

DESCRIPTION

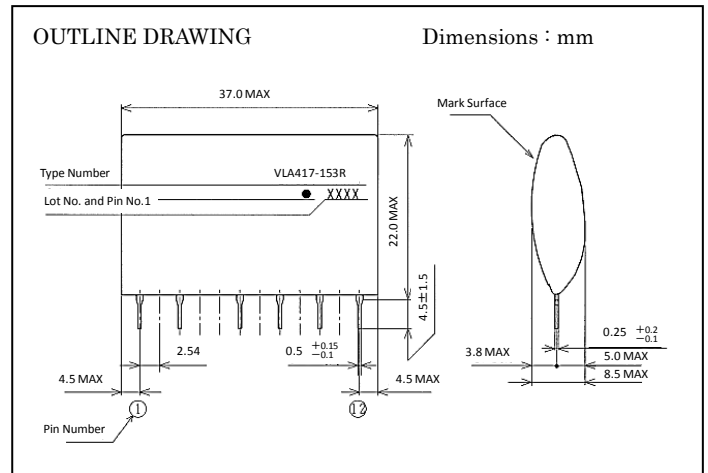
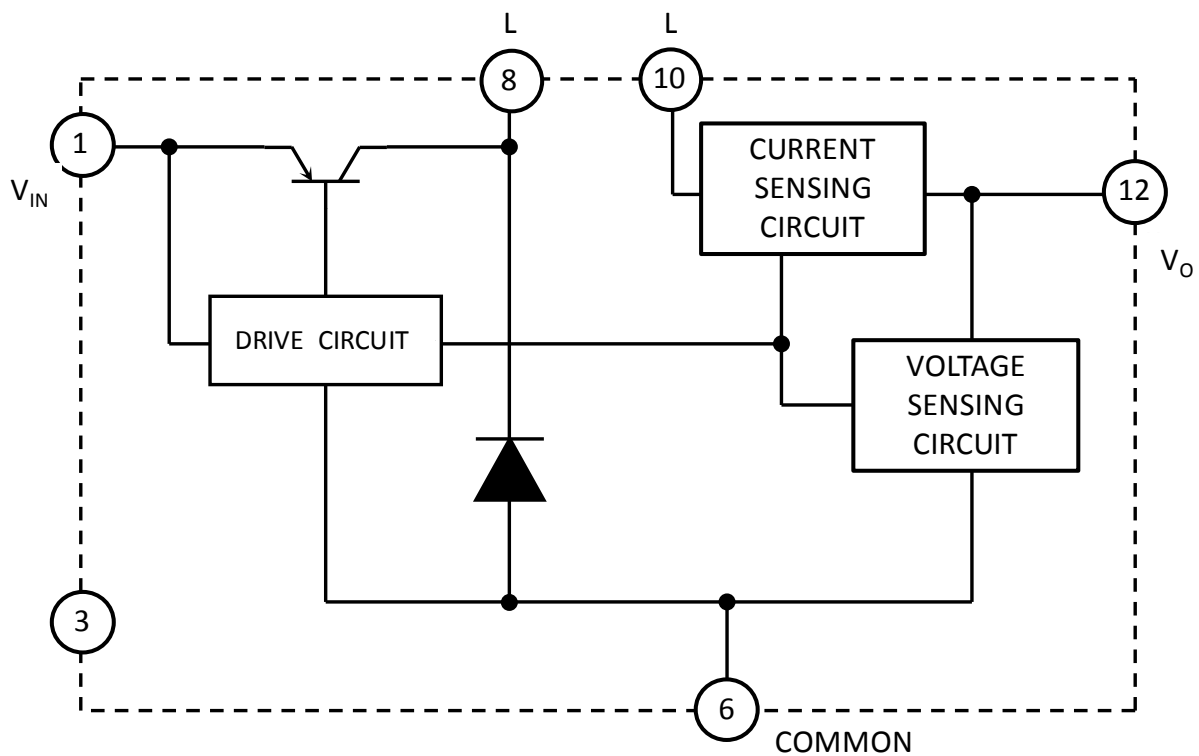
VLA417-153R is a non-isolated type DC-DC converter designed for direct input of rectified voltage from 100/200V AC. This hybrid IC provides +15V, 200mA with fewer external components such as electrolytic capacitors and choke coils only

FEATURES

- Input voltage range DC 113~410V
- Output 15V $\pm$ 5%, 200mA

APPLICATIONS

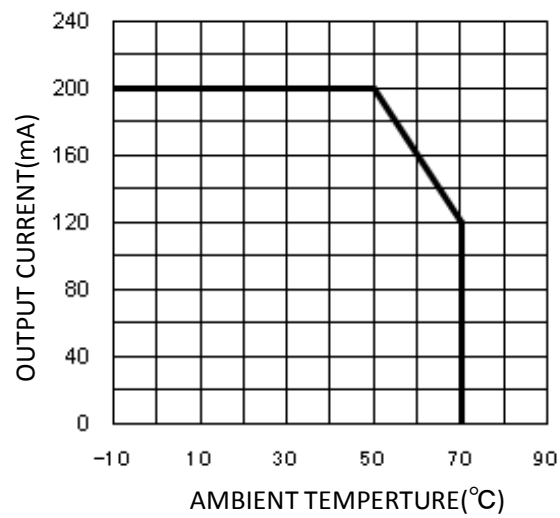
Controlled equipment etc

**BLOCK DIAGRAM**

MAXIMUM RATINGS (unless otherwise noted, $T_a = 25^\circ\text{C}$)

Symbol	Parameter	Conditions	Ratings	Units
V_{IN}	Input voltage	—	450	V
I_L	Output current	—	200	mA
T_{opr}	Operating temperature	No condensation *1	$-10 \sim +70$	$^\circ\text{C}$
T_{stg}	Storage temperature	No condensation	$-20 \sim +85$	$^\circ\text{C}$

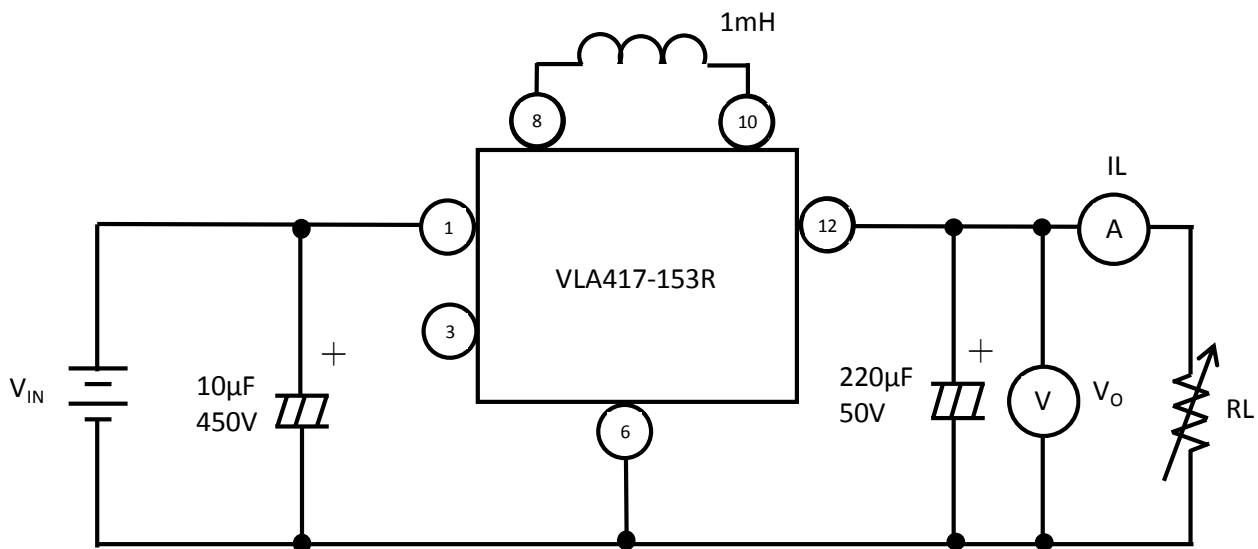
*1) Please refer to de-rating characteristics

DERATING CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (unless otherwise noted, $T_a = 25^\circ\text{C}$, $V_{IN}=280\text{V}$, $T_a=25^\circ\text{C}$)

Symbol	Parameter	Test conditions	Limit			Units
			Min	Typ	Max	
V_{IN}	Input voltage	Recommended range	113	-	410	V
V_o	Output current	$I_L=0\sim 200\text{mA}$	14.3	15.0	15.7	V
Reg-I	Input regulation	$V_{IN}=113\sim 410\text{V}$, $I_L=200\text{mA}$	-	-	300	mV
Reg-L	Load regulation	$I_L=0\sim 200\text{mA}$	-	-	450	mV
η	Efficiency	$I_L=200\text{mA}$	-	72	-	%
V_{p-p}	Output ripple	$I_L=200\text{mA}$ *2	-	-	150	mV _{p-p}

*2) Not contain the spike noise

TEST CIRCUIT

A PRECAUTION FOR USE

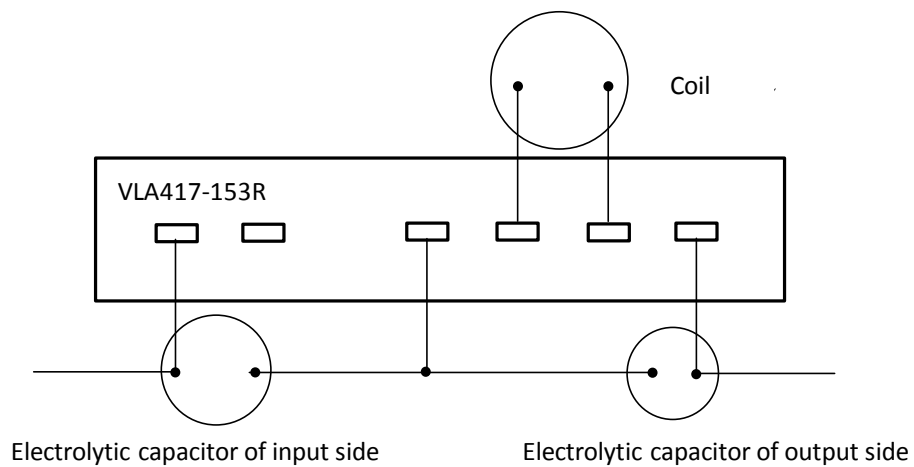
1. About overcurrent and load short.

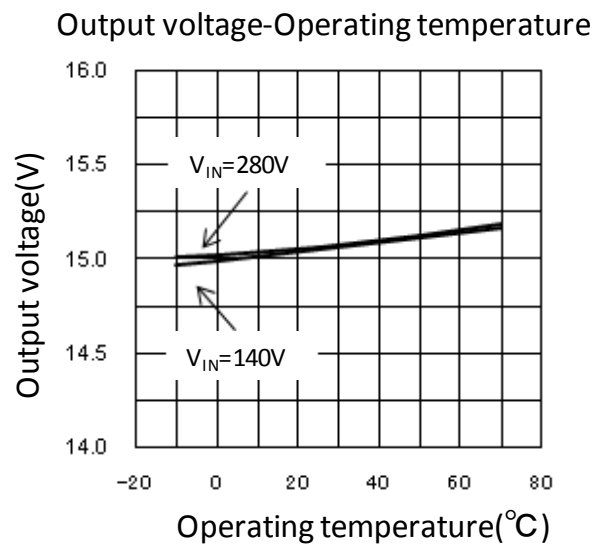
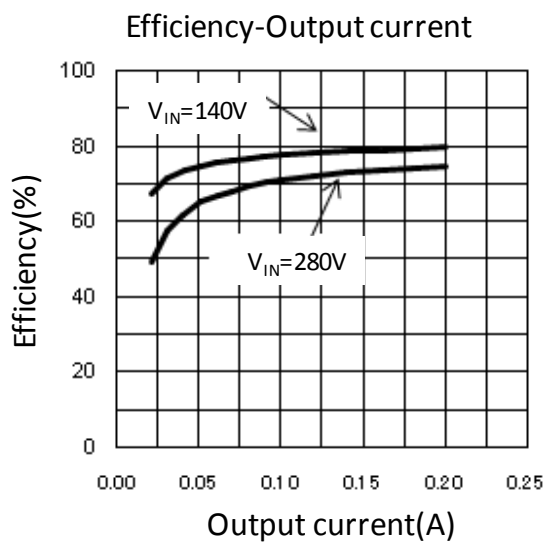
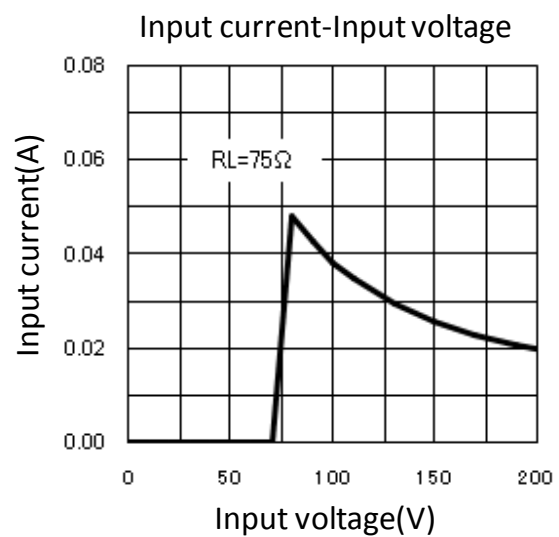
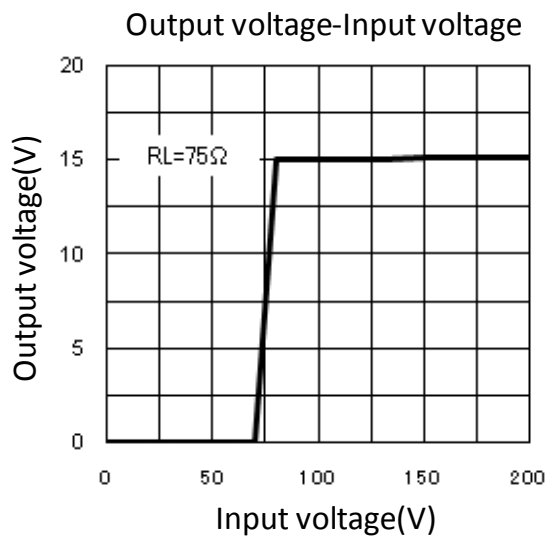
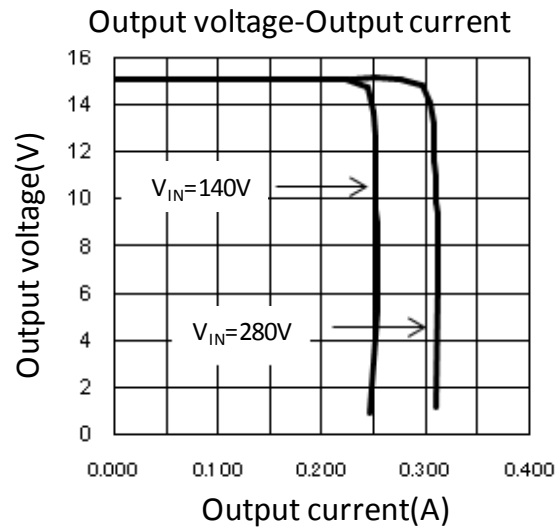
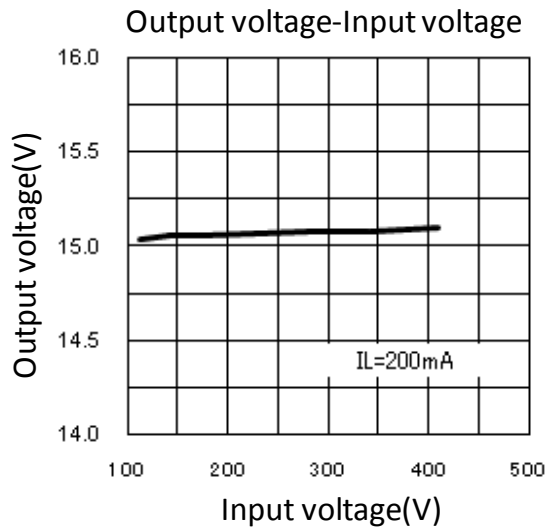
This product is provided with overcurrent protection. But please use the fuse for safety using.

2. About design of parts

Please place electrolytic capacitor of input and output side close to product.

And please place coil opposite side to electrolytic capacitor as below diagram.



TYPICAL CHARACTERISTIC CURVES ($T_a=25^{\circ}\text{C}$)

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 its 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	
Maximum ratings	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.
Polarity	To prevent any electrical damages, use products within the maximum ratings. The temperature, current, voltage, etc. must not exceed these conditions. 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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