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# Dual High-Current Photovoltaic Power Source

## 8A100-2 / 8A100-2 GW

through-hole / gull-wing surface mount

### Features

- Highest Short-Circuit Current of any PVI
- Guaranteed minimum output current
- Logic-Level Compatible Output Voltage
- High Working Isolation Voltage
- Dual Independent Floating Outputs
- Low Coupling Capacitance
- Low Noise
- High Speed
- High Reliability

### Applications

- Floating mW Power Supply
- Isolated Sensor Applications
- Isolated Data Acquisition
- Multi-cell Battery Management
- Metering
- Motor Control
- Inverter and Power Supply
- Medical Applications
- High-Speed Logic-Level Gate Drive

*Note: For a version of this part having a single input LED in each channel with reduced forward voltage drop, please refer to the 8A100-1.*

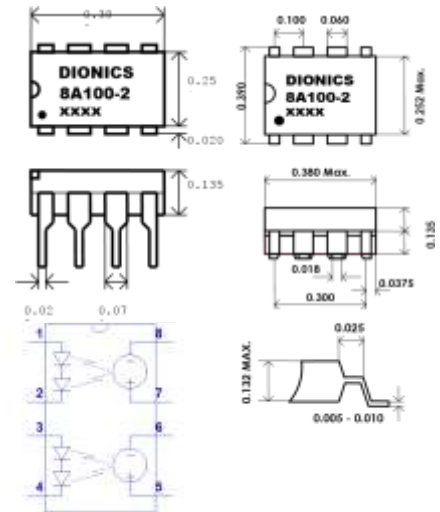
### Description

The 8A100-2 is a dual high-current Photovoltaic Isolator (PVI) milli-watt power source. This device achieves the highest output current of any PVI on the market today while providing a logic-level compatible output voltage.

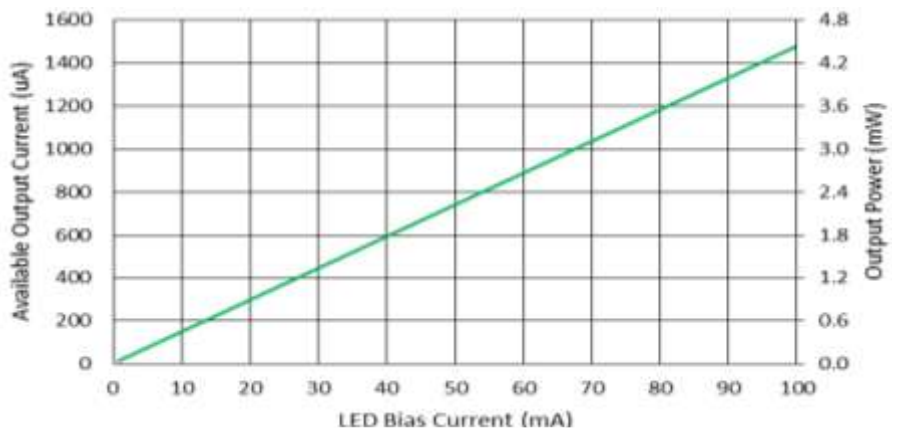
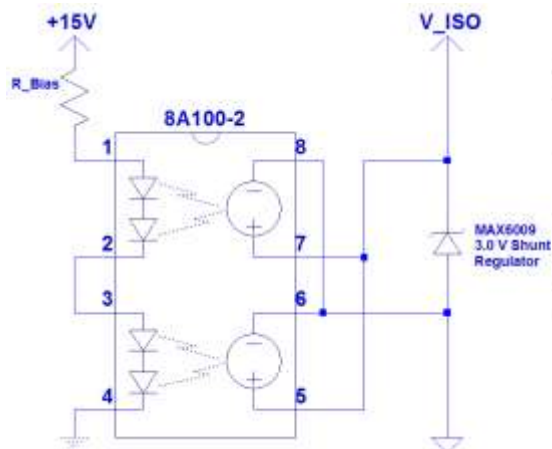
The relatively high output power of this device, in comparison with other PVI devices, is achieved using a dual LED emitter structure in conjunction with a PVI detector array, which is optimized for the voltage level required for powering modern data converters, logic devices, and logic-level MOSFET's

The true galvanic isolation provides high continuous working isolation voltage, low coupling capacitance, low noise, and high reliability in a compact package.

Pin	8A100-2
1	Input 1 +
2	Input 1 -
3	Input 2 +
4	Input 2 -
5	Output 2 +
6	Output 2 -
7	Output 1 +
8	Output 1 -



### Typical Application



Available output current for 3.0V regulated supply with paralleled outputs

**Table 1 Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Units	Conditions
LED Forward Current	I <sub>F</sub>	100	mA	Steady State
LED Forward Current	I <sub>F</sub>	250	mA	Peak 10% Duty
LED Reverse Voltage	V <sub>R</sub>	5	V	
Operating Temperature Range	T <sub>A</sub>	-50 to +100	°C	
Storage Temperature	T <sub>S</sub>	-50 to +125	°C	
Power Dissipation	P <sub>IN</sub>	500	mW	
Input-to-Output Isolation Test Voltage	V <sub>ISO</sub>	2500	V	

**Table 2 Electrical Characteristics - Individual Channel (Ta=25°C)**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Short Circuit Current						
I <sub>F</sub> = 5mA	I <sub>sc</sub>	25	30		uA	
I <sub>F</sub> = 10mA	I <sub>sc</sub>	60	75		uA	
I <sub>F</sub> = 15mA	I <sub>sc</sub>	90	120		uA	
I <sub>F</sub> = 20mA	I <sub>sc</sub>	130	165		uA	
I <sub>F</sub> = 25mA	I <sub>sc</sub>	160	210		uA	
I <sub>F</sub> = 30mA	I <sub>sc</sub>	200	255		uA	
Open Circuit Voltage						
I <sub>F</sub> = 5mA	V <sub>oc</sub>	3.25	4.05		V	
I <sub>F</sub> = 10mA	V <sub>oc</sub>	3.40	4.30		V	
I <sub>F</sub> = 15mA	V <sub>oc</sub>	3.50	4.40		V	
I <sub>F</sub> = 20mA	V <sub>oc</sub>	3.60	4.50		V	
I <sub>F</sub> = 25mA	V <sub>oc</sub>	3.65	4.60		V	
I <sub>F</sub> = 30mA	V <sub>oc</sub>	3.70	4.65		V	
LED Forward Voltage	I <sub>F</sub>		2.6	3.0	V	I <sub>F</sub> =20mA
Channel-to-Channel Rejection			40		dB	
Turn-On Time	t <sub>ON</sub>		30		μS	I <sub>F</sub> =20mA R <sub>L</sub> =500k C <sub>L</sub> =1000pF -- See Fig. 5 --
Turn-Off Time	t <sub>OFF</sub>	The photovoltaic array stops generating current within one microsecond of the trailing edge of the LED current. The discharge time is solely dependent upon discharge circuitry and capacitive load.				
Maximum Continuous Working Voltage	V <sub>IORM</sub>	630			V	
Input-Output coupling capacitance	C <sub>ISO</sub>		1.65		pF	

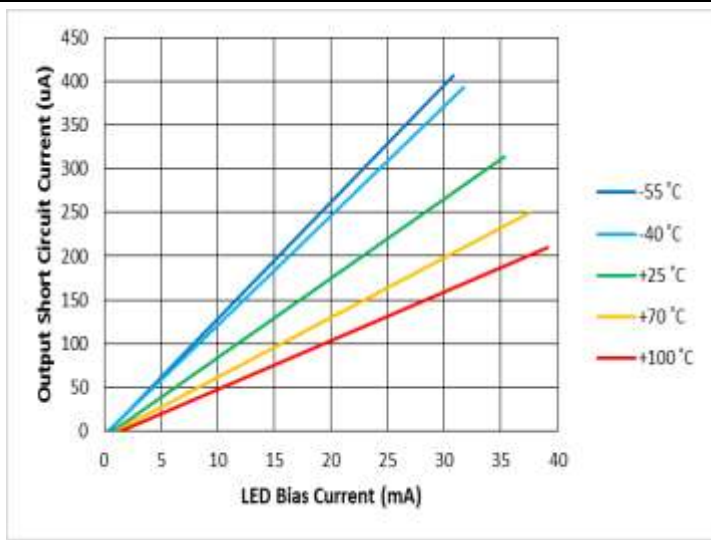


Figure 1 Output Short-Circuit Current v. LED Bias Current

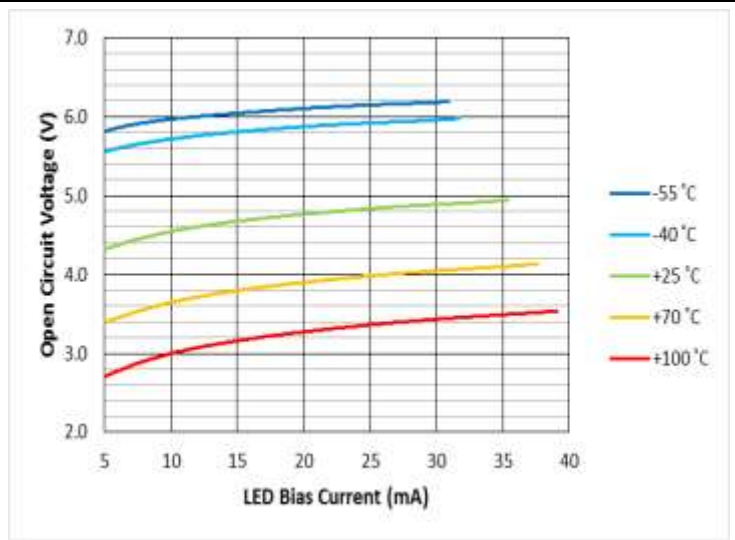


Figure 2 Output Open-Circuit Voltage v. LED Bias Current

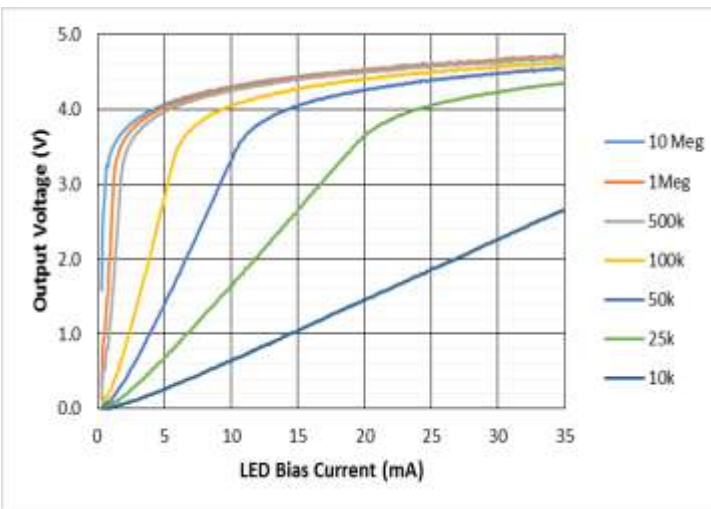


Figure 3 Output Voltage under load v. LED Bias Current

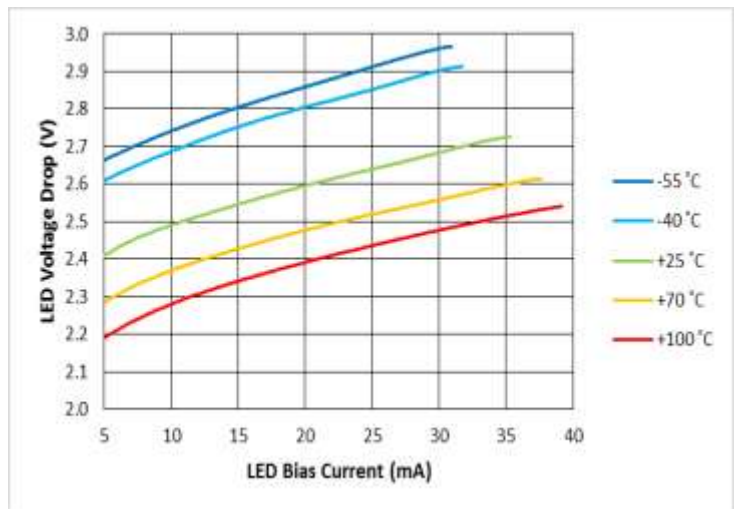


Figure 4 LED Voltage Drop v. LED Bias Current

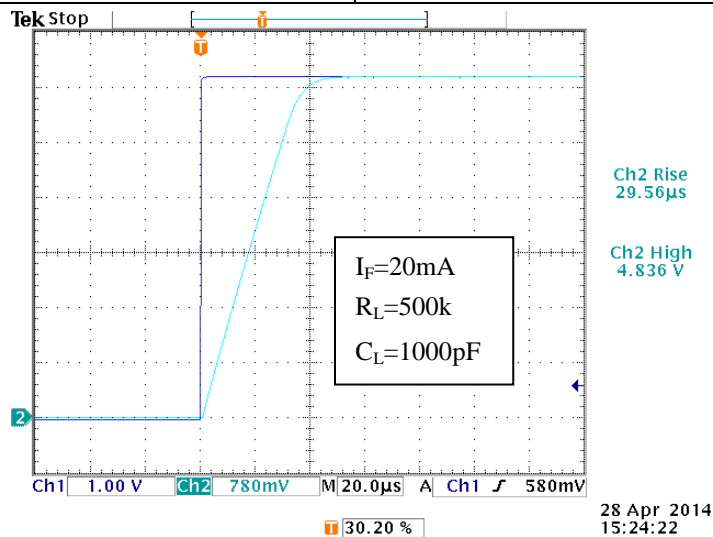


Figure 5 Turn-On Response (CH2 Output v. CH1 Input)