



APPLICATIONS

- ☐ Medical equipment
- ☐ Automatic Control

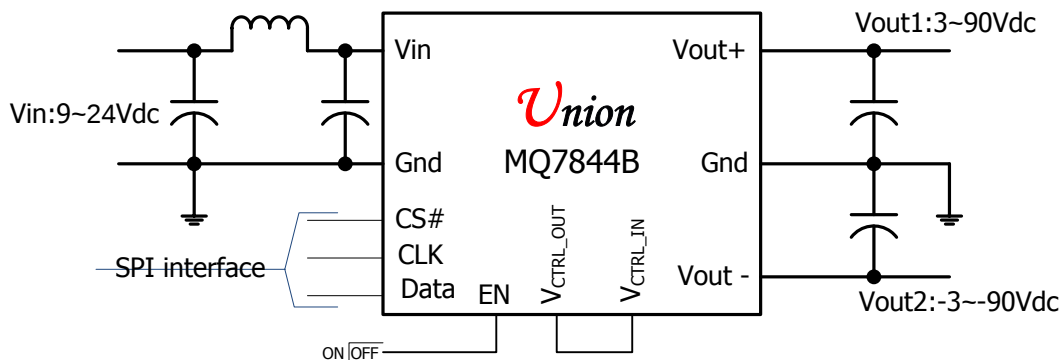
Description

The **MQ7844B** Power Modules are non-isolated dual-output dc-dc converter that operate over a wide input voltage range of 9~24Vdc and provide regulated dc output in size. Such a module is suitable to application with 3-cell Li+ battery with 18V charger power supply equipment. The modules have a maximum output power 12W with typical efficiency to 80% at full load.

FEATURES

- Wide operating voltage: 9V ~ 20V
- Startup input: 9.3V
- Dual output: $\pm 3V \sim \pm 90V$
- Output Current: up to 150mA
- Output power up to 12W
- SPI interface
- Digitalized output adjustment – 256-level
- High Efficiency
 - ◆ TBD% (input 12V, output: 80V/100mA)
- Over-current / Short-circuit protection –AutoRetry
- Under-voltage Protection -- input
- Over-Voltage Protection -- input
- Monotonic start-up
- Minimal space on PCB with low profile:
 - ◆ 57mm x 36.2mm x 14mm
- Wide Operating Temperature: -40°C~+85°C
- RoHS Compliant available

***** **Typical Application Circuit** *****

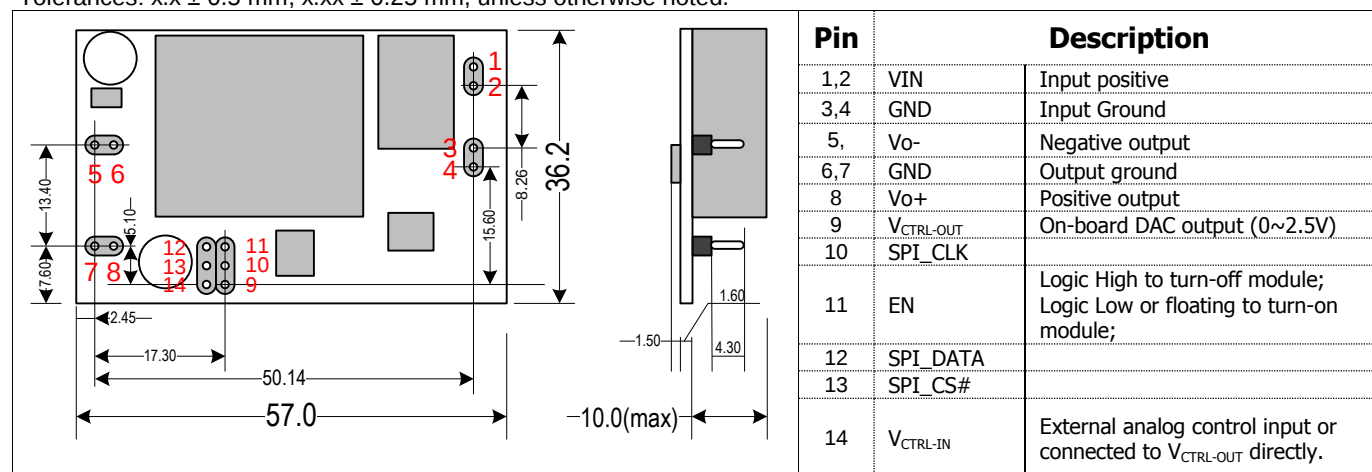


Performance Specifications (at TA=+25°C)

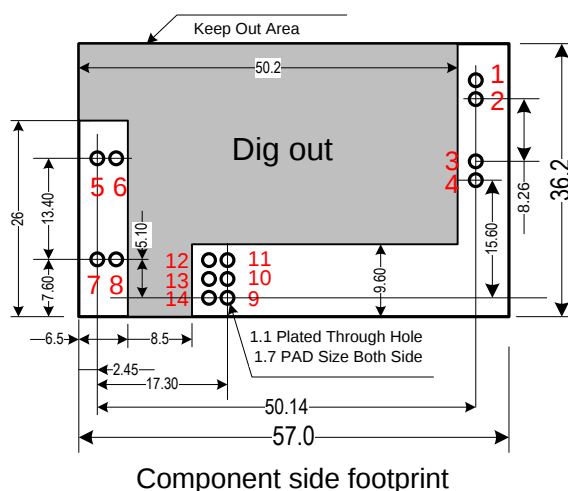
Model	Input V_{IN} Range (V)	Output				Efficiency (%)
		P_{OUT} (W)	V_O (V)	Regulation		
				Line (%)	Load (%)	
MQ7844B	9~24	12	$\pm 3V \sim \pm 90V$	1	5	TBD

Mechanical Outline Diagram

Unit: millimeters

Tolerances: x.x $\pm$ 0.5 mm, x.xx $\pm$ 0.25 mm, unless otherwise noted.**Recommended Hole Pattern**

Unit: millimeters (inches)

Tolerances: x.x $\pm$ 0.5 mm (0.02 in.), x.xx $\pm$ 0.25 mm (0.010 in.), unless otherwise noted.**Ordering Information****MQ7844B**

Digital interface

The **MQ7844B** equipped with one 8-bit DAC to set output voltage, this DAC receives command/data from DSP/MCU by fast 16MHz 3-Wire SPI-/QSPI-/MICROWIRE-Compatible serial interface.

The data format, timing diagram and register loading diagram for this serial interface are as below:

Table 1. Serial Write Data Format

CONTROL				DATA BITS											
MSB															LSB
C3	C2	C1	C0	D7	D6	D5	D4	D3	D2	D1	D0	S3	S2	S1	S0

Sub-bits S3—S0 must be set to zero for proper operation.

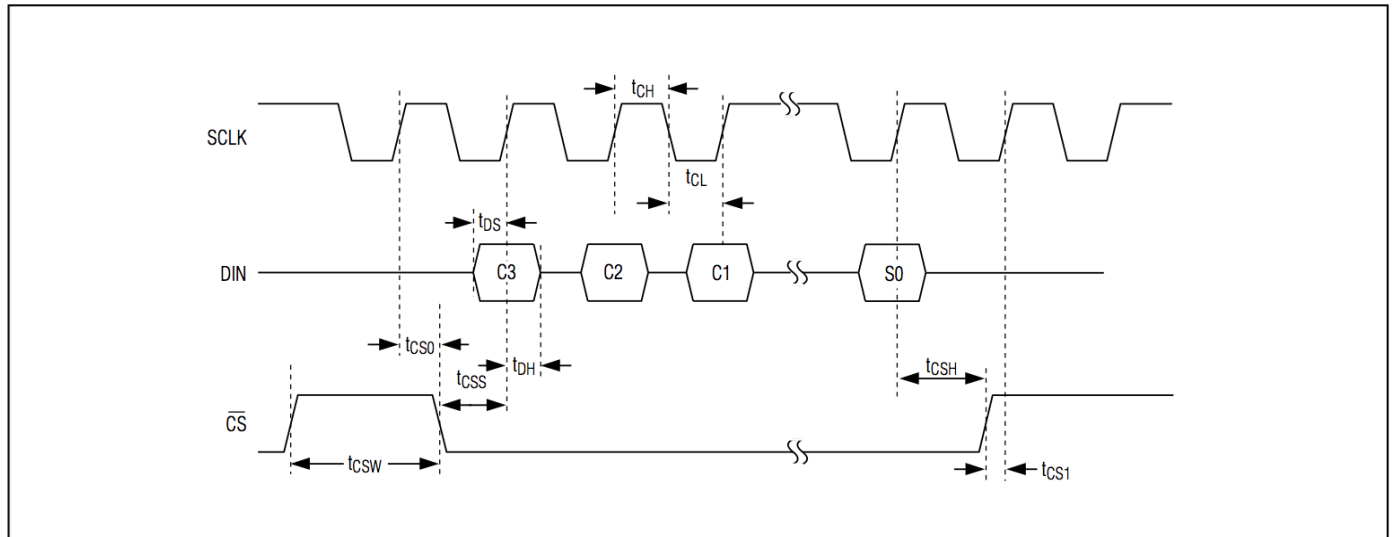


Figure 1. Timing Diagram

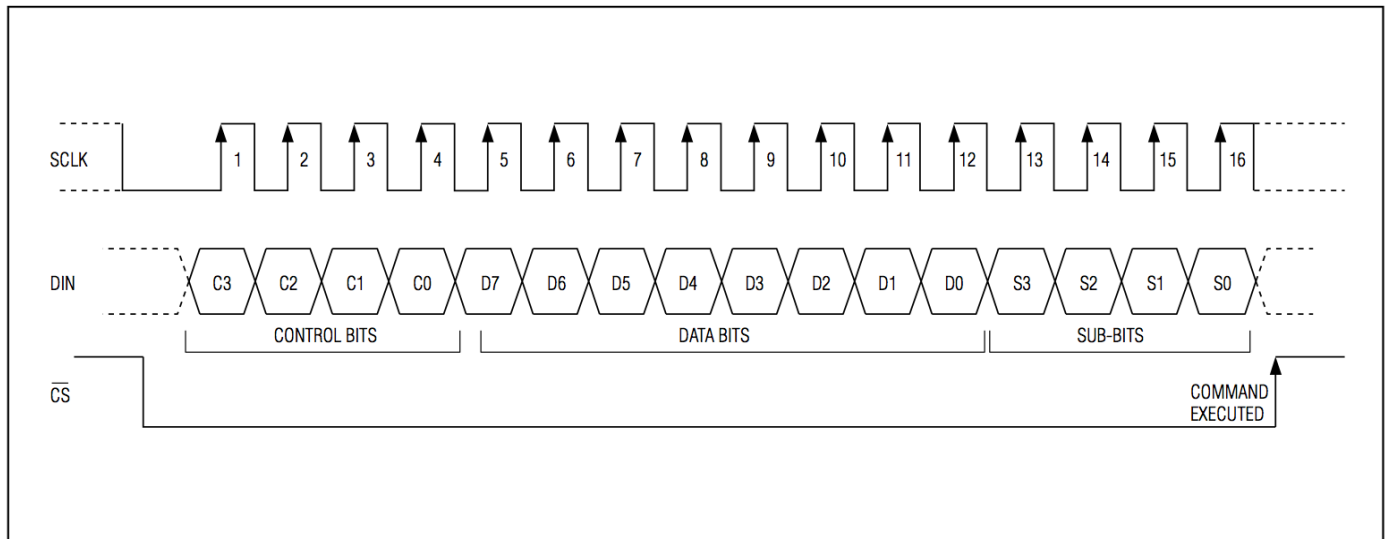


Figure 2. Register Loading Diagram

MQ7844B

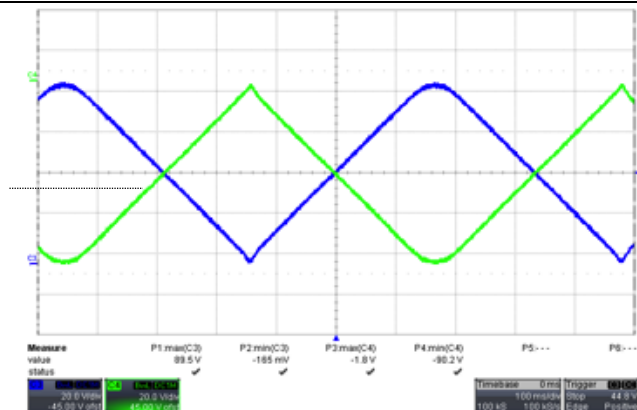
For proper operation, using command shown in Table2 to update the DAC's output, all other commands are reserved and do not to try them.

Table2,

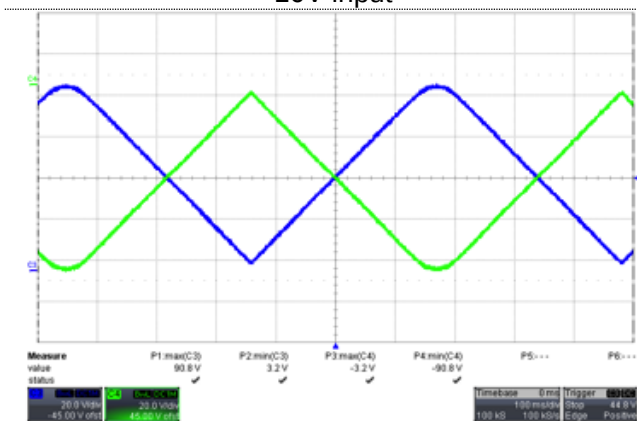
Control Bits				Input Data	Sub-bits	Description
C3	C2	C1	C0	D7-D0	S3-S0	
1	0	0	1	XXXXXXXX	0000	Update DAC with input data.

Note:

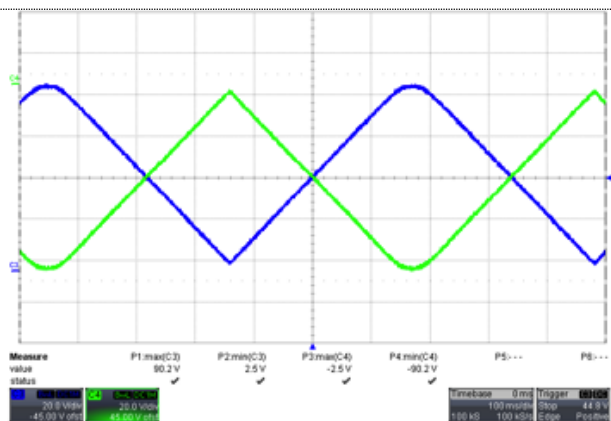
Because DAC can be update from one value to any another value randomly, so it is possible to switch the power module's output from highest to lowest. But such operation will trip power module's over-current protection because of abruptly changes. When setting power module's output from one value to another value, it is recommended to update DAC's value continuously one-by-one rather than suddenly from one to another one.



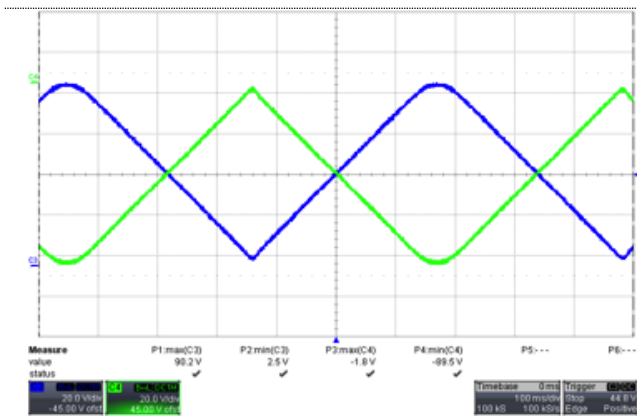
150mA- positive output, 25mA-negative output,
10V input



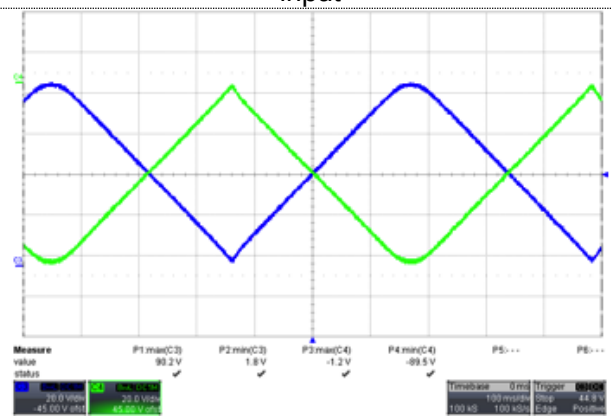
25mA/25mA for each output, 12V input



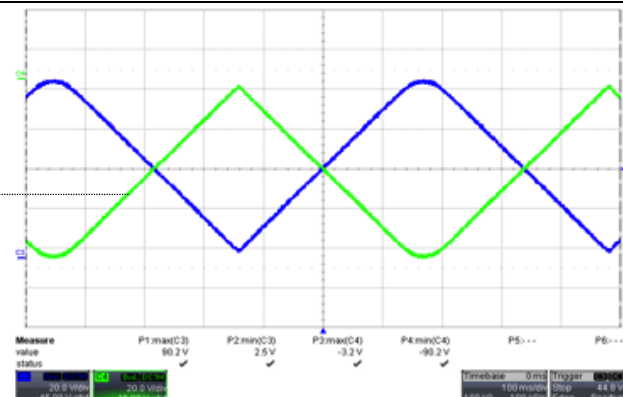
25mA- positive output, 50mA-negative output, 12V
input



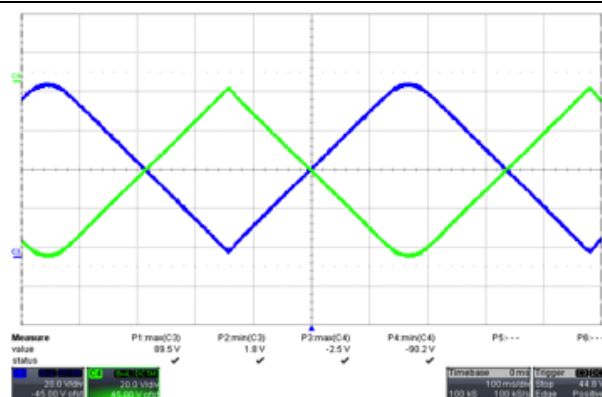
25mA- positive output, 100mA-negative output,
12V input



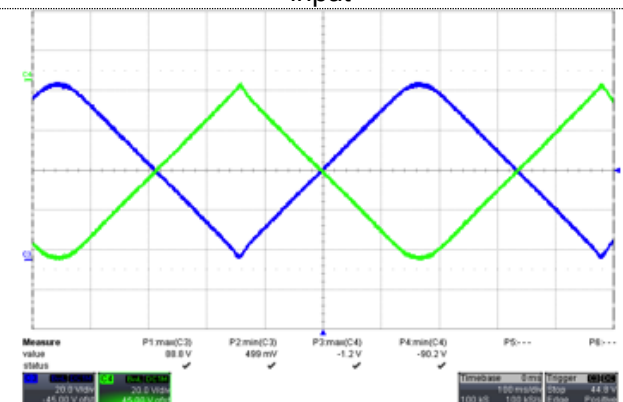
25mA- positive output, 150mA-negative output,
12V input



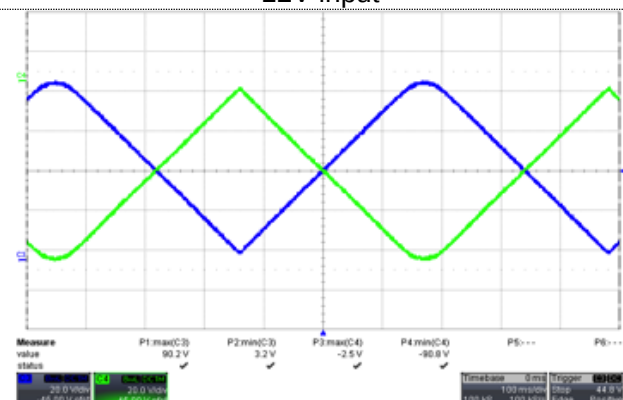
50mA- positive output, 25mA-negative output, 12V input



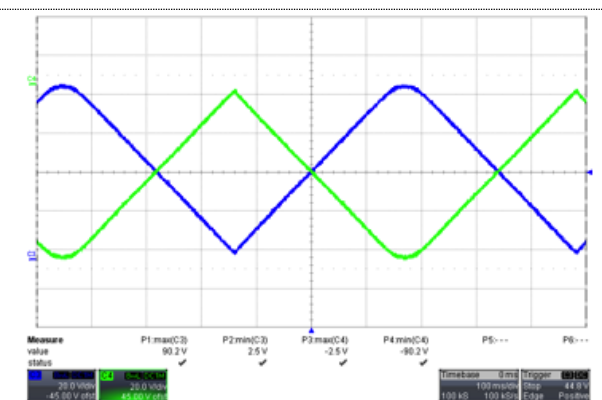
100mA- positive output, 25mA-negative output, 12V input



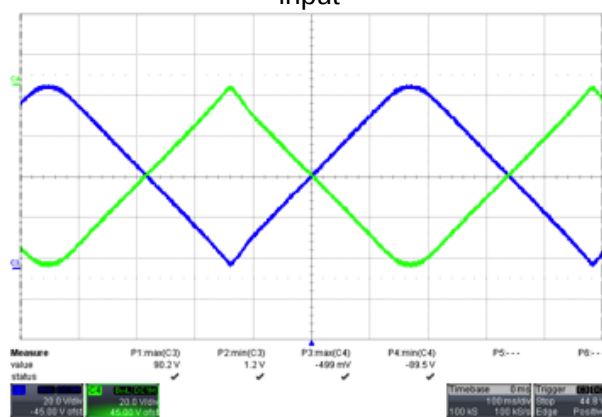
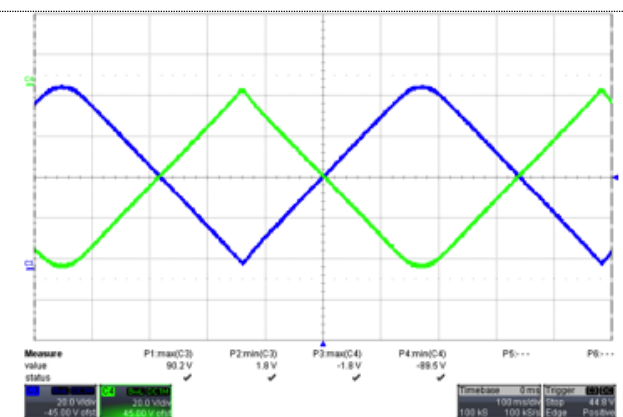
150mA- positive output, 25mA-negative output, 12V input



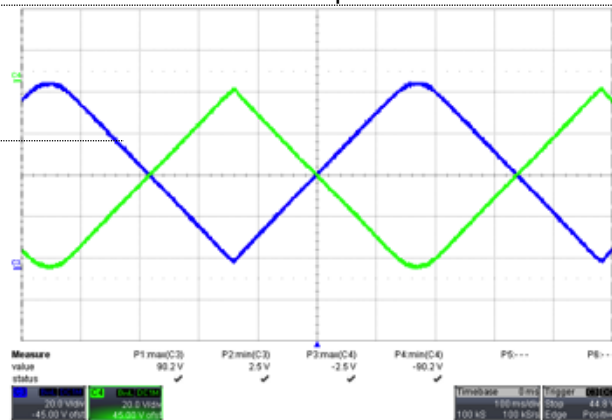
25mA/25mA for each output, 19V input



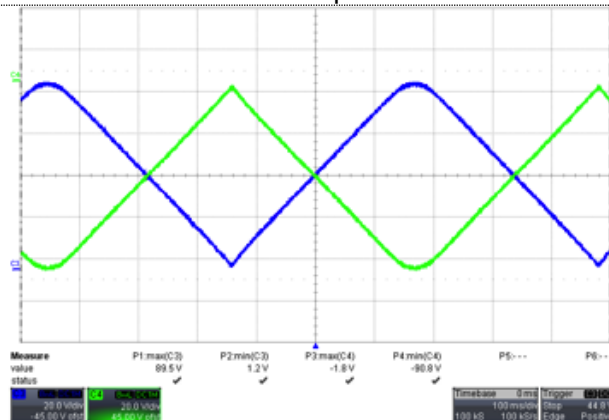
25mA- positive output, 50mA-negative output, 19V input



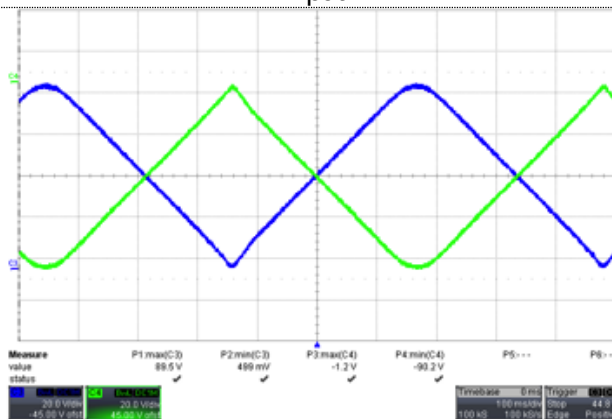
25mA- positive output, 100mA-negative output,
19V input



25mA- positive output, 150mA-negative output,
19V input

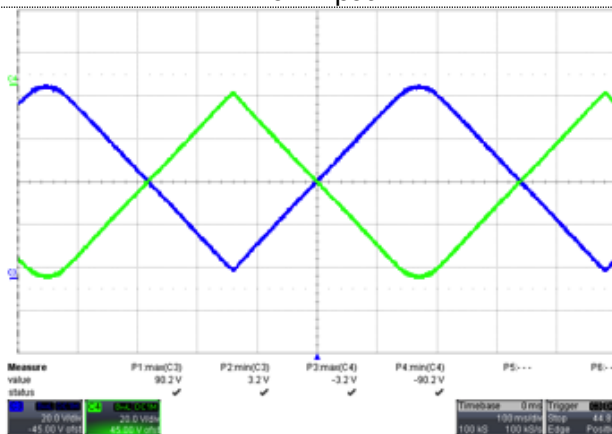


50mA- positive output, 25mA-negative output, 19V
input

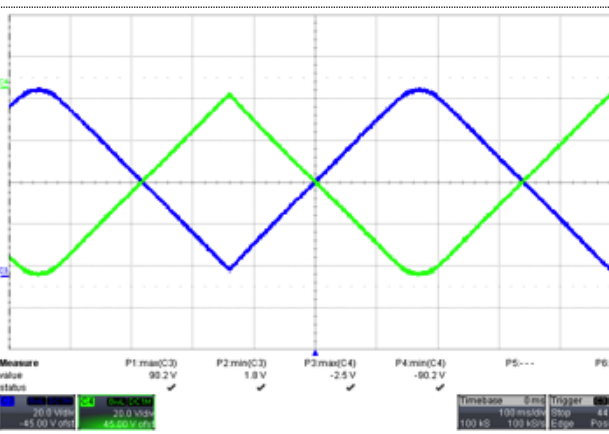


100mA- positive output, 25mA-negative output,
19V input

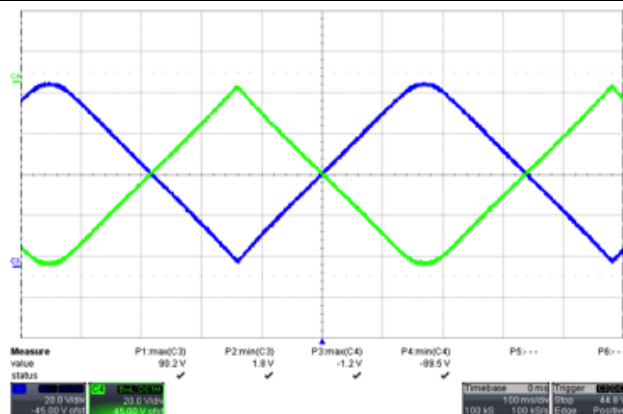
150mA- positive output, 25mA-negative output,
19V input



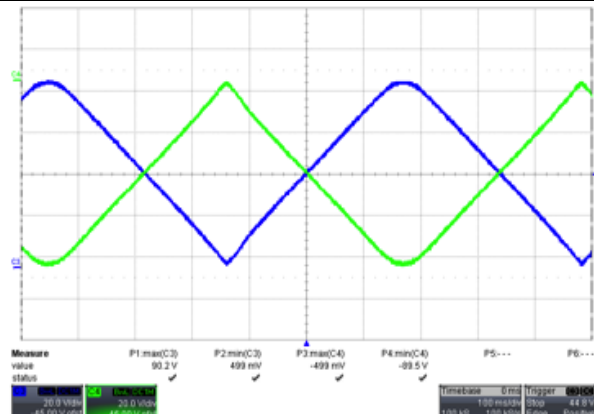
25mA/25mA for each output, 24V input



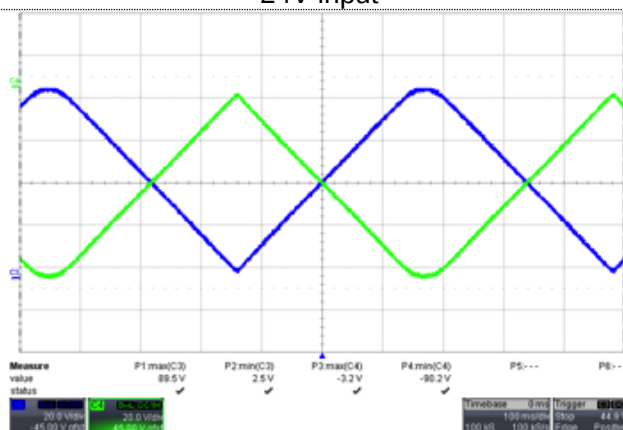
25mA- positive output, 50mA-negative output, 12V input



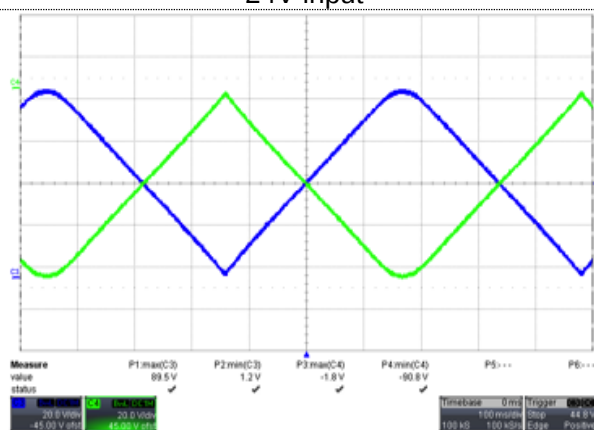
25mA- positive output, 100mA-negative output,
24V input



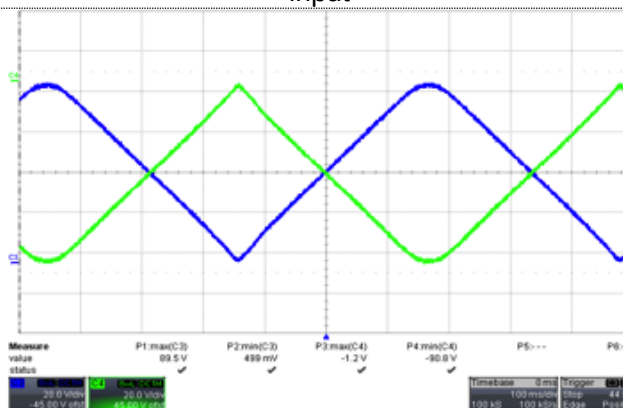
25mA- positive output, 150mA-negative output,
24V input



50mA- positive output, 25mA-negative output, 24V
input



100mA- positive output, 25mA-negative output,
24V input



150mA- positive output, 25mA-negative output,
24V input

