VLA128-24153QR

4OUTPUT ISOLATED DC-DC CONVERTER

DISCRIPTIONS

The VLA128 is an isolated type DC-DC converter which has 4 outputs for inverter drive.
Isolation strength is 2500Vrms between the input and outputs, also each outputs.

FEATURES

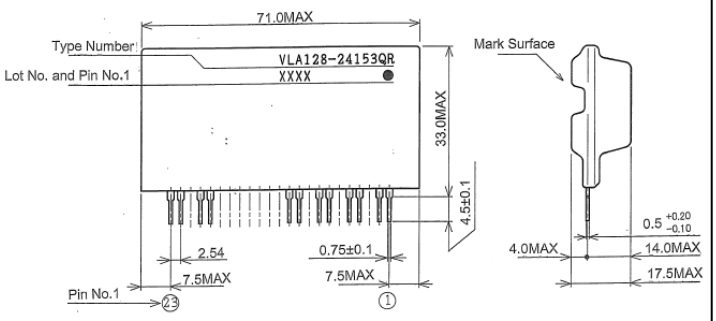
-Input voltage ------24V
-Output ---------- 15V / 50mA x 3
15V / 120mA x 1
-Isolation strength between Input to output
------- 2500Vrms, 1min.
-Isolation strength between Each outputs
------- 2500Vrms, 1min.
-RoHS compliance

APPLICATION

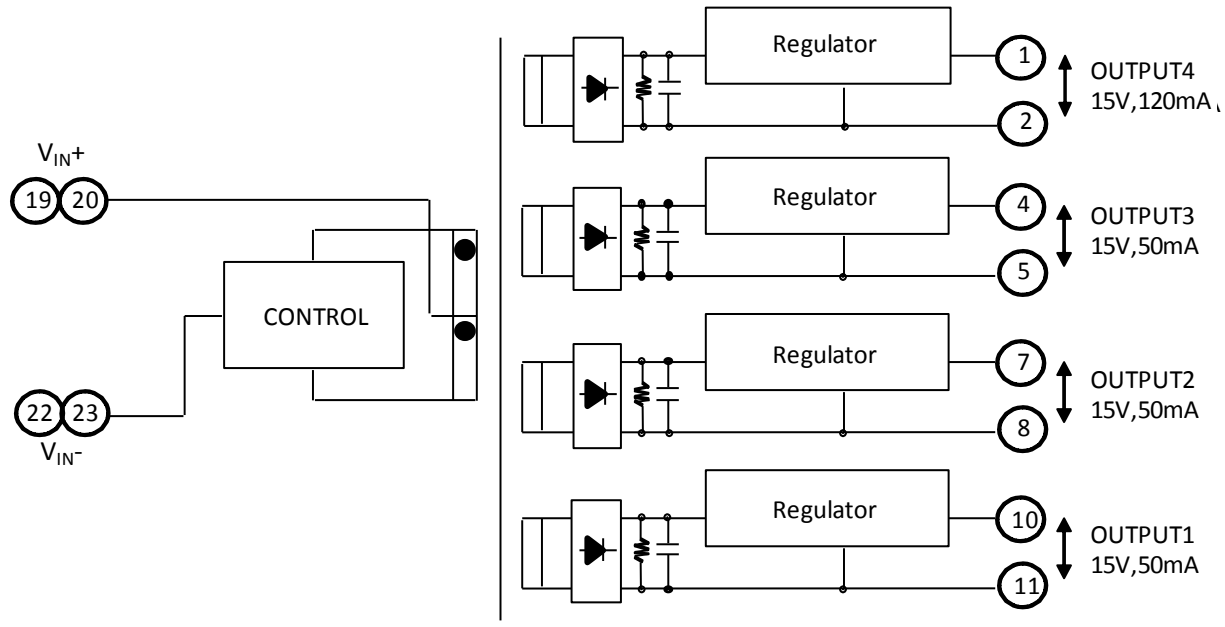
INVERTER

OUTLINE DRAWING

Dimensions : mm



BLOCK DIAGRAM



MAXIMUM RATINGS (unless otherwise noted, V_{IN}=24V,Ta=25°C)

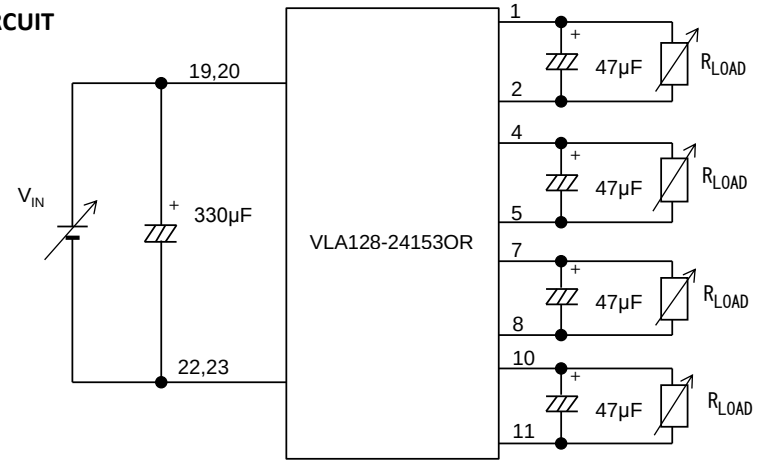
Symbol	Parameter	Conditions	Ratings	Unit
V_{IN}	Input voltage	Between pins 19,20 and 22,23	26	V
I_O	Output current	Between pins4-5,7-8,10-11	50	mA
		Between pins 1-2	120	
Topr	Operating temperature	No condensation	-30 ~ +75(*1)	°C
Tstg	Storage temperature	No condensation	-40 ~ +85	°C
Viso1	Isolation voltage between input and output	Sine wave voltage, 60Hz, 1min	2500	Vrms
Viso2	Isolation voltage between each output	Sine wave voltage, 60Hz, 1min	2500	Vrms

(*1) Please refer to de-rating characteristics.

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

Symbol	Parameter	Test conditions	Limits			Unit
			MIN.	TYP.	MAX.	
V_{IN}	Input voltage	Recommended range	22.8	24	25.2	V
Vo	Output voltage	V_{IN} =24V,Io1~3=0~50mA,Io4=0~120mA	14	15	16	V
Reg_L	Load regulation	V_{IN} =24V,Io1~3=0~50mA,Io4=120mA	-	-	450	mV
		V_{IN} =24V,Io1~3=50mA,Io4=0~120mA	-	-	600	mV
Vp-p	Output ripple	V_{IN} =24V,Io1~3=50mA,Io4=120mA	-	150	-	mVp-p
η	Efficiency	V_{IN} =24V,Io1~3=50mA,Io4=120mA	-	70	-	%

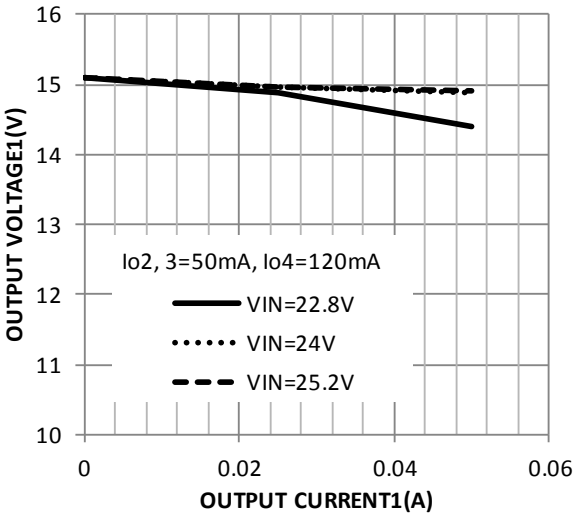
TEST CIRCUIT



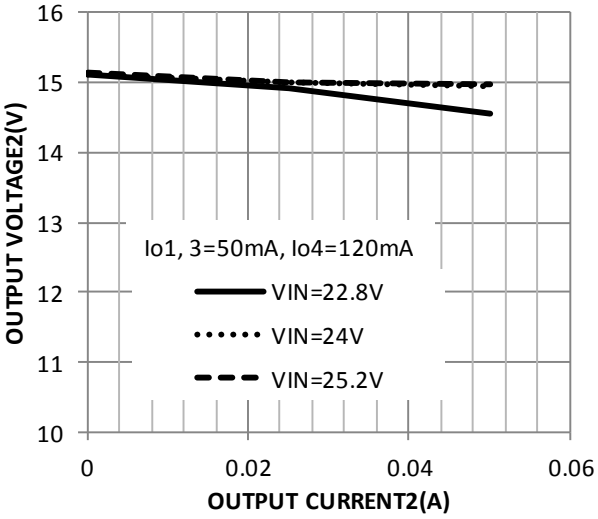
The capacitors are low impedance article.

• **TYPICAL CHARACTERISTIC CURVES(Ta=25℃)**

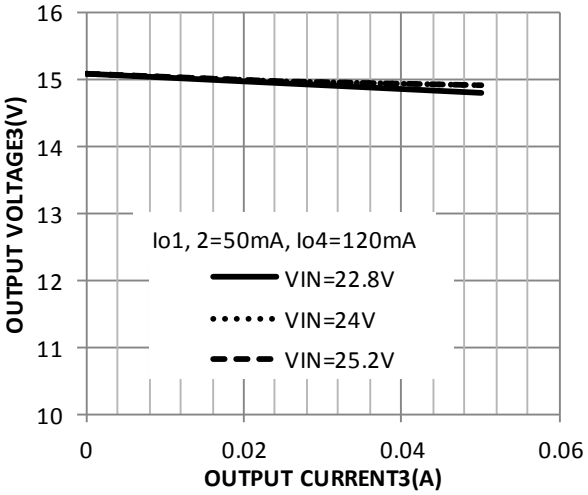
OUTPUT VOLTAGE 1- OUTPUT CURRENT1



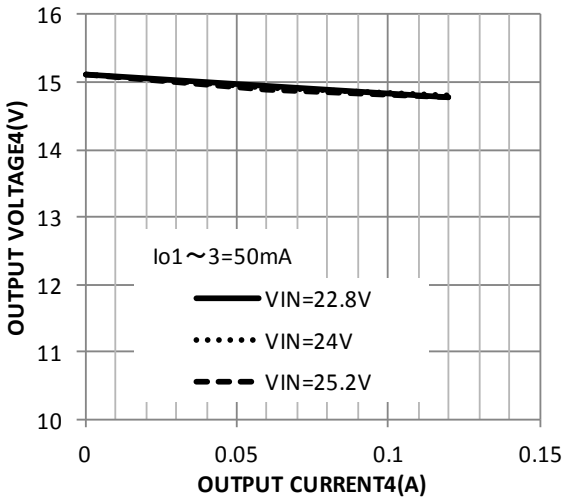
OUTPUT VOLTAGE 2- OUTPUT CURRENT2



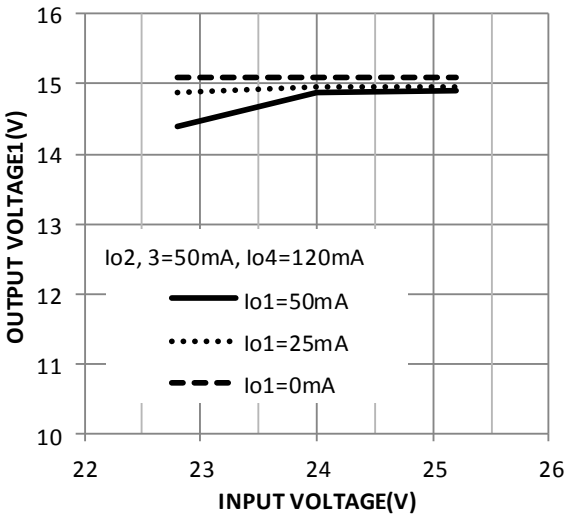
OUTPUT VOLTAGE 3- OUTPUT CURRENT3



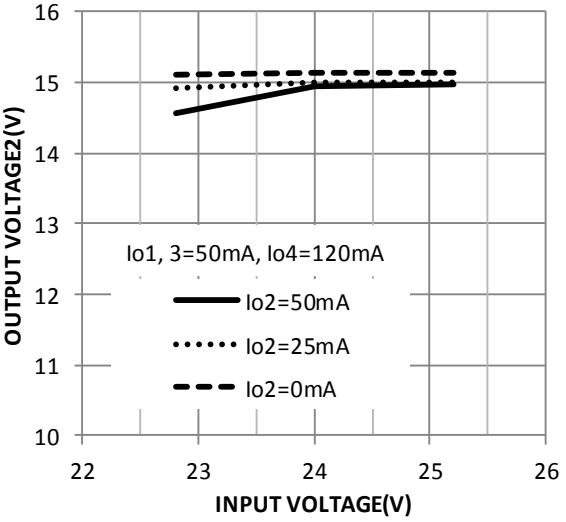
OUTPUT VOLTAGE 4- OUTPUT CURRENT4

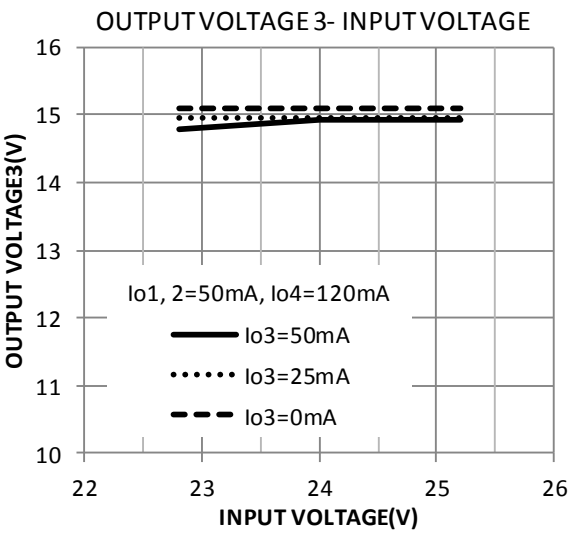


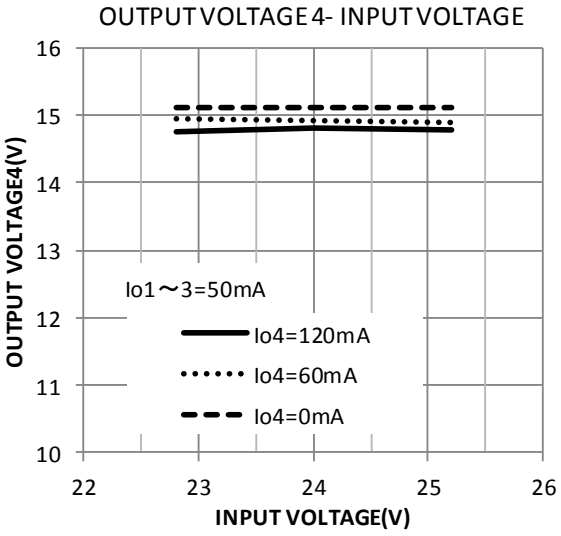
OUTPUT VOLTAGE 1- INPUT VOLTAGE

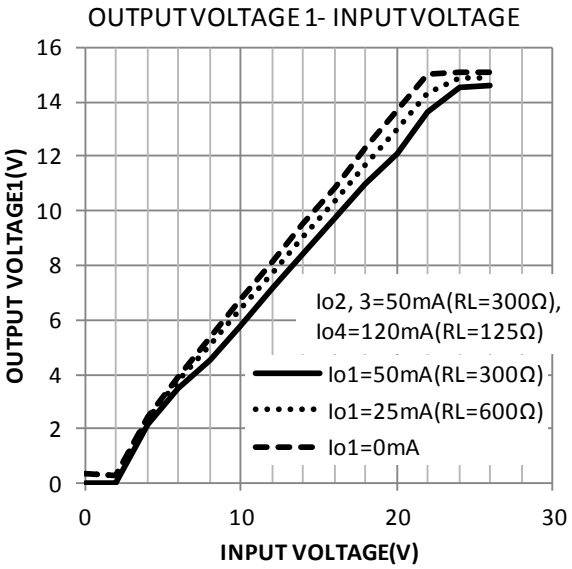


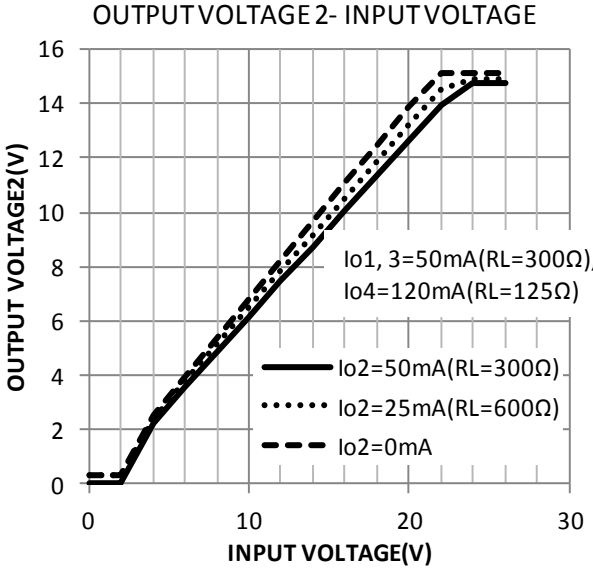
OUTPUT VOLTAGE 2- INPUT VOLTAGE

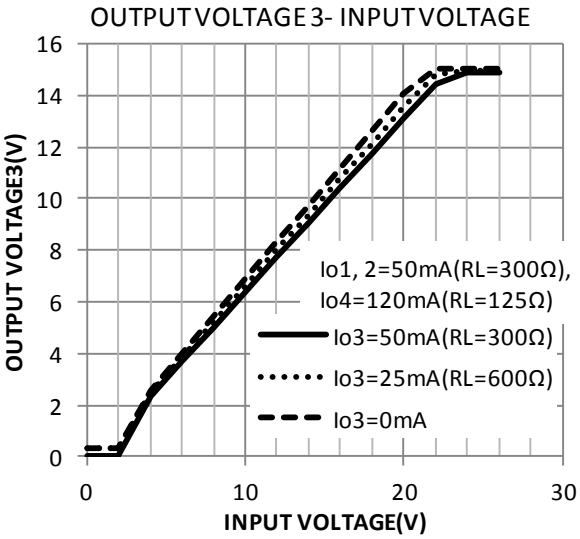


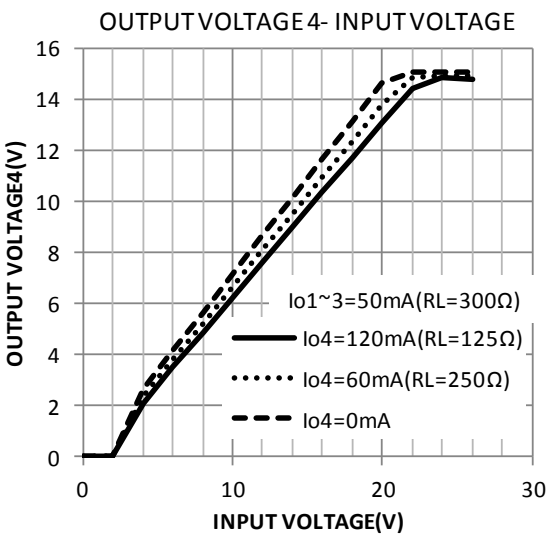

OUTPUT VOLTAGE 3- INPUT VOLTAGE
OUTPUT VOLTAGE3(V)
INPUT VOLTAGE(V)
Io1, 2=50mA, Io4=120mA
Io3=50mA
Io3=25mA
Io3=0mA

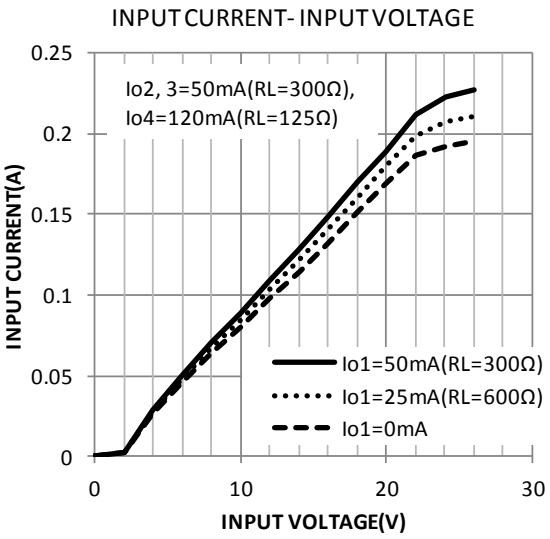

OUTPUT VOLTAGE 4- INPUT VOLTAGE
OUTPUT VOLTAGE4(V)
INPUT VOLTAGE(V)
Io1～3=50mA
Io4=120mA
Io4=60mA
Io4=0mA

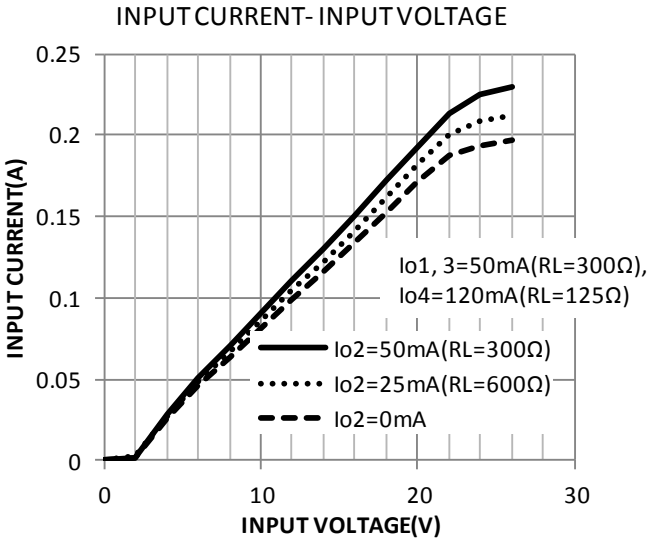

OUTPUT VOLTAGE 1- INPUT VOLTAGE
OUTPUT VOLTAGE1(V)
INPUT VOLTAGE(V)
Io2, 3=50mA(RL=300Ω),
Io4=120mA(RL=125Ω)
Io1=50mA(RL=300Ω)
Io1=25mA(RL=600Ω)
Io1=0mA

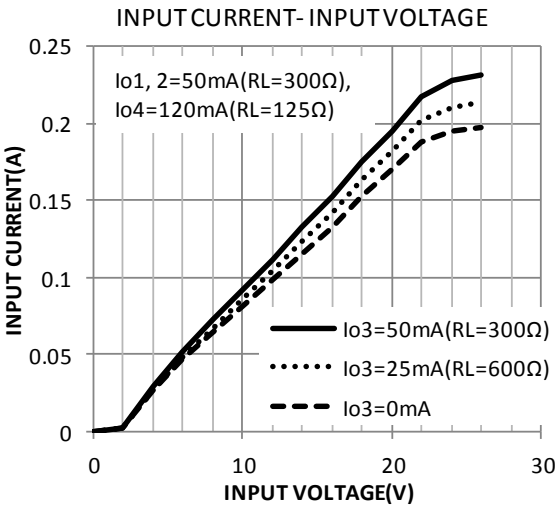

OUTPUT VOLTAGE 2- INPUT VOLTAGE
OUTPUT VOLTAGE2(V)
INPUT VOLTAGE(V)
Io1, 3=50mA(RL=300Ω),
Io4=120mA(RL=125Ω)
Io2=50mA(RL=300Ω)
Io2=25mA(RL=600Ω)
Io2=0mA

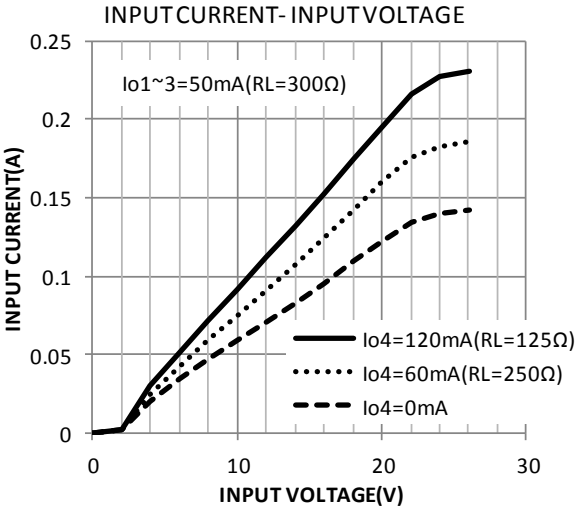

OUTPUT VOLTAGE 3- INPUT VOLTAGE
OUTPUT VOLTAGE3(V)
INPUT VOLTAGE(V)
Io1, 2=50mA(RL=300Ω),
Io4=120mA(RL=125Ω)
Io3=50mA(RL=300Ω)
Io3=25mA(RL=600Ω)
Io3=0mA

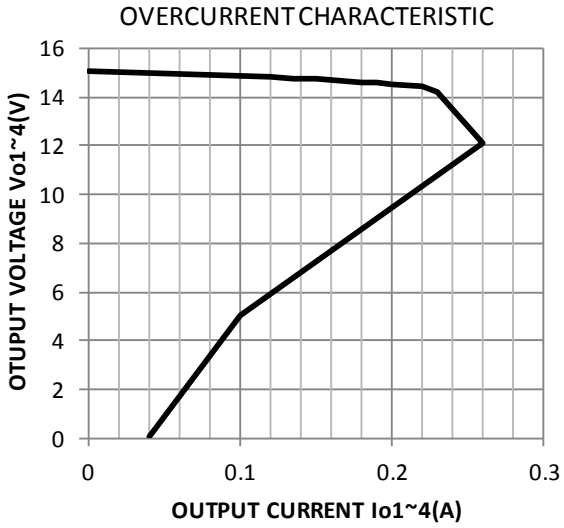

OUTPUT VOLTAGE 4- INPUT VOLTAGE
OUTPUT VOLTAGE4(V)
INPUT VOLTAGE(V)
Io1~3=50mA(RL=300Ω)
Io4=120mA(RL=125Ω)
Io4=60mA(RL=250Ω)
Io4=0mA

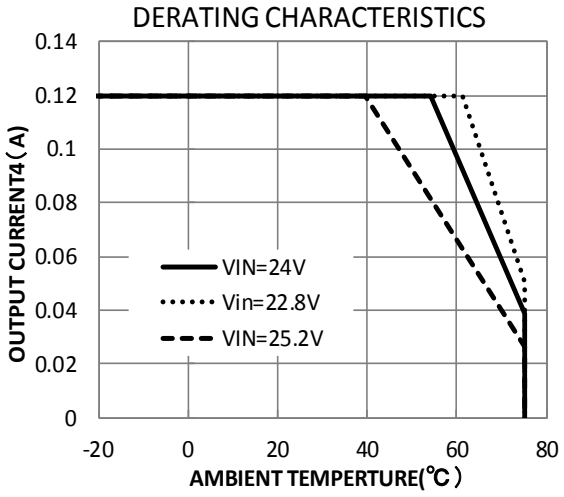

INPUT CURRENT- INPUT VOLTAGE
Io2, 3=50mA(RL=300Ω),
Io4=120mA(RL=125Ω)
Io1=50mA(RL=300Ω)
Io1=25mA(RL=600Ω)
Io1=0mA
INPUT CURRENT(A)
INPUT VOLTAGE(V)

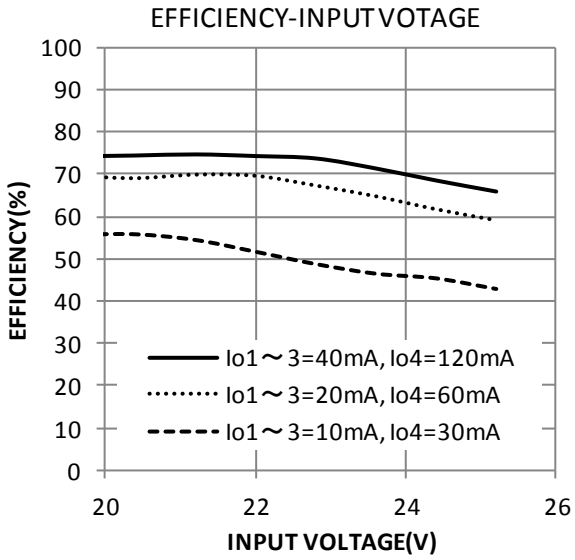

INPUT CURRENT- INPUT VOLTAGE
Io1, 3=50mA(RL=300Ω),
Io4=120mA(RL=125Ω)
Io2=50mA(RL=300Ω)
Io2=25mA(RL=600Ω)
Io2=0mA
INPUT CURRENT(A)
INPUT VOLTAGE(V)


INPUT CURRENT- INPUT VOLTAGE
Io1, 2=50mA(RL=300Ω),
Io4=120mA(RL=125Ω)
Io3=50mA(RL=300Ω)
Io3=25mA(RL=600Ω)
Io3=0mA
INPUT CURRENT(A)
INPUT VOLTAGE(V)


INPUT CURRENT- INPUT VOLTAGE
Io1~3=50mA(RL=300Ω)
Io4=120mA(RL=125Ω)
Io4=60mA(RL=250Ω)
Io4=0mA
INPUT CURRENT(A)
INPUT VOLTAGE(V)


OVERCURRENT CHARACTERISTIC
OTUPUT VOLTAGE Vo1~4(V)
OUTPUT CURRENT Io1~4(A)


DERATING CHARACTERISTICS
VIN=24V
Vin=22.8V
VIN=25.2V
OUTPUT CURRENT4（A）
AMBIENT TEMPERTURE(℃）


EFFICIENCY-INPUT VOTAGE
EFFICIENCY(%)
100
90
80
70
60
50
40
30
20
10
0
20
22
24
26
INPUT VOLTAGE(V)
Io1～3=40mA, Io4=120mA
Io1～3=20mA, Io4=60mA
Io1～3=10mA, Io4=30mA

FOR SAFETY USING

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

CAUTIONS	
Packing	The materials used in packing products 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 products, 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, products must be kept non-processed. When using products 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 products within the maximum ratings. The temperature, current, voltage, etc. must not exceed these conditions.
Polarity	To protect products 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.

Keep safety first in your circuit designs!

- ISAHAYA Electronics Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (1)placement of substitutive, auxiliary circuits, (2)use of non-flammable material or (3)prevention against any malfunction or mishap.

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