

**DESCRIPTION**

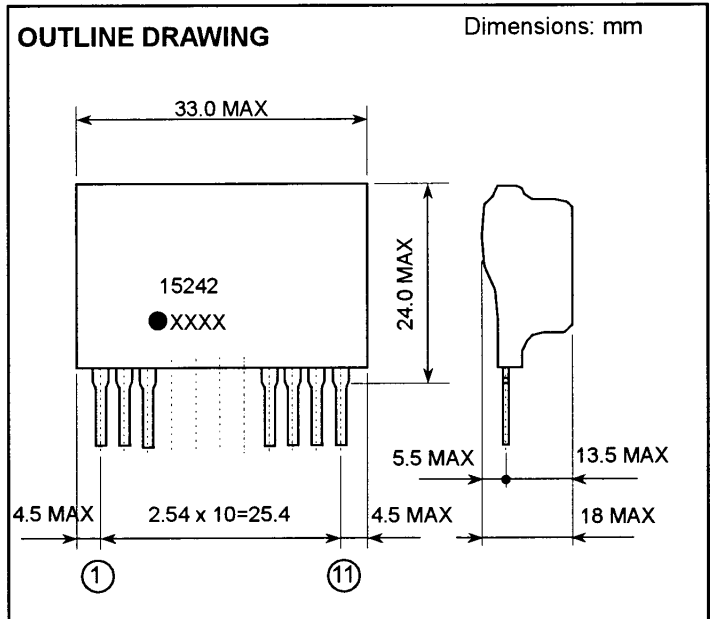
The VLA106-15242 is a DC-DC converter. Its output power is 2.4W and the input is isolated from the output. The over-current protection circuit is built-in and it is the best for on-board power supplies, such as industrial equipment and control equipment.

**FEATURES**

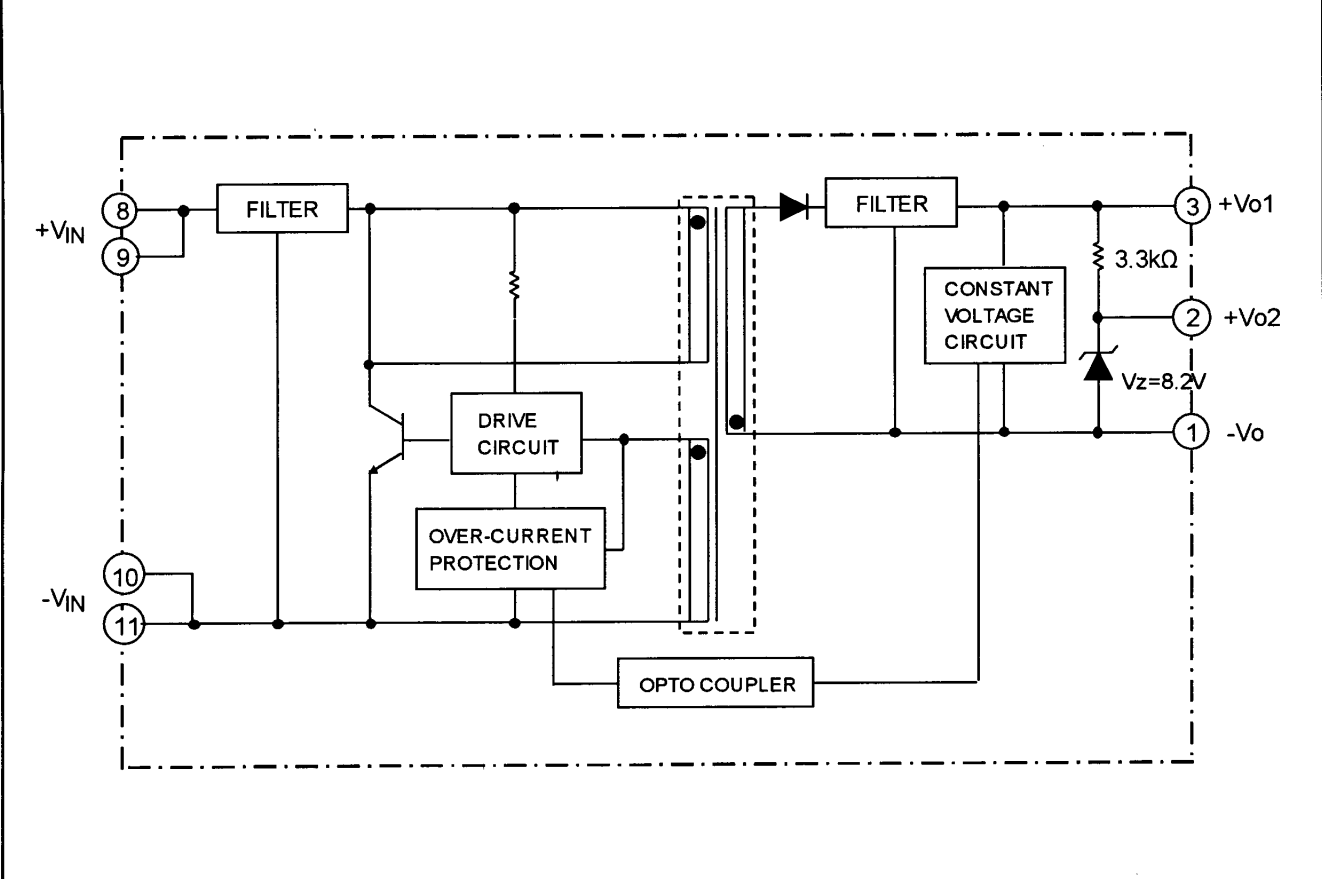
- Input voltage range: 12.0 to 18.0V DC
- Output: +24V, 100mA (output power : 2.4W)
- Thin-profile and lightweight design
- Isolation between input and output : 2500Vrms, 1min
- Built-in over-current protection circuit

**APPLICATIONS**

On-board power supplies, such as industrial equipment and control equipment.



**BLOCK DIAGRAM**



**ISOLATED TYPE DC-DC CONVERTER**

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

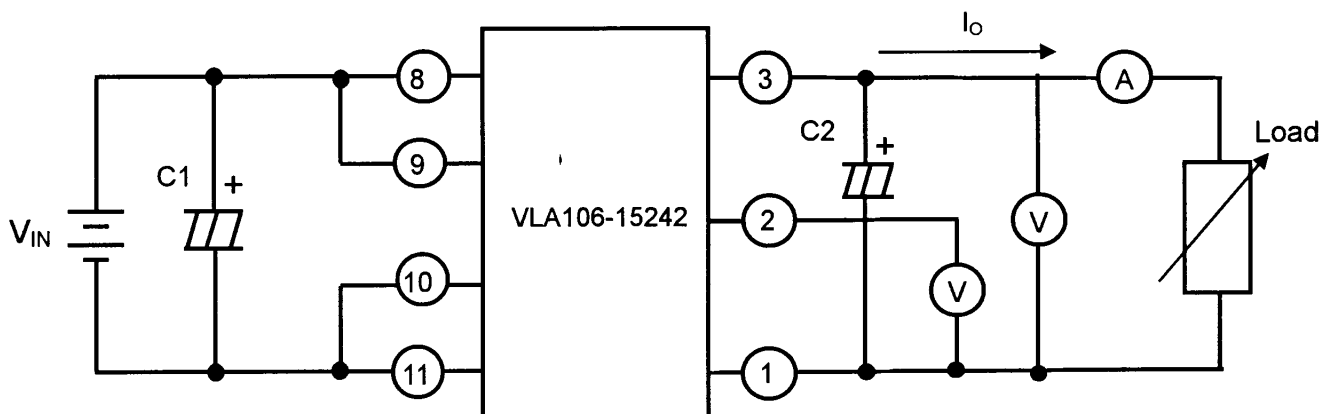
| Symbol    | Parameter                      | Conditions                 | Ratings   | Unit             |
|-----------|--------------------------------|----------------------------|-----------|------------------|
| $V_{IN}$  | Input voltage                  | Between pins 8,9 and 10,11 | 18        | V                |
| $I_o$     | Output current                 | Between pins 3 and 1       | 100       | mA               |
| $T_{opr}$ | Operating temperature          | No condensation (*1)       | -10 ~ +70 | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature            | No condensation            | -20 ~ +85 | $^\circ\text{C}$ |
| $V_{iso}$ | Input-output isolation voltage | AC , 1min                  | 2500      | Vrms             |

(\*1) Please refer to derating characteristics.

**ELECTRICAL CHARACTERISTICS** (unless otherwise noted,  $V_{IN}=15\text{V}$ ,  $T_a=25^\circ\text{C}$ )

| Symbol    | Parameter        | Test conditions  | Limits |      |      | Unit |
|-----------|------------------|--|--------|------|------|------|
|           |                  |  | MIN.   | TYP. | MAX. |      |
| $V_{IN}$  | Input voltage    | Recommended range  | 12.0   | 15.0 | 18.0 | V    |
| $V_{O1}$  | Output voltage1  | Between pins 3 and 1<br>$I_o = 0 \sim 100\text{mA}$                          | 22.8   | 24.0 | 25.2 | V    |
| $V_{O2}$  | Output voltage2  | Between pins 2 and 1,<br>Between pins 3 and 2 : No load                      | 7.79   | 8.2  | 8.61 | V    |
| $Reg-I$   | Input regulation | Between pins 3 and 1<br>$I_o=100\text{mA}$ , $V_{IN}=12.0 \sim 18.0\text{V}$ | —      | —    | 50   | mV   |
| $Reg-L$   | Load regulation  | Between pins 3 and 1<br>$I_o = 0 \sim 100\text{mA}$                          | —      | —    | 50   | mV   |
| $V_{P-P}$ | Ripple voltage   | Between pins 3 and 1<br>$I_o=100\text{mA}$                                   | —      | —    | 150  | mV   |
| $\eta$    | Efficiency       | Between pins 3 and 1<br>$I_o=100\text{mA}$                                   | —      | 75   | —    | %    |

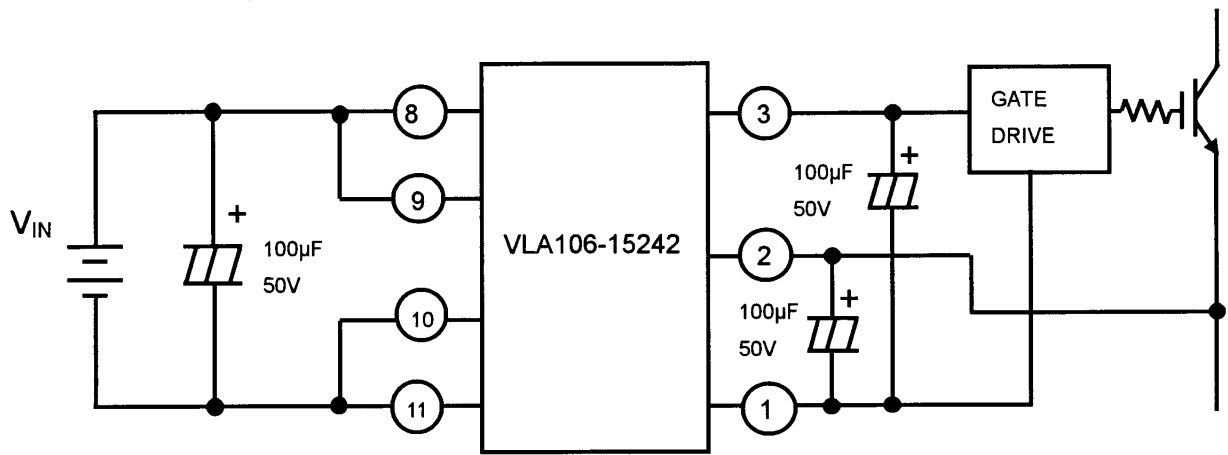
**TEST CIRCUIT DIAGRAM**



C1 : 100 $\mu\text{F}$  50V (low impedance)

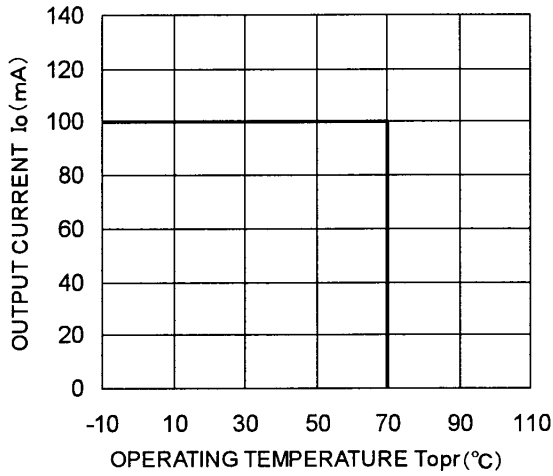
C2 : 47 $\mu\text{F}$  50V (low impedance)

APPLICATION CIRCUIT DIAGRAM

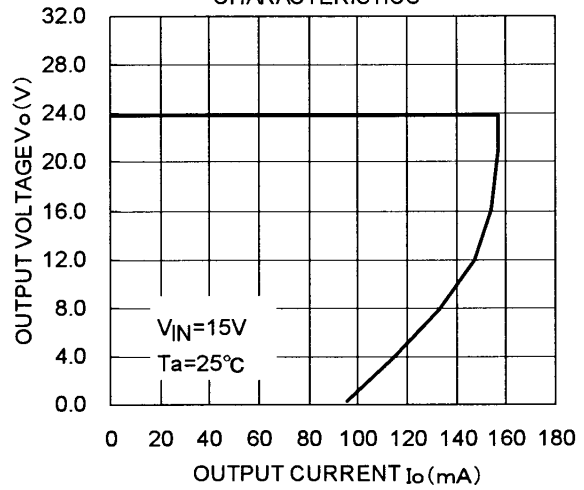


TYPICAL CHARACTERISTICS

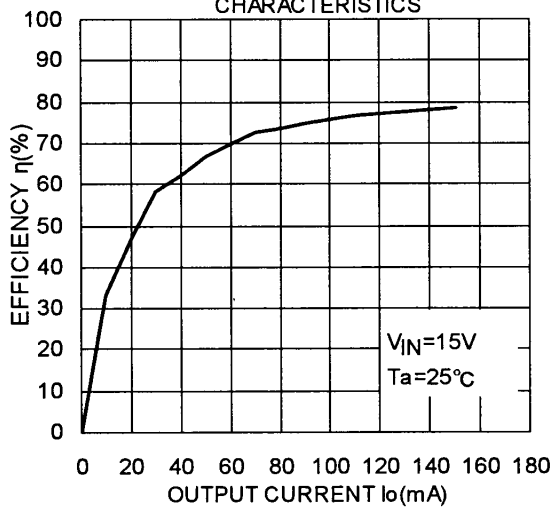
DERATING CHARACTERISTICS



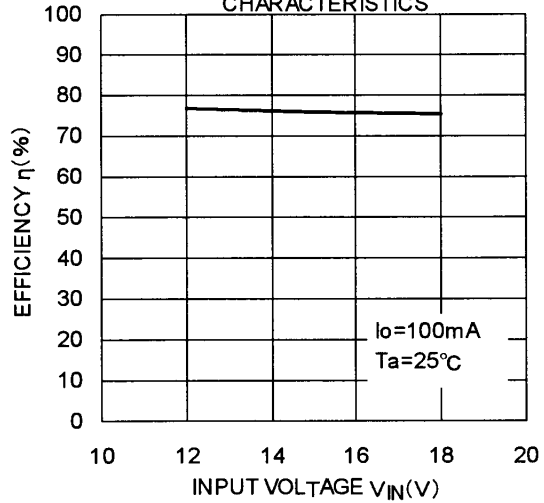
OUTPUT VOLTAGE - OUTPUT CURRENT CHARACTERISTICS



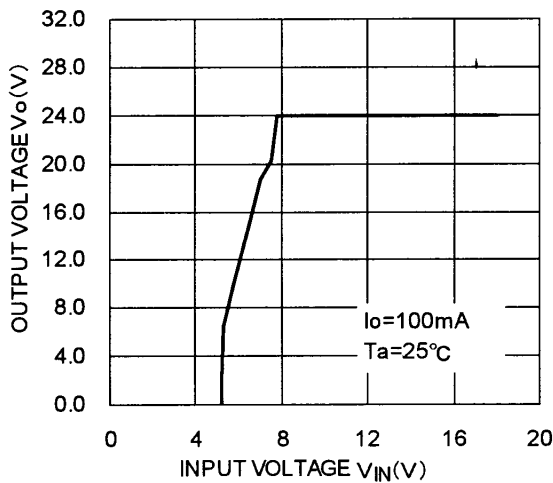
EFFICIENCY - OUTPUT CURRENT CHARACTERISTICS



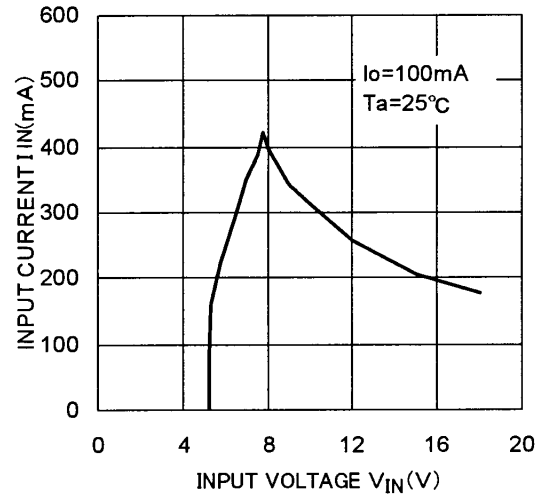
EFFICIENCY - INPUT VOLTAGE CHARACTERISTICS



OUTPUT VOLTAGE - INPUT VOLTAGE CHARACTERISTICS



INPUT CURRENT - INPUT VOLTAGE CHARACTERISTICS



**ISOLATED TYPE DC-DC CONVERTER**

**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         | <ol style="list-style-type: none"> <li>1) Don't stack boxes too high. Avoid placing heavy materials on boxes.</li> <li>2) Boxes must be positioned correctly during transportation to avoid breakage.</li> <li>3) Don't throw or drop boxes.</li> <li>4) Keep boxes dry. Avoid rain or snow.</li> <li>5) Minimal vibration and shock during transportation is desirable.</li> </ol>  |
| Storage          | <p>When storing Hics, please observe the following notices or possible deterioration of their electrical characteristics, risk of solderability, and external damage may occur.</p> <ol style="list-style-type: none"> <li>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%.</li> <li>2) Avoid locations where corrosive gasses are generated or where much dust accumulates.</li> <li>3) Storage cases must be static proof.</li> <li>4) Avoid putting weight on boxes.</li> </ol> |
| 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 temperaqtue, 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**

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