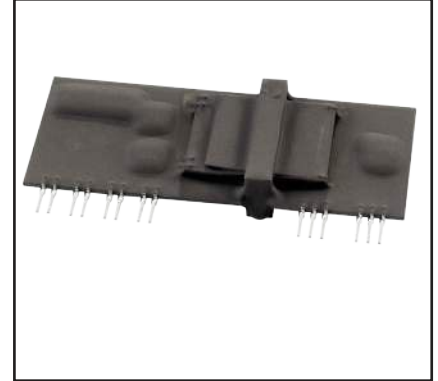
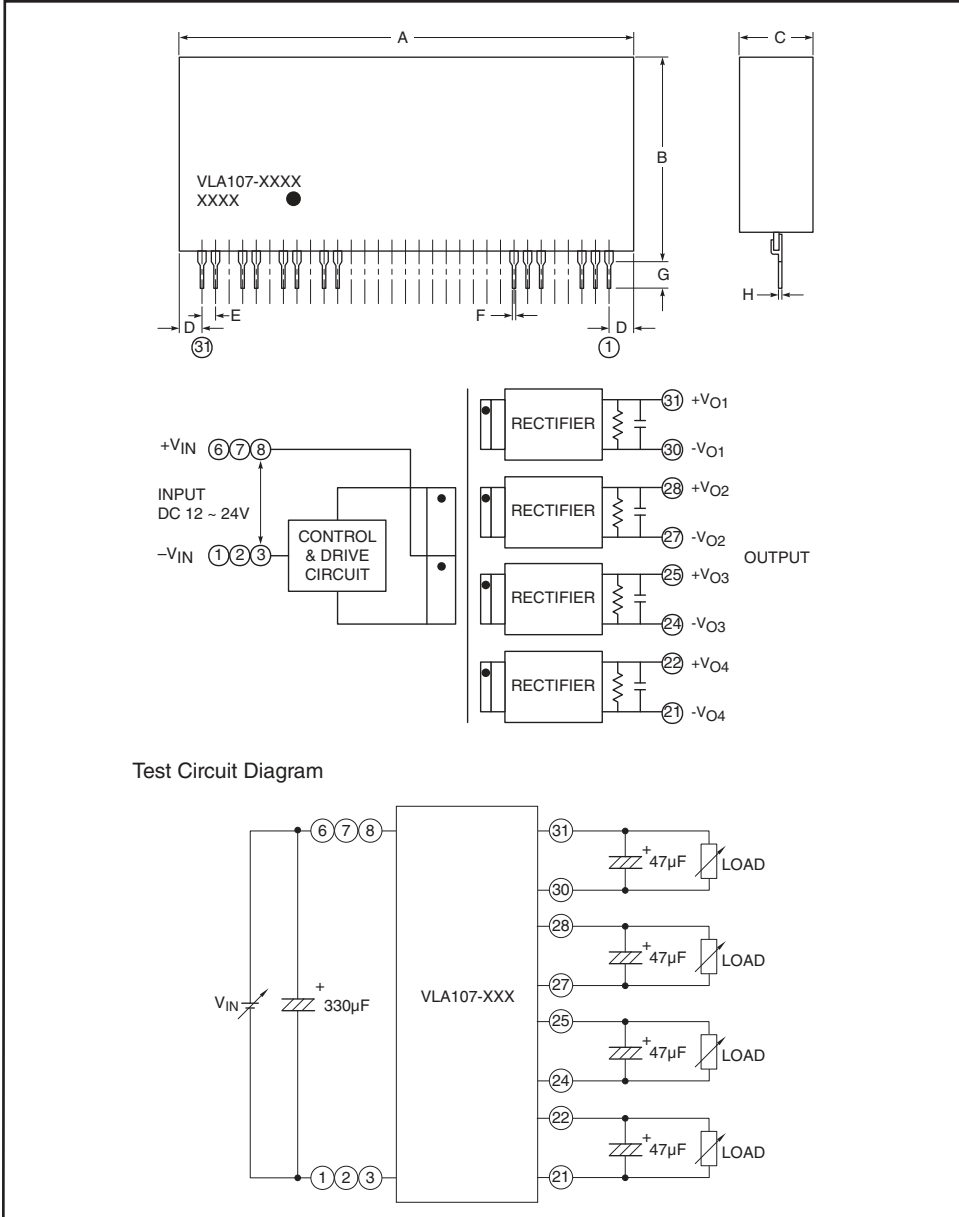


### Isolated DC-DC Converter



#### Description:

VLA107-677R is an isolated DC-DC converter module having four (4) outputs designed to inverter control. Output power and input is isolated from the output. The over-current protection circuit is built-in. This device is used for on-board power supplies in industrial control equipment.

#### Features:

- Input Voltage Range: 12 ~ 24V DC
- Output: 12 ~ 24V, 120mA x4
- Thin Profile, Lightweight Design
- Electrical Isolation Voltage Between Input and Output: 2500 V<sub>rms</sub> for 1 Minute
- Electrical Isolation Voltage Between Each Output: 2500 V<sub>rms</sub> for 1 Minute
- Low Noise
- No Optocoupler
- RoHS Compliant

#### Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	3.42 Max.	87.0 Max.
B	1.53 Max.	39.0 Max.
C	0.55 Max.	14.0 Max.
D	0.22 Max.	5.5 Max.
E	0.1	2.54
F	0.03±0.004	0.75±0.1
G	0.18±0.06	4.5±1.5
H	0.02+0.008/-0.004	0.5+0.2/-0.1

#### Application:

Three-phase inverter control.

**VLA107-677R**  
**Isolated DC/DC Converter**

**Absolute Maximum Ratings,  $T_a = 25^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	VLA107-677R	Units
Input Voltage (Between Pins 1, 2, 3 and 6, 7, 8)	$V_{IN}$	26.4	Volts
Output Current (Between Pins 21-22, 24-25, 27-28, and 30-31)	$I_O$	120	mA
Operating Temperature (No Condensation)	$T_{opr}$	-30 ~ 75 <sup>*1</sup>	$^\circ\text{C}$
Storage Temperature (No Condensation)	$T_{stg}$	-40 to 85	$^\circ\text{C}$
Isolation Voltage Between Input and Output (Sine Wave Voltage, 60Hz, 1 Minute)	$V_{ISO1}$	2500	$V_{rms}$
Isolation Voltage Between Each Output (Sine Wave Voltage, 60Hz, 1 Minute)	$V_{ISO2}$	2500	$V_{rms}$

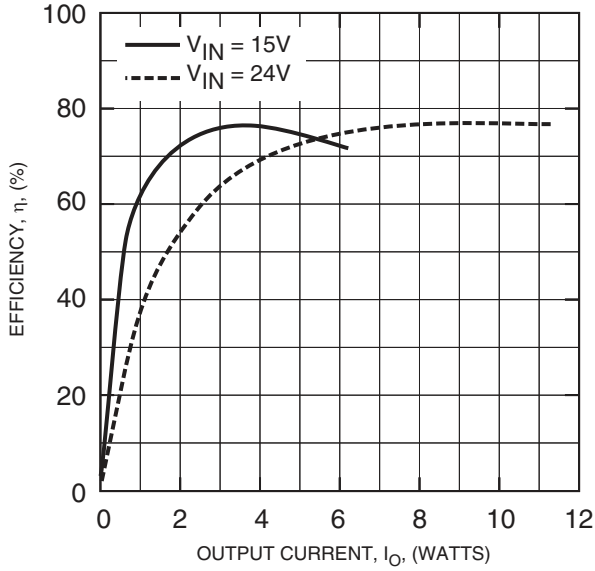
\*1 Please refer to derating characteristics.

**Electrical and Mechanical Characteristics,  $T_a = 25^\circ\text{C}$ ,  $V_{IN} = 24\text{V}$  unless otherwise specified**

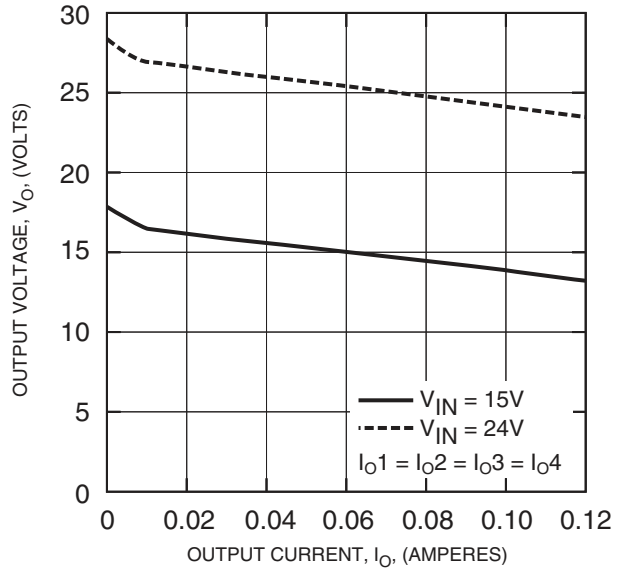
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Input Voltage	$V_{IN}$	Recommended Range	12	—	24	Volts
Output Voltage	$V_{OX}$	$V_{IN} = 24\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = I_{O4} = 0\text{mA}$	27	28.5	30	Volts
		$V_{IN} = 24\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = I_{O4} = 120\text{mA}$	22	23.5	25	Volts
		$V_{IN} = 15\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = I_{O4} = 0\text{mA}$	17	18	19	Volts
		$V_{IN} = 15\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = I_{O4} = 120\text{mA}$	12	13	14	Volts
		$V_{IN} = 15\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = 10\text{mA}$ , $I_{O4} = 30\text{mA}$	15.5	16.5	17.5	Volts
		$V_{IN} = 15\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = 30\text{mA}$ , $I_{O4} = 90\text{mA}$	14.5	15.5	16.5	Volts
Load Regulation	Reg-L	$V_{IN} = 24\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = I_{O4} = 0 \sim 120\text{mA}$	—	16	—	%
		$V_{IN} = 24\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = 0\text{mA}$ , $I_{O4} = 0 \sim 120\text{mA}$	—	8	—	%
Output Ripple Voltage	$V_{P-P}$	$V_{IN} = 24\text{V}$ , $I_{OX} = 120\text{mA}$	—	40	—	mVp-p
Efficiency	$\eta$	$V_{IN} = 24\text{V}$ , $I_{O1} = I_{O2} = I_{O3} = I_{O4} = 120\text{mA}$	—	75	—	%

VLA107-677R  
Isolated DC/DC Converter

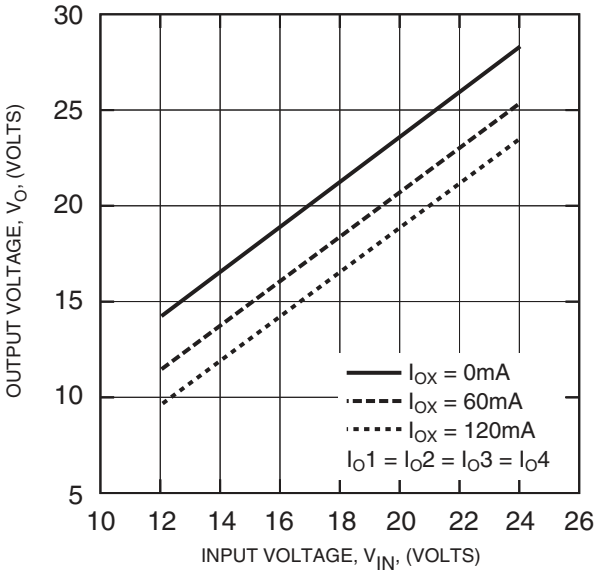
EFFICIENCY VS. OUTPUT CURRENT CHARACTERISTICS



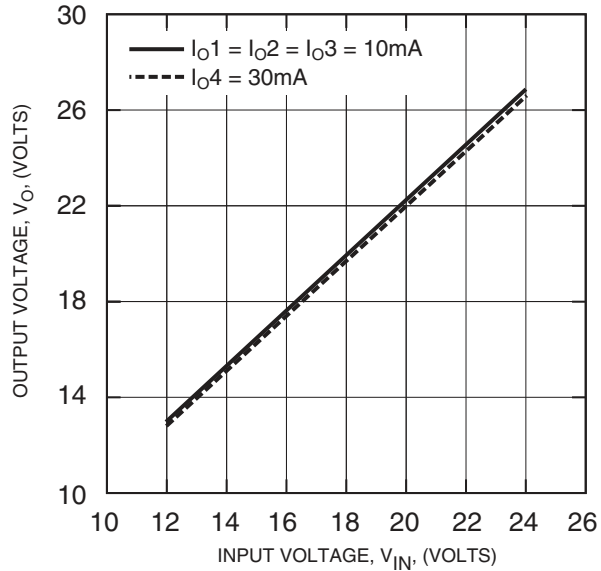
OUTPUT VOLTAGE VS. OUTPUT CURRENT CHARACTERISTICS



OUTPUT VOLTAGE VS. INPUT VOLTAGE CHARACTERISTICS

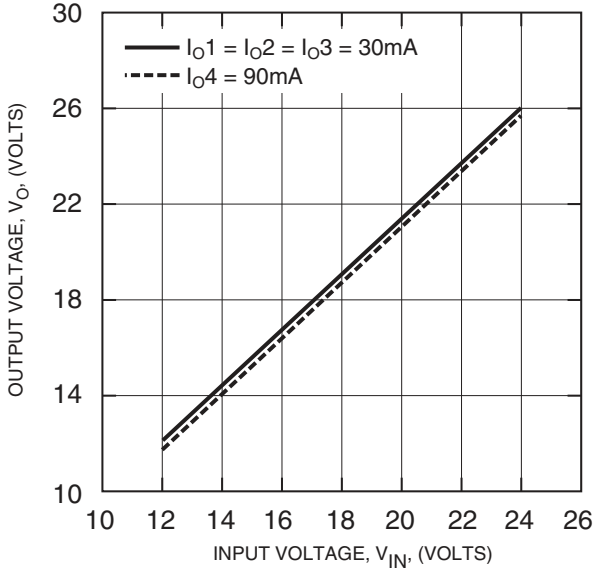


OUTPUT VOLTAGE VS. INPUT VOLTAGE CHARACTERISTICS

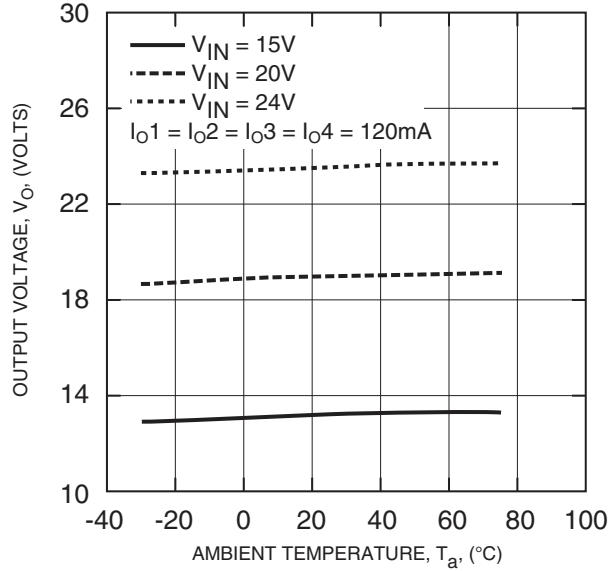


VLA107-677R  
Isolated DC/DC Converter

OUTPUT VOLTAGE VS. INPUT VOLTAGE CHARACTERISTICS



OUTPUT VOLTAGE VS. AMBIENT TEMPERATURE CHARACTERISTICS



DERATING CHARACTERISTICS

