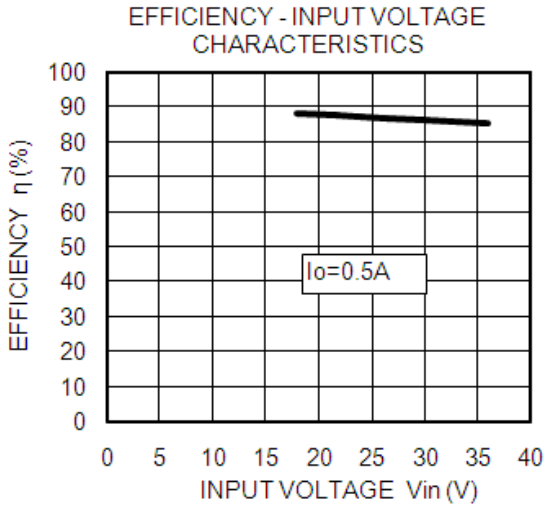
Maximum value of R1+R2 must be 50kohm.

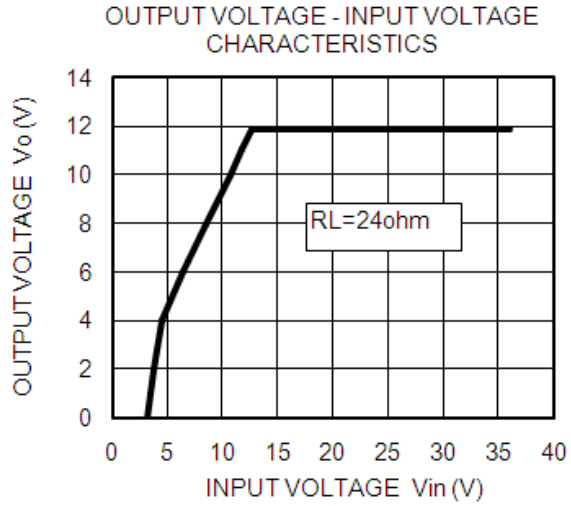
Minimum value of R1+R2 must be 10.7kohm

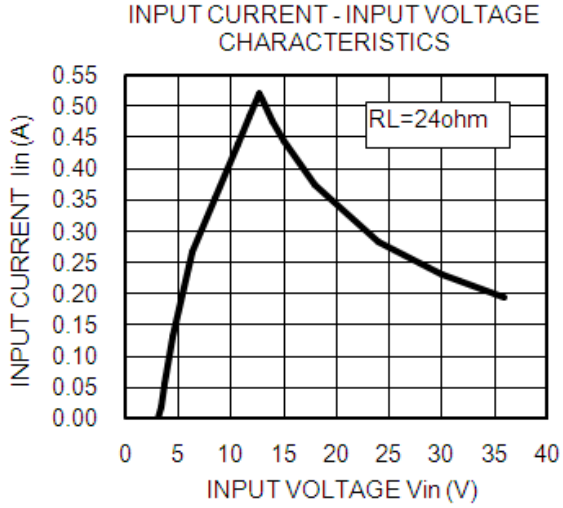
*2 Please do not connect anything with the test pin(no.3).

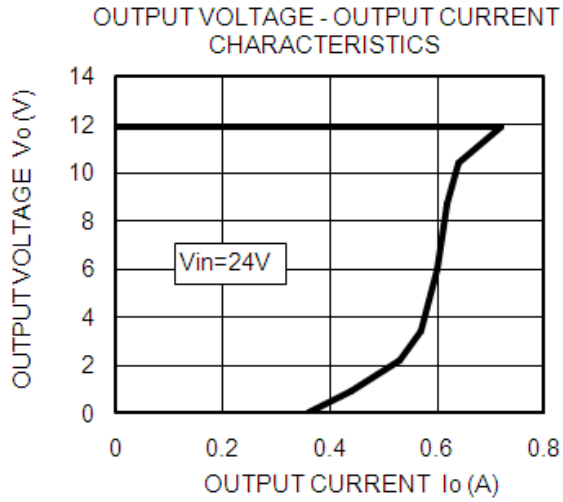
TYPICAL CHARACTERISTICS (Vo=12V) (Ta=25°C)



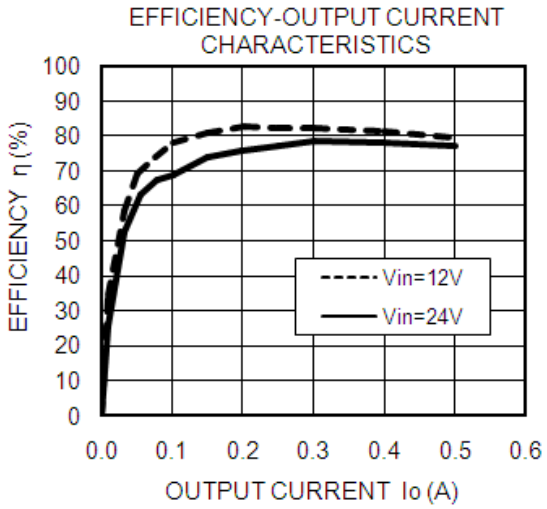


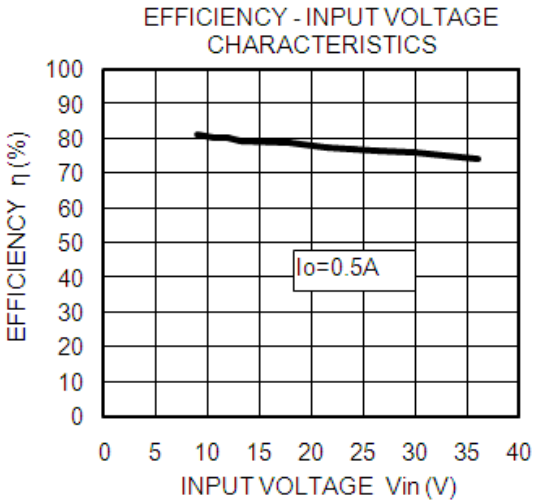


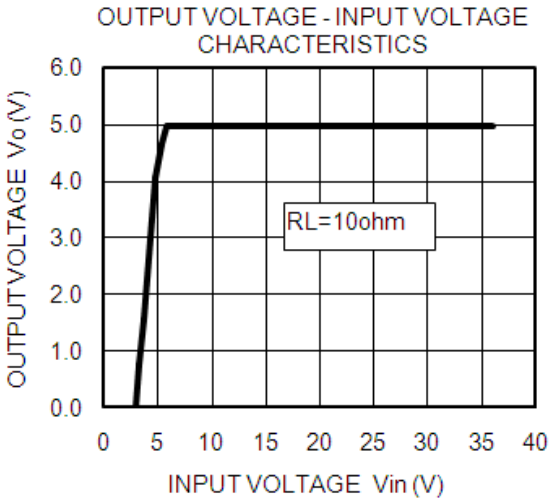


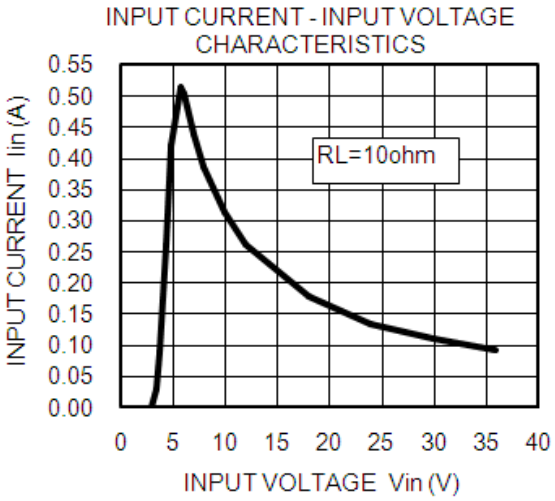


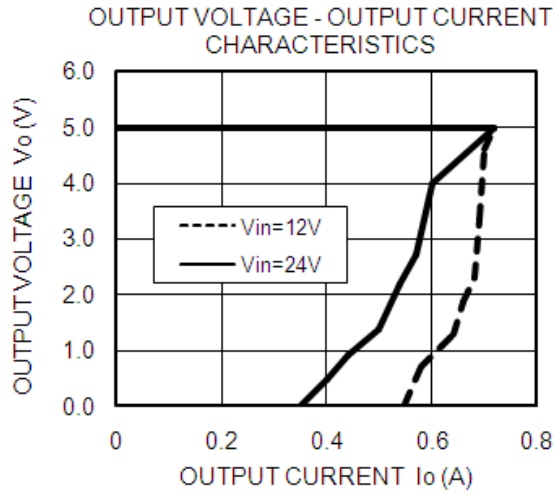
TYPICAL CHARACTERISTICS (Vo=5V) (Ta=25℃)



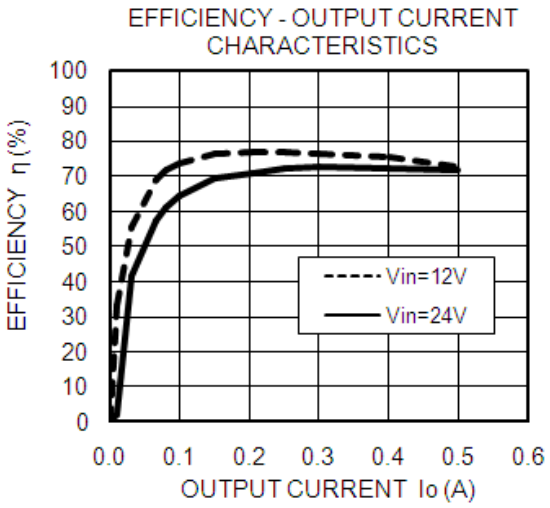


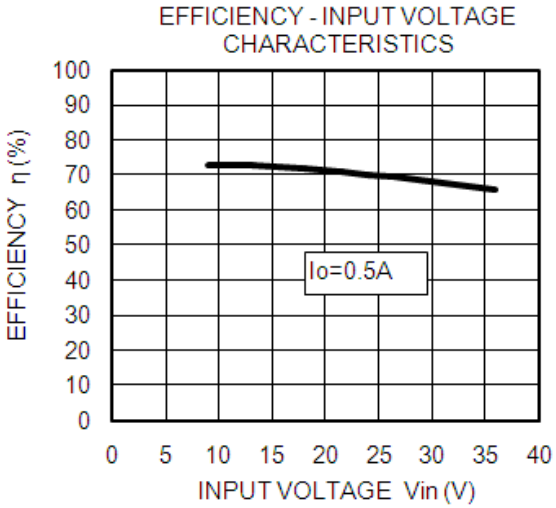


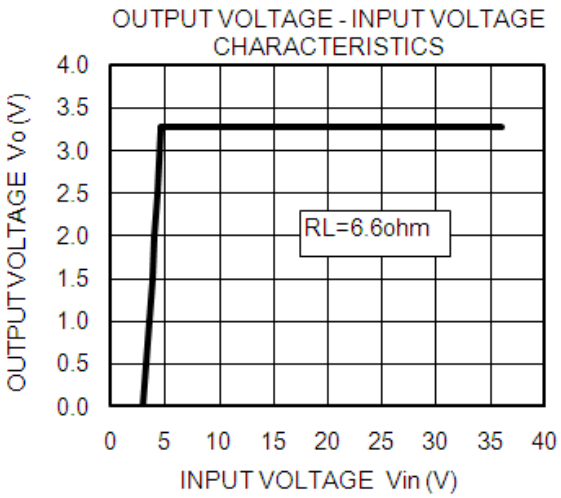


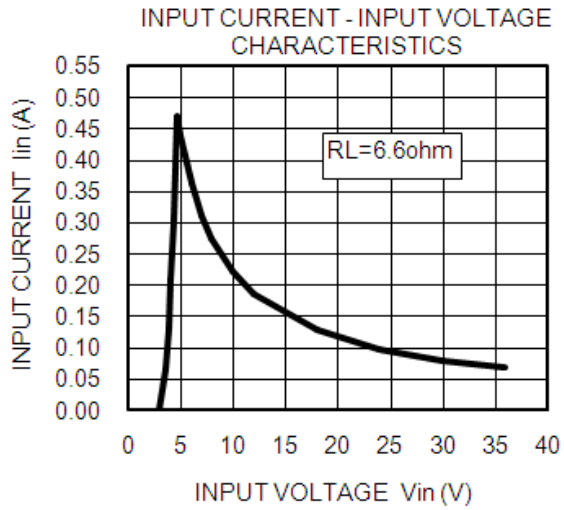


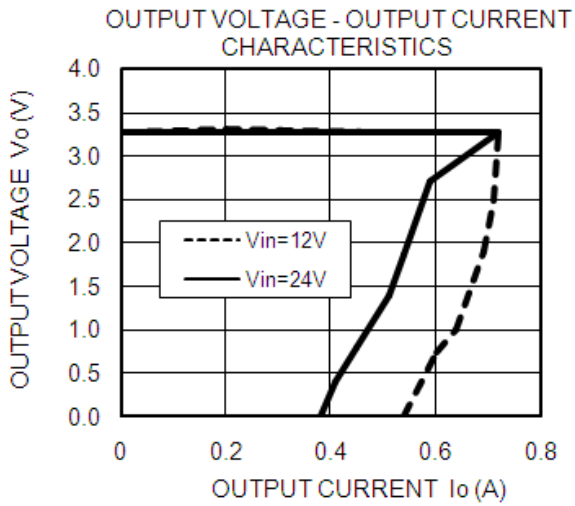
TYPICAL CHARACTERISTICS (Vo=3.3V) (Ta=25°C)











FOR SAFETY USING

Great detail and careful attention are given to the production activity of Hics, such as the development, the quality of production, and in it's reliability. However the reliability of Hics depends not only on their own factors but also in their condition of usage. When handling Hics, please note the following cautions.

CAUTIONS	
Packing	The materials used in packing Hics can only withstand normal external conditions. When exposed to outside shocks, rain and certain environmental contaminators, the packing materials will deteriorates. Please take care in handling.
Carrying	1) Don't stack boxes too high. Avoid placing heavy materials on boxes. 2) Boxes must be positioned correctly during transportation to avoid breakage. 3) Don't throw or drop boxes. 4) Keep boxes dry. Avoid rain or snow. 5) Minimal vibration and shock during transportation is desirable.
Storage	When storing Hics, please observe the following notices or possible deterioration of their electrical characteristics, risk of solderability, and external damage may occur. 1) Devices must be stored where fluctuation of temperature and humidity is minimal, and must not be exposed to direct sunlight. Store at the normal temperature of 5 to 30 degrees Celsius with humidity at 40 to 60%. 2) Avoid locations where corrosive gasses are generated or where much dust accumulates. 3) Storage cases must be static proof. 4) Avoid putting weight on boxes.
Extended storage	When extended storage is necessary, Hics must be kept non-processed. When using Hics which have been stored for more than one year or under severe conditions, be sure to check that the exterior is free from flaw and other damages.
Maximum ratings	To prevent any electrical damages, use Hics within the maximum ratings. The temperature, current, voltage, etc. must not exceed these conditions.
Polarity	To protect Hics from destruction and deterioration due to wrong insertion, make sure of polarity in inserting leads into the board holes, conforming to the external view for the terminal arrangement.

ISAHAYA ELECTRONICS CORPORATION
Marketing division, Marketing planning department
6-41 Tsukuba, Isahaya, Nagasaki, 854-0065 Japan